

**STATE ROUTE 1 HOV LANE  
WIDENING PROJECT  
(FROM MORRISSEY BOULEVARD TO SAN ANDREAS ROAD)**

**SUPPLEMENTAL REPORT**

Prepared for:

**Santa Cruz County Regional Transportation Commission**



**MAY 2010**



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# State Route 1 HOV Lane Widening Project Traffic Operations Report

## SUPPLEMENTAL REPORT

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### 1.0 INTRODUCTION

This supplemental report serves as an addendum to the *State Route 1 HOV Lane Widening Project Traffic Operations Preliminary Draft Report* (July 2007) and provides a revision to the proposed roadway improvements and intersection operations within the study area. The revised roadway improvements discussed in this addendum are based on the discussed improvements by Caltrans, in partnership with Wilbur Smith Associates in September 2008. The revised traffic operations of key intersections in the study area presented in this addendum reflect the proposed roadway improvements to the network. Level of service (LOS) tables and queuing analyses are provided to compare intersection and off-ramp operations recorded in the prior report (July 2007) and intersection and off-ramp operations based on the updated roadway improvements (finalized in May 2010). Updated roadway improvements, network assumptions, intersection, and off-ramp operations under Year 2015 HOV Build and Year 2035 HOV Build conditions are presented in the following discussion.

### 2.0 ROADWAY IMPROVEMENT MEASURES

The following roadway improvements are outlined below; these improvements are categorized and discussed for each study interchange. Furthermore, each roadway improvement measure is applicable to both Year HOV Build 2015 and Year 2035 HOV Build conditions.

#### 2.1 Improvements along Morrissey Boulevard (Figure 5-6A)

- Realign northbound on- and off-ramps to intersect Morrissey Boulevard in a tight diamond configuration
- The westbound approach on Morrissey Boulevard, at the intersection with Pacheco Avenue includes a storage length of 164 feet for the shared through-right lane.
- The eastbound approach along Rooney Street includes a storage length of 98 feet for the left-turn lane.
- Allow only right turning movements to and from Fairmount Avenue at Morrissey Boulevard.
- The eastbound approach at Fairmount Avenue includes one right turn lane.
- The westbound approach at Fairmount Avenue includes two right turn lanes.
- The southbound approach at Fairmount Avenue includes two through lanes, and a right turn lane with a storage length of 100 feet.
- The northbound approach at Fairmount Avenue includes one through lane and a shared through-right turn lane.
- The southbound off-ramp at Morrissey Boulevard includes a 200' left turn lane, a shared through-right turn lane, and a 200' exclusive right turn lane.

## 2.2 Improvements along Soquel Avenue (Figure 5-6B)

- Realign intersection of Soquel Drive/Paul Sweet Road and northbound on- and off-ramps 98 feet to the north.
- The eastbound approach on Paul Sweet Road, at Soquel Avenue includes one left-turn lane with storage length of 65 feet and a shared through-right turn lane.
- Northbound off-ramp includes a storage length of 194 feet for the right-turn lane, as opposed to 300 feet.
- Northbound loop on-ramp link includes a length of 115 feet, as opposed to 250 feet.
- Southbound approach along Soquel Drive includes a storage length of 100 feet for the two right-turn lanes, as opposed to 400 feet.
- The southbound on-ramp is a T-intersection as opposed to a clover-leaf design.
- The westbound approach on Soquel Avenue, at the southbound on-ramp includes a storage length of 131 feet, as opposed to 300 feet in length.
- The northbound approach on Soquel Avenue, at Soquel Drive includes a through lane and a shared through-right lane with a slip right.
- The northbound on-ramp includes two receiving lanes and widens to three lanes, including two mixed-flow traffic lanes and one HOV lane.

## 2.3 Improvements along 41<sup>st</sup> Avenue and Porter Street (Figure 5-6C)

- An additional HOV lane is included in the shared southbound ramps so that the junction of the 41<sup>st</sup> Avenue southbound on-ramp and Porter Street southbound off-ramp includes two lanes accessing Highway 1; one lane is a mixed-flow traffic lane and the other is a HOV lane.
- Loop on-ramp added from northbound 41<sup>st</sup> Avenue approach accessing northbound Highway 1.
- The westbound approach along the northbound off-ramp at 41<sup>st</sup> Avenue includes one left turn lane, a shared through-left turn lane, a through lane, and an exclusive right turn lane.
- The northbound approach along 41<sup>st</sup> Avenue at the northbound ramps includes three through lanes and an exclusive right turn lane.
- The southbound approach along 41<sup>st</sup> Avenue at the northbound ramps includes a through lane and a shared through-right turn lane.
- The southbound off-ramp at Porter Street/Bay Avenue includes one left turn lane and one right turn lane, both with a storage length of 210 feet, and one shared left- right lane.
- The southbound approach along Porter Street/Bay Avenue at the northbound ramps includes two through lanes and one right turn lane with a storage length of 60 feet.
- The southbound approach along 41<sup>st</sup> Avenue at Gross Road includes one left turn lane, three through lanes, and a right turn lane with a storage length of 100 feet.
- The eastbound approach along Gross Road at 41<sup>st</sup> Avenue includes one left turn lane, one shared through-left lane, and a right turn lane with a storage of 120 feet.

## **2.4 Improvements along Park Avenue (Figure 5-6D)**

- The westbound approach along McGregor Drive, at Park Avenue includes a single shared left-through-right turn lane per design plans.

## **2.5 Improvements along State Park Drive (Figure 5-6E)**

- Reconfigure the northbound on-ramp along State Park Drive as a T-intersection.
- Intersection of State Park Drive/McGregor Drive/Sea Ridge Road changed to a two-way stop-controlled intersection and reconfigured to reflect existing conditions.

## **2.6 Improvements along Rio Del Mar Boulevard (Figure 5-6F)**

- The northbound off-ramp includes a storage length of 344 feet, as opposed to the proposed 400 feet in length.
- The eastbound approach along Soquel Drive, at Rio Del Mar Boulevard includes a 164 foot storage length for the left-turn lane, as opposed to 400 feet in length.
- The northbound approach along Rio Del Mar Boulevard, at Soquel Drive includes one through lane, one right-turn lane, and one exclusive left-turn lane.
- The west leg along Soquel Drive at Rio Del Mar Boulevard has one westbound receiving lane instead of two.
- The westbound approach along Monroe Avenue at Rio Del Mar Boulevard includes one shared left-through-right turn lane.
- The southbound approach along Rio Del Mar Boulevard at the southbound ramps includes two through lanes and one left turn lane with a storage length of 300 feet.
- The southbound on-ramp has two lanes instead of three.
- The northbound approach along Rio Del Mar Boulevard at the northbound ramps includes two through lanes and one left turn lane.

## **2.7 Improvements along Freedom Boulevard (Figure 5-6G)**

- The southbound approach along Freedom Boulevard, between Bonita Drive and southbound on- and off-ramps include a storage length for right-turn lanes of 164 feet in length, as opposed to 200 feet in length.
- The northbound on-ramp at Freedom Boulevard has three lanes, including two mixed-flow traffic lanes and one HOV lane.

## **2.8 Improvements along San Andreas Road**

- No roadway adjustments were identified.

Incorporating the roadway adjustments (previously mentioned) results in changes in LOS values per study intersection. The following sections examine the difference in traffic operations per study intersection and off-ramp queuing, and compares the LOS and queuing results recorded in

the prior report (July 2007) and the LOS and queuing results based on the updated roadway improvements (May 2010).

### **3.0 INTERSECTION OPERATIONS ANALYSIS**

#### **3.1 Year 2015 HOV Build Conditions**

Based on the previous *2007 report*, during the AM peak hour, 24 of the 26 study intersections would operate under an acceptable level of service (LOS D or better) and 22 of the 26 study intersections would operate under an acceptable LOS during the PM peak hour.

The following two study intersections would operate under an unacceptable level of service (LOS E or F) during the AM peak hour:

- Park Avenue/ Kennedy Drive/ McGregor Drive
- Rio Del Mar Boulevard/ Soquel Drive

The following four study intersections would operate under an unacceptable level of service (LOS E or F) during the PM peak hour:

- Porter Street/State Route 1 Northbound Ramps
- Park Avenue/ Kennedy Drive/ McGregor Drive
- Rio Del Mar Boulevard/ Soquel Drive
- Soquel Drive/Soquel Avenue/State Route 1 Southbound Ramps

Based on the 2010 analysis and updated roadway improvements, during the AM peak hour, 22 of the 26 study intersections would operate under an acceptable level of service (LOS D or better) and 23 of the 26 study intersections would operate under an acceptable LOS during the PM peak hour.

The following four study intersections would operate under an unacceptable level of service (LOS E or F) during the AM peak hour:

- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/McGregor Drive
- Rio Del Mar Boulevard/Soquel Drive
- Soquel Drive/ Soquel Avenue/State Route 1 Southbound Ramps

The following three study intersections would operate under an unacceptable level of service (LOS E or F) during the PM peak hour:

- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/McGregor Drive
- Soquel Drive/ Soquel Avenue/State Route 1 Southbound Ramps

### 3.2 Year 2035 HOV Build Conditions

Based on the previous 2007 report, during the AM peak hour, 17 of the 26 study intersections would operate under an acceptable level of service (LOS D or better) and 12 of the 26 study intersections would operate under an acceptable LOS during the PM peak hour.

The following nine study intersections would operate under an unacceptable level of service (LOS E or F) during the AM peak hour:

- Soquel Drive/Paul Sweet Road/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Southbound Ramps
- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/McGregor Drive
- Rio Del Mar Boulevard/State Route 1 Northbound Ramps
- Rio Del Mar Boulevard/Soquel Drive
- Soquel Drive/ Soquel Avenue/State Route 1 Southbound Off-Ramp

The following 14 study intersections would operate under an unacceptable level of service (LOS E or F) during the PM peak hour:

- Morrissey Boulevard/Pacheco Avenue/State Route 1 Northbound Ramps
- Morrissey Boulevard/Fairmount Avenue
- Soquel Drive/Paul Sweet Road/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Southbound Ramps
- Porter Street/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Southbound Ramps
- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/State Route 1 Southbound Ramps
- State Park Drive/McGregor Drive
- Rio Del Mar Boulevard/State Route 1 Northbound Ramps
- Rio Del Mar Boulevard/Soquel Drive
- Soquel Drive/Soquel Avenue/State Route 1 Southbound Ramps

Based on the 2010 analysis and updated roadway improvements, during the AM peak hour, 15 of the 26 study intersections would operate under an acceptable level of service (LOS D or better) and 14 of the 26 study intersections would operate under an acceptable LOS during the PM peak hour.

The following 11 study intersections would operate under an unacceptable level of service (LOS E or F) during the AM peak hour:



- Morrissey Boulevard/Rooney St.
- Morrissey Boulevard/Pacheco Avenue/State Route 1 Northbound Ramps
- Soquel Drive/Paul Sweet Road/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Southbound Ramps
- Park Avenue/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Southbound Ramps
- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/McGregor Drive
- Rio Del Mar Boulevard/State Route 1 Northbound Ramps
- Rio Del Mar Boulevard/Soquel Drive
- Soquel Drive/Soquel Avenue/State Route 1 Southbound Ramps

The following 12 study intersections would operate under an unacceptable level of service (LOS E or F) during the PM peak hour:

- Soquel Avenue/State Route 1 Southbound On-Ramp
- Soquel Drive/Paul Sweet Road/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Northbound Ramps
- 41<sup>st</sup> Avenue/State Route 1 Southbound Ramps
- Park Avenue/State Route 1 Northbound Ramps
- Park Avenue/State Route 1 Southbound Ramps
- Park Avenue/Kennedy Drive/McGregor Drive
- State Park Drive/State Route 1 Southbound Ramps
- State Park Drive/McGregor Drive
- Rio Del Mar Boulevard/State Route 1 Northbound Ramps
- Rio Del Mar Boulevard/Soquel Drive
- Soquel Drive/ Soquel Avenue/State Route 1 Southbound Ramps

**Table 1**  
**Intersection LOS Summary – Year 2015 Conditions**

#	Intersection	Jurisdiction	Control	Year 2015 No Build				Control	Year 2015 HOV Build							
				AM Peak		PM Peak			Original (2007) Analysis <sup>(1)</sup>				Updated (2010) Analysis <sup>(2)</sup>			
				Delay	LOS	Delay	LOS		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Morrissey Blvd./Rooney St.	City of Santa Cruz	AWSC	83.8	F	24.5	C	Signal	12.4	B	5.8	A	39.9	D	40.2	D
2	Morrissey Blvd./Pacheco Ave./SR-1 NB Ramps	Caltrans	TWSC	74.6 (NB)	F	18.7 (NB)	C	Signal	25.5	C	27.6	C	29.6	C	12.1	B
3	Morrissey Blvd./ SR-1 SB Ramps	Caltrans	AWSC	341.4	F	244.5	F	Signal	10.1	B	9.0	A	17.7	B	38.6	D
4	Morrissey Blvd./Fairmount Ave.	City of Santa Cruz	Signal	80.6	F	58.8	E	Signal	25.6	C	30.5	C	24.8	C	32.8	C
5	Soquel Ave./ SR-1 SB On-Ramp	Caltrans	Signal	42.4	D	99.4	F	Signal	8.8	A	9.2	A	12.3	B	9.1	A
6	Soquel Dr./Paul Sweet Rd./SR-1 NB Ramps	Caltrans	Signal	74.1	E	35.9	D	Signal	44.8	D	29.6	C	51.5	D	41.3	D
7	41 <sup>st</sup> Ave./ SR-1 NB Ramps	Caltrans	Signal	17.5	B	17.5	B	Signal	30.9	C	45.0	D	19.0	B	18.4	B
8	41 <sup>st</sup> Ave./ SR-1 SB Ramps	Caltrans	Signal	16.8	B	37.6	D	Signal	21.8	C	29.3	C	24.9	C	38.2	D
9	Porter St./ S. Main St.	County of Santa Cruz	Signal	37.9	D	36.1	D	Signal	26.0	C	25.8	C	30.1	C	38.7	D
10	Porter St./ SR-1 NB Ramps	Caltrans	Signal	47	D	42.2	D	Signal	19.9	B	55.5	E	36.5	D	36.4	D
11	Bay Ave./ SR-1 SB Ramps	Caltrans	Signal	95	F	53.7	D	Signal	27.1	C	25.1	C	18.1	B	19.1	B
12	Park Ave./ SR-1 NB Ramps	Caltrans	Signal	108.8	F	24.3	C	Signal	17.8	B	24.3	C	22.4	C	22.8	C
13	Park Ave./ SR-1 SB Ramps	Caltrans	Signal	85.1	F	40.5	D	Signal	35.8	D	37.3	D	38.5	D	40.8	D
14	Park Ave./Kennedy Dr./McGregor Dr.	City of Capitola	AWSC	739.7	F	509.3	F	Signal	76.1	E	85.1	F	259.3	F	164.1	F
15	State Park Dr./ SR-1 NB Ramps	Caltrans	Signal	49.7	D	19.7	B	Signal	20.5	C	15.9	B	21.5	C	14.7	B
16	State Park Dr./ SR-1 SB Ramps	Caltrans	Signal	26	C	39	D	Signal	15.0	B	16.8	B	15.3	B	18.1	B
17	State Park Dr./	County of	TWSC	>1000	F	>1000	F	Signal <sup>(1)</sup>	22.1	C	17.7	B	>1000	F	>1000	F

**Table 1  
Intersection LOS Summary – Year 2015 Conditions**

#	Intersection	Jurisdiction	Control	Year 2015 No Build				Control	Year 2015 HOV Build							
									Original (2007) Analysis <sup>(1)</sup>				Updated (2010) Analysis <sup>(2)</sup>			
				AM Peak		PM Peak			AM Peak		PM Peak		AM Peak		PM Peak	
				Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
	McGregor Dr.	Santa Cruz		(EB)		(EB)		TWSC <sup>(2)</sup>					(EB)		(EB)	
18	Rio Del Mar Blvd./SR-1 NB Ramps	Caltrans	Signal	<b>141.1</b>	<b>F</b>	<b>110.3</b>	<b>F</b>	Signal	23.1	C	29.1	C	35.2	D	32.4	C
19	Rio Del Mar Blvd./SR-1 SB Ramps	Caltrans	Signal	53.1	D	29.9	C	Signal	18.1	B	21.0	C	27.0	C	28.4	C
20	Rio Del Mar Blvd./Soquel Dr.	County of Santa Cruz	Signal	<b>149.2</b>	<b>F</b>	<b>130.2</b>	<b>F</b>	Signal	<b>59.8</b>	<b>E</b>	<b>56.9</b>	<b>E</b>	<b>66.1</b>	<b>E</b>	38.8	D
21	Freedom Blvd./ SR-1 NB Ramps	Caltrans	TWSC	>1000 (NW B)	E	74.4 (NW B)	F	Signal	11.9	B	7.5	A	16.8	B	11.3	B
22	Freedom Blvd./ SR-1 SB Ramps	Caltrans	AWSC	<b>66.5</b>	<b>F</b>	<b>169.2</b>	<b>F</b>	Signal	34.2	C	33.1	C	35.2	D	37.3	D
23	Freedom Blvd./Bonita Dr.	County of Santa Cruz	TWSC	<b>143.8 (EB)</b>	<b>F</b>	>1000 (EB)	<b>F</b>	Signal	16.4	B	3.9	A	9.7	A	4.4	A
24	San Andreas Rd./Larkin Rd./SR-1 NB Ramps	Caltrans	TWSC	13.4 (EB)	B	14.9 (EB)	B	Signal	25.1	C	17.4	B	25.1	C	17.4	B
25	San Andreas Rd./ SR-1 SB Ramps	Caltrans	TWSC	<b>111.3 (SEB)</b>	<b>F</b>	<b>95.1 (SEB)</b>	<b>F</b>	Signal	7.7	A	11.9	B	7.7	A	11.9	B
26	Soquel Dr./Soquel Ave./SR-1 SB Ramps	Caltrans						Signal	52.1	D	<b>72.7</b>	<b>E</b>	<b>61.8</b>	<b>E</b>	<b>164.0</b>	<b>F</b>

**NOTES:**

LOS – Level of Service

Delay is presented in seconds per vehicle.

**Bold** represents intersections operating under unacceptable conditions.

(1) 2007 Analysis includes LOS values based on previous roadway improvements and assumptions presented in State Route 1 HOV Lane Widening Project – Traffic Operations Report (July 2007).

(2) 2010 Analysis includes LOS values based on updated roadway improvements and assumptions (May 2010).

Source: Wilbur Smith Associates, May 2010

**Table 2**  
**Intersection LOS Summary – Year 2035 Conditions**

#	Intersection	Jurisdiction	Control	Year 2035 No Build				Control	Year 2035 HOV Build							
									Original (2007) Analysis <sup>(1)</sup>				Updated (2010) Analysis <sup>(2)</sup>			
				AM Peak		PM Peak			AM Peak		PM Peak		AM Peak		PM Peak	
				Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Morrissey Blvd./Rooney St.	City of Santa Cruz	AWSC	276.4	F	171.2	F	Signal	22.7	C	10.8	B	83.4	F	37.2	D
2	Morrissey Blvd./Pacheco Ave./SR-1 NB Ramps	Caltrans	TWSC	839.7 (NB)	F	189.8 (NB)	F	Signal	38.8	D	76.5	E	61.5	E	44.1	D
3	Morrissey Blvd./ SR-1 SB Ramps	Caltrans	AWSC	732.3	F	455.2	F	Signal	9.6	A	7.6	A	19.2	B	12.5	B
4	Morrissey Blvd./Fairmount Ave.	City of Santa Cruz	Signal	316.9	F	237.1	F	Signal	53.4	D	78.6	E	27.9	C	27.7	C
5	Soquel Ave./ SR-1 SB On-Ramp	Caltrans	Signal	132	F	202	F	Signal	21.3	C	33.3	C	21.6	C	85.0	F
6	Soquel Dr./Paul Sweet Rd./SR-1 NB Ramps	Caltrans	Signal	208.9	F	148.1	F	Signal	219.3	F	176.0	F	176.9	F	245.2	F
7	41 <sup>st</sup> Ave./ SR-1 NB Ramps	Caltrans	Signal	58.1	E	82.9	F	Signal	59.2	E	64.7	E	35.5	D	61.4	E
8	41 <sup>st</sup> Ave./ SR-1 SB Ramps	Caltrans	Signal	56.7	E	111.2	F	Signal	41.1	D	69.1	E	80.2	F	91.0	F
9	Porter St./ S. Main St.	County of Santa Cruz	Signal	88.6	F	37.4	D	Signal	30.0	C	34.5	C	33.0	C	45.8	D
10	Porter St./ SR-1 NB Ramps	Caltrans	Signal	193.8	F	143.2	F	Signal	30.7	C	86.3	F	42.3	D	52.7	D
11	Bay Ave./ SR-1 SB Ramps	Caltrans	Signal	426.2	F	298.5	F	Signal	31.7	C	31.5	C	25.8	C	22.6	C
12	Park Ave./ SR-1 NB Ramps	Caltrans	Signal	312.8	F	93.9	F	Signal	94.3	F	93.5	F	102.8	F	102.4	F
13	Park Ave./ SR-1 SB Ramps	Caltrans	Signal	383.2	F	269.7	F	Signal	155.3	F	246.0	F	159.2	F	249.9	F
14	Park Ave./Kennedy Dr./McGregor Dr.	City of Capitola	AWSC	>1000	F	>1000	F	Signal	488.4	F	920.6	F	688.3	F	1029.5	F
15	State Park Dr./ SR-1 NB Ramps	Caltrans	Signal	387.8	F	147.3	F	Signal	28.1	C	22.9	C	33.5	C	26.6	C
16	State Park Dr./ SR-1 SB Ramps	Caltrans	Signal	288.9	F	260.3	F	Signal	46.5	D	57.9	E	19.5	B	27.3	C
17	State Park Dr./	County of	TWSC	>1000	F	>1000	F	Signal <sup>(1)</sup>	155.7	F	139.7	F	>1000	F	>1000	F

**Table 2**  
**Intersection LOS Summary – Year 2035 Conditions**

#	Intersection	Jurisdiction	Control	Year 2035 No Build				Control	Year 2035 HOV Build							
									Original (2007) Analysis <sup>(1)</sup>				Updated (2010) Analysis <sup>(2)</sup>			
				AM Peak		PM Peak			AM Peak		PM Peak		AM Peak		PM Peak	
				Delay	LOS	Delay	LOS		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
	McGregor Dr.	Santa Cruz		(EB)		(EB)		TWSC <sup>(2)</sup>					(EB)		(EB)	
18	Rio Del Mar Blvd./SR-1 NB Ramps	Caltrans	Signal	<b>740.3</b>	<b>F</b>	<b>313.6</b>	<b>F</b>	Signal	<b>84.8</b>	<b>F</b>	<b>133.9</b>	<b>F</b>	<b>82.3</b>	<b>F</b>	<b>136.9</b>	<b>F</b>
19	Rio Del Mar Blvd./SR-1 SB Ramps	Caltrans	Signal	>1000	<b>F</b>	157	<b>F</b>	Signal	29.1	C	40.5	D	45.2	D	<b>94.8</b>	<b>F</b>
20	Rio Del Mar Blvd./Soquel Dr.	County of Santa Cruz	Signal	<b>298.7</b>	<b>F</b>	<b>495.1</b>	<b>F</b>	Signal	<b>354.0</b>	<b>F</b>	<b>284.2</b>	<b>F</b>	<b>173.5</b>	<b>F</b>	<b>315.5</b>	<b>F</b>
21	Freedom Blvd./ SR-1 NB Ramps	Caltrans	TWSC	>1000 (NW B)	<b>E</b>	>1000 (NW B)	<b>F</b>	Signal	17.5	B	13.0	B	18.0	B	14.3	B
22	Freedom Blvd./ SR-1 SB Ramps	Caltrans	AWSC	<b>99.7</b>	<b>F</b>	<b>603.8</b>	<b>F</b>	Signal	35.0	D	41.0	D	42.3	D	39.5	D
23	Freedom Blvd./Bonita Dr.	County of Santa Cruz	TWSC	>1000 (EB)	<b>F</b>	>1000 (EB)	<b>F</b>	Signal	12.5	B	4.5	A	10.5	B	7.1	A
24	San Andreas Rd./Larkin Rd./SR-1 NB Ramps	Caltrans	TWSC	<b>73.6 (EB)</b>	<b>F</b>	<b>691.0 (EB)</b>	<b>F</b>	Signal	30.0	C	28.5	C	30	C	28.5	C
25	San Andreas Rd./ SR-1 SB Ramps	Caltrans	TWSC	>1000 (SEB)	<b>F</b>	>1000 (SEB)	<b>F</b>	Signal	9.8	A	28.2	C	9.8	A	28.2	C
26	Soquel Dr./Soquel Ave./SR-1 SB Ramps	Caltrans						Signal	<b>212.8</b>	<b>F</b>	<b>202.0</b>	<b>F</b>	<b>182.7</b>	<b>F</b>	<b>328.7</b>	<b>F</b>

**NOTES:**

LOS – Level of Service

Delay is presented in seconds per vehicle.

**Bold** represents intersections operating under unacceptable conditions.

(1) 2007 Analysis includes LOS values based on previous roadway improvements and assumptions presented in State Route 1 HOV Lane Widening Project – Traffic Operations Report (July 2007).

(2) 2010 Analysis includes LOS values based on updated roadway improvements and assumptions (May 2010).

Source: Wilbur Smith Associates, May 2010

## **4.0 OFF-RAMP OPERATIONS – QUEUING ANALYSIS**

### **4.1 Year 2015 HOV Build Conditions**

Based on the previous *2007 report*, during the AM peak hour, 13 of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths, and during the PM peak hour, 11 of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths.

The three ramps that would have queue lengths exceeding their storage lengths (queued vehicles would extend onto the freeway mainline) during the AM peak hour are:

- Soquel Drive Northbound Off-Ramp
- 41<sup>st</sup> Avenue/ Porter Street/ Bay Avenue Southbound Off-Ramp
- Park Avenue Southbound Off-Ramp

The five ramps that would have queue lengths exceeding their storage lengths during the PM peak hour are:

- Soquel Drive Northbound Off-Ramp
- Soquel Drive Southbound Off-Ramp
- 41<sup>st</sup> Avenue/ Porter Street/ Bay Avenue Northbound Off-Ramp
- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp

Based on the 2010 analysis and updated roadway improvements, during the AM peak hour, 14 of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths, and during the PM peak hour, all of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths.

The two ramps that would have queue lengths exceeding their storage lengths (queued vehicles would extend onto the freeway mainline) during the AM peak hour are:

- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp

### **4.2 Year 2035 HOV Build Conditions**

Based on the previous *2007 report*, during the AM peak hour, 11 of the 16 study off-ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths, and during the PM peak hour, 11 of the 16 study off-ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths.

The five ramps that would have queue lengths exceeding their storage lengths (queued vehicles would extend onto the freeway mainline) during the AM peak hour are:

- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp
- State Park Drive Northbound Off-Ramp
- State Park Drive Southbound Off-Ramp
- Rio Del Mar Boulevard Northbound Off-Ramp

The five ramps that would have queue lengths exceeding their storage lengths during the PM peak hour are:

- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp
- State Park Drive Northbound Off-Ramp
- State Park Drive Southbound Off-Ramp
- Rio Del Mar Boulevard Northbound Off-Ramp

Based on the 2010 analysis and updated roadway improvements, during the AM peak hour, 11 of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths, and during the PM peak hour, 11 of the 16 study ramps would have 95<sup>th</sup> percentile queue lengths within their storage lengths.

The five ramps that would have queue lengths exceeding their storage lengths (queued vehicles would extend onto the freeway mainline) during the AM peak hour are:

- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp
- State Park Drive Northbound Off-Ramp
- State Park Drive Southbound Off-Ramp
- Rio Del Mar Boulevard Northbound Off-Ramp

The five ramps that would have queue lengths exceeding their storage lengths during the PM peak hour are:

- Park Avenue Northbound Off-Ramp
- Park Avenue Southbound Off-Ramp
- State Park Drive Northbound Off-Ramp
- State Park Drive Southbound Off-Ramp
- Rio Del Mar Boulevard Northbound Off-Ramp





APPENDIX A

**CALCULATION SHEETS –  
INTERSECTION OPERATION ANALYSIS**

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**2015 HOV BUILD CONDITIONS**

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# HCM Signalized Intersection Capacity Analysis

## 1: Rooney St & Pacheco Ave

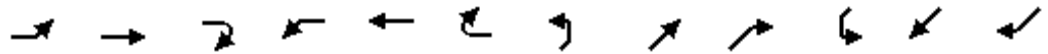
Year 2015 Buildout - AM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.91		1.00	0.99		1.00	0.90			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1687		1770	1845		1751	1675			1824	
Flt Permitted	0.95	1.00		0.95	1.00		0.49	1.00			0.85	
Satd. Flow (perm)	1770	1687		1770	1845		899	1675			1548	
Volume (vph)	67	163	275	155	19	1	217	125	255	6	114	19
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	177	299	168	21	1	236	136	277	7	124	21
RTOR Reduction (vph)	0	54	0	0	1	0	0	45	0	0	4	0
Lane Group Flow (vph)	73	422	0	168	21	0	236	368	0	0	148	0
Conf. Peds. (#/hr)							10	10				
Turn Type	Split		Split		pm+pt		Perm					
Protected Phases	4	4		3	3		2	5				1
Permitted Phases							5			1		
Actuated Green, G (s)	36.2	36.2		17.2	17.2		62.8	62.8				23.8
Effective Green, g (s)	36.8	36.8		17.8	17.8		63.4	63.4				23.8
Actuated g/C Ratio	0.28	0.28		0.14	0.14		0.49	0.49				0.18
Clearance Time (s)	4.6	4.6		4.6	4.6		4.6	4.6				4.0
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.5				3.0
Lane Grp Cap (vph)	501	478		242	253		672	817				283
v/s Ratio Prot	0.04	c0.25		c0.09	0.01		0.10	c0.22				
v/s Ratio Perm							0.08					c0.10
v/c Ratio	0.15	0.88		0.69	0.08		0.35	0.45				0.52
Uniform Delay, d1	34.8	44.5		53.5	49.0		27.4	21.9				48.0
Progression Factor	1.00	1.00		1.00	1.00		0.66	0.63				1.00
Incremental Delay, d2	0.2	17.5		8.6	0.2		0.3	0.4				1.7
Delay (s)	35.0	62.0		62.1	49.1		18.4	14.2				49.7
Level of Service	D	E		E	D		B	B				D
Approach Delay (s)		58.4			60.6			15.8				49.7
Approach LOS		E			E			B				D
<b>Intersection Summary</b>												
HCM Average Control Delay			39.9	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			77.1%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 3: Fairmount & Morrissey

Year 2015 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↗			↖↗		↕↖			↕↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	4.0
Lane Util. Factor			1.00			0.88		0.95			0.95	1.00
Frbp, ped/bikes			1.00			1.00		1.00			1.00	0.96
Flpb, ped/bikes			1.00			1.00		1.00			1.00	1.00
Frt			0.86			0.85		0.99			1.00	0.85
Flt Protected			1.00			1.00		1.00			1.00	1.00
Satd. Flow (prot)			1611			2787		3495			3539	1523
Flt Permitted			1.00			1.00		1.00			1.00	1.00
Satd. Flow (perm)			1611			2787		3495			3539	1523
Volume (vph)	0	0	774	0	0	500	0	921	84	0	1026	344
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	841	0	0	543	0	1001	91	0	1115	374
RTOR Reduction (vph)	0	0	6	0	0	198	0	8	0	0	0	160
Lane Group Flow (vph)	0	0	835	0	0	345	0	1084	0	0	1115	214
Confl. Peds. (#/hr)			10									10
Turn Type			custom			custom						Perm
Protected Phases			5			1		2			6	
Permitted Phases												6
Actuated Green, G (s)			37.9			13.0		49.2			24.3	24.3
Effective Green, g (s)			37.1			12.2		49.8			24.9	24.9
Actuated g/C Ratio			0.53			0.17		0.71			0.36	0.36
Clearance Time (s)			3.2			3.2		4.6			4.6	4.6
Vehicle Extension (s)			3.0			3.0		5.0			5.0	5.0
Lane Grp Cap (vph)			854			486		2486			1259	542
v/s Ratio Prot			c0.52			0.12		0.31			c0.32	
v/s Ratio Perm												0.14
v/c Ratio			0.98			0.71		0.44			0.89	0.39
Uniform Delay, d1			16.1			27.2		4.2			21.2	16.9
Progression Factor			1.00			1.00		1.00			1.00	1.00
Incremental Delay, d2			25.2			4.7		0.6			9.4	2.1
Delay (s)			41.3			31.9		4.8			30.6	19.0
Level of Service			D			C		A			C	B
Approach Delay (s)		41.3			31.9			4.8			27.7	
Approach LOS		D			C			A			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			24.8			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			84.0%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 5: NB On-Ramp & Morrissey

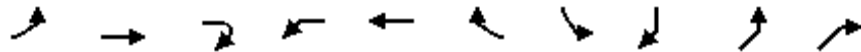
Year 2015 Buildout - AM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔	↔		↔	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor				0.97	1.00		1.00	0.95			1.00	1.00
Frt				1.00	0.85		1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1583		1770	3539			1863	1583
Flt Permitted				0.95	1.00		0.54	1.00			1.00	1.00
Satd. Flow (perm)				3433	1583		1002	3539			1863	1583
Volume (vph)	0	0	0	775	0	199	187	398	0	0	347	197
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	842	0	216	203	433	0	0	377	214
RTOR Reduction (vph)	0	0	0	0	155	0	0	0	0	0	0	151
Lane Group Flow (vph)	0	0	0	842	61	0	203	433	0	0	377	63
Turn Type				Prot			Perm					Perm
Protected Phases				3	8			5				6
Permitted Phases							5					6
Actuated Green, G (s)				18.3	18.3		16.3	16.3			19.2	19.2
Effective Green, g (s)				18.3	18.3		15.5	15.5			19.2	19.2
Actuated g/C Ratio				0.28	0.28		0.24	0.24			0.30	0.30
Clearance Time (s)				4.0	4.0		3.2	3.2			4.0	4.0
Vehicle Extension (s)				3.0	3.0		3.5	3.5			3.0	3.0
Lane Grp Cap (vph)				967	446		239	844			550	468
v/s Ratio Prot				c0.25	0.04			0.12			c0.20	
v/s Ratio Perm							c0.20					0.04
v/c Ratio				0.87	0.14		0.85	0.51			0.69	0.14
Uniform Delay, d1				22.2	17.4		23.6	21.5			20.2	16.8
Progression Factor				1.00	1.00		1.00	1.00			1.03	2.57
Incremental Delay, d2				8.6	0.1		24.0	0.6			3.8	0.3
Delay (s)				30.9	17.6		47.6	22.1			24.6	43.5
Level of Service				C	B		D	C			C	D
Approach Delay (s)		0.0			28.2			30.2			31.5	
Approach LOS		A			C			C			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			29.6				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			60.7%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

# HCM Signalized Intersection Capacity Analysis

## 9: SB Off-Ramp & Morrissey

Year 2015 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0				4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95				1.00	0.88	0.97	1.00
Frbp, ped/bikes	1.00	0.97	0.97				1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00				1.00	1.00	1.00	1.00
Frt	1.00	0.85	0.85				1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00				0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770	1462	1462				1770	2787	3433	1583
Flt Permitted	0.95	1.00	1.00				0.95	1.00	0.95	1.00
Satd. Flow (perm)	1770	1462	1462				1770	2787	3433	1583
Volume (vph)	45	0	351	0	0	0	103	1019	540	881
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	0	382	0	0	0	112	1108	587	958
RTOR Reduction (vph)	0	60	60	0	0	0	0	0	0	442
Lane Group Flow (vph)	49	131	131	0	0	0	112	1108	587	516
Conf. Peds. (#/hr)			10							10
Turn Type	Split		Perm				Prot			Prot
Protected Phases	4	4					1	6	2	2
Permitted Phases			4							
Actuated Green, G (s)	15.8	15.8	15.8				4.6	35.0	27.2	27.2
Effective Green, g (s)	16.4	16.4	16.4				3.8	35.6	27.8	27.8
Actuated g/C Ratio	0.27	0.27	0.27				0.06	0.59	0.46	0.46
Clearance Time (s)	4.6	4.6	4.6				3.2	4.6	4.6	4.6
Vehicle Extension (s)	3.0	3.0	3.0				3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	484	400	400				112	1654	1591	733
v/s Ratio Prot	0.03	c0.09					0.06	c0.40	0.17	0.33
v/s Ratio Perm			0.09							
v/c Ratio	0.10	0.33	0.33				1.00	0.67	0.37	0.70
Uniform Delay, d1	16.3	17.4	17.4				28.1	8.2	10.4	12.8
Progression Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.2	2.2				85.0	2.2	0.7	5.6
Delay (s)	16.7	19.6	19.6				113.1	10.4	11.1	18.4
Level of Service	B	B	B				F	B	B	B
Approach Delay (s)		19.2			0.0		19.8		15.6	
Approach LOS		B			A		B		B	
<b>Intersection Summary</b>										
HCM Average Control Delay			17.7				HCM Level of Service			B
HCM Volume to Capacity ratio			0.56							
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			8.0
Intersection Capacity Utilization			71.4%				ICU Level of Service			C
Analysis Period (min)			15							

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 1: Rooney St & Pacheco Ave

Year 2015 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.90		1.00	0.99		1.00	0.90			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1679		1770	1845		1744	1680			1826	
Flt Permitted	0.95	1.00		0.95	1.00		0.53	1.00			0.53	
Satd. Flow (perm)	1770	1679		1770	1845		968	1680			977	
Volume (vph)	20	60	115	301	39	2	188	174	327	4	81	13
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	65	125	327	42	2	204	189	355	4	88	14
RTOR Reduction (vph)	0	56	0	0	2	0	0	41	0	0	4	0
Lane Group Flow (vph)	22	134	0	327	42	0	204	503	0	0	102	0
Confl. Peds. (#/hr)						10	10					
Turn Type	Split		Split		pm+pt		Perm					
Protected Phases	4	4		3	3		2	5			1	
Permitted Phases							5			1		
Actuated Green, G (s)	15.4	15.4		28.5	28.5		72.3	72.3			16.6	
Effective Green, g (s)	16.0	16.0		29.1	29.1		72.9	72.9			16.6	
Actuated g/C Ratio	0.12	0.12		0.22	0.22		0.56	0.56			0.13	
Clearance Time (s)	4.6	4.6		4.6	4.6		4.6	4.6			4.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5		3.0	3.5			3.0	
Lane Grp Cap (vph)	218	207		396	413		855	942			125	
v/s Ratio Prot	0.01	c0.08		c0.18	0.02		0.10	c0.30				
v/s Ratio Perm							0.04				c0.10	
v/c Ratio	0.10	0.65		0.83	0.10		0.24	0.53			0.81	
Uniform Delay, d1	50.6	54.3		48.0	40.1		18.7	17.9			55.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	7.1		13.5	0.1		0.2	0.7			31.7	
Delay (s)	50.9	61.4		61.5	40.2		18.8	18.6			86.9	
Level of Service	D	E		E	D		B	B			F	
Approach Delay (s)		60.3			59.0			18.6			86.9	
Approach LOS		E			E			B			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			40.2	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			66.1%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 3: Fairmount & Morrissey

Year 2015 Buildout - PM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↗			↖↗		↕↖			↕↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	4.0
Lane Util. Factor			1.00			0.88		0.95			0.95	1.00
Frbp, ped/bikes			1.00			1.00		1.00			1.00	0.96
Flpb, ped/bikes			1.00			1.00		1.00			1.00	1.00
Frt			0.86			0.85		0.98			1.00	0.85
Flt Protected			1.00			1.00		1.00			1.00	1.00
Satd. Flow (prot)			1611			2787		3466			3539	1519
Flt Permitted			1.00			1.00		1.00			1.00	1.00
Satd. Flow (perm)			1611			2787		3466			3539	1519
Volume (vph)	0	0	928	0	0	633	0	921	146	0	946	406
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1009	0	0	688	0	1001	159	0	1028	441
RTOR Reduction (vph)	0	0	3	0	0	134	0	16	0	0	0	183
Lane Group Flow (vph)	0	0	1006	0	0	554	0	1144	0	0	1028	258
Confl. Peds. (#/hr)			10									10
Turn Type			custom			custom						Perm
Protected Phases			5			1		2			6	
Permitted Phases												6
Actuated Green, G (s)			49.2			26.3		45.9			23.0	23.0
Effective Green, g (s)			48.4			25.5		46.5			23.6	23.6
Actuated g/C Ratio			0.60			0.32		0.58			0.30	0.30
Clearance Time (s)			3.2			3.2		4.6			4.6	4.6
Vehicle Extension (s)			3.0			3.0		5.0			5.0	5.0
Lane Grp Cap (vph)			975			888		2015			1044	448
v/s Ratio Prot			c0.62			0.20		0.33			c0.29	
v/s Ratio Perm												0.17
v/c Ratio			1.03			0.62		0.57			0.98	0.58
Uniform Delay, d1			15.8			23.2		10.5			28.0	23.9
Progression Factor			1.00			1.00		1.00			0.85	0.74
Incremental Delay, d2			37.2			1.4		1.2			23.0	4.8
Delay (s)			53.0			24.5		11.6			46.8	22.5
Level of Service			D			C		B			D	C
Approach Delay (s)		53.0			24.5			11.6			39.5	
Approach LOS		D			C			B			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			32.8			HCM Level of Service					C	
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			91.3%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 5: NB On-Ramp & Morrissey

Year 2015 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔	↔		↔	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor				0.97	1.00		1.00	0.95			1.00	1.00
Frt				1.00	0.85		1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1583		1770	3539			1863	1583
Flt Permitted				0.95	1.00		0.53	1.00			1.00	1.00
Satd. Flow (perm)				3433	1583		992	3539			1863	1583
Volume (vph)	0	0	0	798	0	291	300	398	0	0	304	193
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	867	0	316	326	433	0	0	330	210
RTOR Reduction (vph)	0	0	0	0	211	0	0	0	0	0	0	107
Lane Group Flow (vph)	0	0	0	867	105	0	326	433	0	0	330	103
Turn Type				Prot			Perm					Perm
Protected Phases				3	8			2			6	
Permitted Phases							2					6
Actuated Green, G (s)				14.9	14.9		22.1	22.1			22.1	22.1
Effective Green, g (s)				14.9	14.9		22.1	22.1			22.1	22.1
Actuated g/C Ratio				0.33	0.33		0.49	0.49			0.49	0.49
Clearance Time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1137	524		487	1738			915	777
v/s Ratio Prot				c0.25	0.07			0.12			0.18	
v/s Ratio Perm							c0.33					0.07
v/c Ratio				0.76	0.20		0.67	0.25			0.36	0.13
Uniform Delay, d1				13.5	10.8		8.7	6.6			7.1	6.2
Progression Factor				1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2				3.1	0.2		7.1	0.3			1.1	0.4
Delay (s)				16.6	11.0		15.8	7.0			8.2	6.6
Level of Service				B	B		B	A			A	A
Approach Delay (s)		0.0			15.1			10.8			7.6	
Approach LOS		A			B			B			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			12.1				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			45.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			110.2%				ICU Level of Service				H	
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 9: SB Off-Ramp & Morrissey

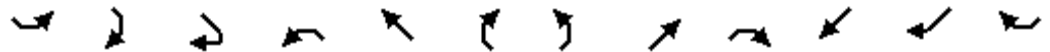
Year 2015 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	0.95	0.95					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	0.97	0.97					1.00	1.00	1.00	1.00		
Fllp, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	0.85	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1770	1454	1454					3539	1583	1770	3539		
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1770	1454	1454					3539	1583	1770	3539		
Volume (vph)	52	0	290	0	0	0	0	646	908	40	1062	0	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	57	0	315	0	0	0	0	702	987	43	1154	0	
RTOR Reduction (vph)	0	82	82	0	0	0	0	0	632	0	0	0	
Lane Group Flow (vph)	57	75	76	0	0	0	0	702	355	43	1154	0	
Confl. Peds. (#/hr)			10						10			10	
Turn Type	Split		Perm						Prot	Prot			
Protected Phases	4	4						2	2	1	6		
Permitted Phases			4										
Actuated Green, G (s)	17.8	17.8	17.8					25.4	25.4	23.0	53.0		
Effective Green, g (s)	18.4	18.4	18.4					26.0	26.0	23.6	53.6		
Actuated g/C Ratio	0.23	0.23	0.23					0.32	0.32	0.30	0.67		
Clearance Time (s)	4.6	4.6	4.6					4.6	4.6	4.6	4.6		
Vehicle Extension (s)	3.0	3.0	3.0					3.5	3.5	3.5	3.5		
Lane Grp Cap (vph)	407	334	334					1150	514	522	2371		
v/s Ratio Prot	0.03	0.05						0.20	c0.22	0.02	c0.33		
v/s Ratio Perm			c0.05										
v/c Ratio	0.14	0.22	0.23					0.61	0.69	0.08	0.49		
Uniform Delay, d1	24.5	25.0	25.0					22.7	23.5	20.4	6.5		
Progression Factor	1.00	1.00	1.00					1.22	3.46	1.00	1.00		
Incremental Delay, d2	0.7	1.5	1.6					1.9	5.9	0.3	0.7		
Delay (s)	25.2	26.5	26.6					29.7	87.2	20.7	7.2		
Level of Service	C	C	C					C	F	C	A		
Approach Delay (s)		26.4			0.0			63.3			7.7		
Approach LOS		C			A			E			A		
<b>Intersection Summary</b>													
HCM Average Control Delay			38.6									HCM Level of Service	D
HCM Volume to Capacity ratio			0.50										
Actuated Cycle Length (s)			80.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			110.2%									ICU Level of Service	H
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 8: NB On & Soquel Dr.

Year 2015 HOV Build - AM Peak



Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Lane Configurations	↖	↗		↖↗	↖	↗	↖	↖↗	↗	↖↗	↖↗	↖↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.88	
Frbp, ped/bikes	1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.97	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1687	1583		3433	1629	1434	1770	3539	1583	3539	2787	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1687	1583		3433	1629	1434	1770	3539	1583	3539	2787	
Volume (vph)	79	137	79	776	79	132	129	1329	653	1238	694	17
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	149	86	843	83	139	140	1445	710	1346	754	18
RTOR Reduction (vph)	0	19	0	0	7	79	0	0	112	0	1	0
Lane Group Flow (vph)	83	216	0	843	96	40	140	1445	598	1346	771	0
Confl. Peds. (#/hr)	10					10						
Heavy Vehicles (%)	7%	2%	2%	2%	7%	7%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	custom		Prot		Prot	Prot		custom		Prot	
Protected Phases	4	8		7	3	3	5	2	2 3	6	6	
Permitted Phases												
Actuated Green, G (s)	9.4	17.4		30.0	38.0	38.0	9.8	51.4	92.6	37.6	37.6	
Effective Green, g (s)	9.4	17.4		29.2	37.2	37.2	9.8	51.4	92.6	37.6	37.6	
Actuated g/C Ratio	0.09	0.16		0.27	0.34	0.34	0.09	0.47	0.84	0.34	0.34	
Clearance Time (s)	4.0	4.0		3.2	3.2	3.2	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	144	250		911	551	485	158	1654	1333	1210	953	
v/s Ratio Prot	0.05	c0.14		c0.25	0.06	0.03	0.08	c0.41	0.38	c0.38	0.28	
v/s Ratio Perm												
v/c Ratio	0.58	0.87		0.93	0.17	0.08	0.89	0.87	0.45	1.11	0.81	
Uniform Delay, d1	48.4	45.2		39.3	25.6	24.8	49.5	26.4	2.2	36.2	32.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.5	25.4		14.8	0.2	0.1	40.2	6.7	0.2	62.5	7.4	
Delay (s)	53.9	70.6		54.2	25.8	24.9	89.7	33.1	2.5	98.7	40.3	
Level of Service	D	E		D	C	C	F	C	A	F	D	
Approach Delay (s)					48.1			27.1		77.4		
Approach LOS					D			C		E		
<b>Intersection Summary</b>												
HCM Average Control Delay			51.5		HCM Level of Service					D		
HCM Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			79.7%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 10: Soquel Ave. & SB On-Ramp

Year 2015 HOV Build - AM Peak



Movement	EBL2	EBL	SEL	SER	SWR	SWR2
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00
Frt	1.00	1.00			0.85	0.85
Flt Protected	0.95	0.95			1.00	1.00
Satd. Flow (prot)	1770	1770			1583	1583
Flt Permitted	0.95	0.95			1.00	1.00
Satd. Flow (perm)	1770	1770			1583	1583
Volume (vph)	270	690	0	0	850	203
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	750	0	0	924	221
RTOR Reduction (vph)	0	0	0	0	0	51
Lane Group Flow (vph)	293	750	0	0	924	170
Turn Type	Prot			Perm		
Protected Phases	7	4			8	
Permitted Phases						8
Actuated Green, G (s)	13.0	65.0			44.0	44.0
Effective Green, g (s)	13.0	65.0			44.0	44.0
Actuated g/C Ratio	0.20	1.00			0.68	0.68
Clearance Time (s)	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	354	1770			1072	1072
v/s Ratio Prot	c0.17	0.42			c0.58	
v/s Ratio Perm						0.11
v/c Ratio	0.83	0.42			0.86	0.16
Uniform Delay, d1	24.9	0.0			8.1	3.8
Progression Factor	1.00	1.00			1.00	1.00
Incremental Delay, d2	14.6	0.2			7.3	0.1
Delay (s)	39.6	0.2			15.4	3.9
Level of Service	D	A			B	A
Approach Delay (s)		11.2	0.0		13.2	
Approach LOS		B	A		B	





















Intersection Summary

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

40: Soquel Ave. & Soquel Dr.

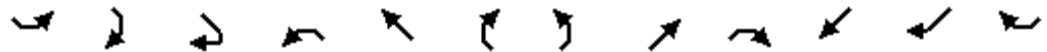
Year 2015 HOV Build - AM Peak

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	0.94	0.95		1.00		1.00		0.95		0.97	0.95	1.00
Frt	1.00	0.94		1.00		0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	4990	3340		1770		1583		3355		3433	3539	1583
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	4990	3340		1770		1583		3355		3433	3539	1583
Volume (vph)	789	370	222	281	0	569	0	753	401	189	1642	320
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	858	402	241	305	0	618	0	818	436	205	1785	348
RTOR Reduction (vph)	0	42	0	0	0	38	0	86	0	0	0	0
Lane Group Flow (vph)	858	601	0	305	0	580	0	1168	0	205	1785	348
Turn Type	Prot			Prot		custom				Prot		pm+ov
Protected Phases	1	6		5		3		4		3	8	1
Permitted Phases						5						8
Actuated Green, G (s)	35.4	15.9		15.5		22.5		25.6		7.0	36.6	72.0
Effective Green, g (s)	35.4	15.9		15.5		22.5		25.6		7.0	36.6	72.0
Actuated g/C Ratio	0.44	0.20		0.19		0.28		0.32		0.09	0.46	0.90
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	2208	664		343		524		1074		300	1619	1583
v/s Ratio Prot	0.17	c0.18		0.17		c0.10		0.35		0.06	c0.50	0.10
v/s Ratio Perm						0.27						0.12
v/c Ratio	0.39	0.91		0.89		1.11		1.09		0.68	1.10	0.22
Uniform Delay, d1	15.0	31.3		31.4		28.8		27.2		35.4	21.7	0.5
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	15.9		23.2		71.8		54.3		6.3	56.0	0.1
Delay (s)	15.1	47.2		54.6		100.6		81.5		41.7	77.7	0.6
Level of Service	B	D		D		F		F		D	E	A
Approach Delay (s)		28.9			85.4			81.5			63.1	
Approach LOS		C			F			F			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			61.8			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			93.9%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 8: NB On & Soquel Dr.

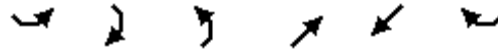
Year 2015 HOV Build - PM Peak (Plan F)



Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Lane Configurations	↙	↘		↙↘	↘	↙	↙	↕↕	↙	↕↕	↙↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.97	0.95	0.95	1.00	0.95	1.00	0.95	0.88	
Frbp, ped/bikes	1.00	1.00		1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.88	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1687	1583		3433	1455	1434	1770	3539	1583	3539	2787	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1687	1583		3433	1455	1434	1770	3539	1583	3539	2787	
Volume (vph)	113	71	83	728	38	331	73	1620	770	963	744	38
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	119	77	90	791	40	348	79	1761	837	1047	809	41
RTOR Reduction (vph)	0	46	0	0	115	134	0	0	178	0	3	0
Lane Group Flow (vph)	119	121	0	791	86	53	79	1761	659	1047	847	0
Confl. Peds. (#/hr)	10					10						
Heavy Vehicles (%)	7%	2%	2%	2%	7%	7%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	custom		Prot		Prot	Prot		custom		Perm	
Protected Phases	4	8		7	3	3	5	2	2 3	6		
Permitted Phases												6
Actuated Green, G (s)	9.4	10.1		24.1	24.1	24.1	4.7	37.1	64.4	28.4	28.4	
Effective Green, g (s)	9.4	8.6		24.1	23.3	23.3	4.7	37.1	64.4	28.4	28.4	
Actuated g/C Ratio	0.11	0.11		0.29	0.28	0.28	0.06	0.45	0.79	0.35	0.35	
Clearance Time (s)	4.0	2.5		4.0	3.2	3.2	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	194	166		1011	414	408	102	1605	1246	1229	968	
v/s Ratio Prot	0.07	0.08		c0.23	0.06	0.04	0.04	c0.50	c0.42	0.30		
v/s Ratio Perm												0.30
v/c Ratio	0.61	0.73		0.78	0.21	0.13	0.77	1.10	0.53	0.85	0.87	
Uniform Delay, d1	34.5	35.5		26.4	22.2	21.7	38.0	22.3	3.2	24.8	25.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.6	15.2		4.0	0.3	0.1	29.9	54.0	0.4	5.9	8.9	
Delay (s)	40.1	50.7		30.5	22.5	21.9	67.9	76.3	3.6	30.6	33.9	
Level of Service	D	D		C	C	C	E	E	A	C	C	
Approach Delay (s)					27.7			53.3		32.1		
Approach LOS					C			D		C		
<b>Intersection Summary</b>												
HCM Average Control Delay			41.3		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			81.8		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			76.1%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 10: SB On-Ramp & Soquel Ave.

Year 2015 HOV Build - PM Peak (Plan F)



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations			↙	↘	↙	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			1.00	1.00	1.00	1.00
Frt			1.00	1.00	1.00	0.85
Flt Protected			0.95	1.00	1.00	1.00
Satd. Flow (prot)			1770	1863	1863	1583
Flt Permitted			0.95	1.00	1.00	1.00
Satd. Flow (perm)			1770	1863	1863	1583
Volume (vph)	0	0	466	1312	631	145
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	507	1426	686	158
RTOR Reduction (vph)	0	0	0	0	0	83
Lane Group Flow (vph)	0	0	507	1426	686	75
Turn Type			Prot			Perm
Protected Phases			7	4	8	
Permitted Phases						8
Actuated Green, G (s)			20.9	55.0	26.1	26.1
Effective Green, g (s)			20.9	55.0	26.1	26.1
Actuated g/C Ratio			0.38	1.00	0.47	0.47
Clearance Time (s)			4.0	4.0	4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)			673	1863	884	751
v/s Ratio Prot			0.29	0.77	0.37	
v/s Ratio Perm						0.05
v/c Ratio			0.75	0.77	0.78	0.10
Uniform Delay, d1			14.8	0.0	12.0	8.0
Progression Factor			1.00	1.00	1.00	1.00
Incremental Delay, d2			4.8	1.9	4.3	0.1
Delay (s)			19.6	1.9	16.3	8.0
Level of Service			B	A	B	A
Approach Delay (s)	0.0			6.6	14.8	
Approach LOS	A			A	B	

Intersection Summary

HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

40: Soquel Ave. & Soquel Dr.

Year 2015 HOV Build - PM Peak (Plan F)


























Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	0.94	0.95		1.00		1.00		0.95		0.97	0.95	1.00
Frt	1.00	0.96		1.00		0.85		0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	4990	3392		1770		1583		3346		3433	3539	1583
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	4990	3392		1770		1583		3346		3433	3539	1583
Volume (vph)	594	472	180	189	0	442	0	1417	811	495	838	429
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	646	513	196	205	0	480	0	1540	882	538	911	466
RTOR Reduction (vph)	0	27	0	0	0	22	0	56	0	0	0	121
Lane Group Flow (vph)	646	682	0	205	0	458	0	2366	0	538	911	345
Turn Type	Prot			Prot		custom				Prot		Perm
Protected Phases	1	6		5		3		4		3	8	
Permitted Phases						5						8
Actuated Green, G (s)	46.0	29.0		13.0		36.8		64.0		23.8	91.0	91.0
Effective Green, g (s)	46.0	29.0		13.0		36.0		64.0		23.0	91.0	91.0
Actuated g/C Ratio	0.32	0.20		0.09		0.25		0.44		0.16	0.63	0.63
Clearance Time (s)	4.0	4.0		4.0		3.2		4.0		3.2	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1583	678		159		393		1477		545	2221	993
v/s Ratio Prot	0.13	c0.20		c0.12		c0.18		c0.71		0.16	0.26	
v/s Ratio Perm						0.10						0.22
v/c Ratio	0.41	1.01		1.29		1.17		1.60		0.99	0.41	0.35
Uniform Delay, d1	38.8	58.0		66.0		54.5		40.5		60.9	13.5	12.9
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	35.9		169.0		98.9		274.1		34.9	0.1	0.2
Delay (s)	39.0	93.9		235.0		153.4		314.6		95.8	13.7	13.1
Level of Service	D	F		F		F		F		F	B	B
Approach Delay (s)		67.7			177.9			314.6			36.6	
Approach LOS		E			F			F			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			164.0			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.36									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)		16.0				
Intersection Capacity Utilization			121.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 13: SB Off & 41st




















Year 2015 Buildout - AM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 	 					 	 		  		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.91	0.91	0.88					0.95	0.88	1.00	0.91		
Frbp, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1493	3144	2584					3282	2584	1641	4715		
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1493	3144	2584					3282	2584	1641	4715		
Volume (vph)	169	352	638	0	0	0	0	866	899	200	1359	0	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	186	387	701	0	0	0	0	952	988	220	1493	0	
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	226	0	0	0	
Lane Group Flow (vph)	186	387	665	0	0	0	0	952	762	220	1493	0	
Confl. Peds. (#/hr)			10						10			10	
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
Turn Type	Split		Prot						Prot	Prot			
Protected Phases	4	4	4					2	2	1	6		
Permitted Phases													
Actuated Green, G (s)	28.4	28.4	28.4					34.1	34.1	15.0	53.1		
Effective Green, g (s)	28.1	28.1	28.1					34.9	34.9	15.0	53.9		
Actuated g/C Ratio	0.31	0.31	0.31					0.39	0.39	0.17	0.60		
Clearance Time (s)	3.7	3.7	3.7					4.8	4.8	4.0	4.8		
Vehicle Extension (s)	3.5	3.5	3.5					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	466	982	807					1273	1002	274	2824		
v/s Ratio Prot	0.12	0.12	c0.26					0.29	c0.29	c0.13	0.32		
v/s Ratio Perm													
v/c Ratio	0.40	0.39	0.82					0.75	0.76	0.80	0.53		
Uniform Delay, d1	24.3	24.3	28.7					23.8	23.9	36.1	10.6		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.7	0.3	7.0					4.0	5.4	15.5	0.7		
Delay (s)	25.0	24.6	35.7					27.8	29.4	51.6	11.3		
Level of Service	C	C	D					C	C	D	B		
Approach Delay (s)		30.7			0.0			28.6			16.5		
Approach LOS		C			A			C			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			24.9									HCM Level of Service	C
HCM Volume to Capacity ratio			0.79										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			67.9%									ICU Level of Service	C
Analysis Period (min)			15										
c	Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 16: Main & Porter/Bay

Year 2015 Buildout - AM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.97		1.00	0.96		1.00	0.96		1.00	1.00	
Flt Protected		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1720		1618	1571		1703	3230		1703	3389	
Flt Permitted		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1720		1618	1571		1703	3230		1703	3389	
Volume (vph)	2	5	2	542	9	76	17	607	209	86	578	14
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	5	2	571	9	80	18	639	220	91	608	15
RTOR Reduction (vph)	0	2	0	0	10	0	0	31	0	0	1	0
Lane Group Flow (vph)	0	7	0	344	306	0	18	829	0	91	622	0
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		0.8		29.2	29.2		31.7	54.5		10.5	33.8	
Effective Green, g (s)		0.3		28.7	28.7		30.7	55.0		10.0	34.3	
Actuated g/C Ratio		0.00		0.26	0.26		0.28	0.50		0.09	0.31	
Clearance Time (s)		3.5		3.5	3.5		3.0	4.5		3.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		5		422	410		475	1615		155	1057	
v/s Ratio Prot		c0.00		c0.21	0.19		0.01	c0.26		c0.05	c0.18	
v/s Ratio Perm												
v/c Ratio		1.40		0.82	0.75		0.04	0.51		0.59	0.59	
Uniform Delay, d1		54.9		38.2	37.3		28.9	18.5		48.0	31.9	
Progression Factor		1.00		1.00	1.00		0.78	0.23		1.00	1.00	
Incremental Delay, d2		575.1		11.5	7.2		0.0	1.1		5.6	2.4	
Delay (s)		630.0		49.7	44.5		22.6	5.4		53.6	34.3	
Level of Service		F		D	D		C	A		D	C	
Approach Delay (s)		630.0			47.2			5.7			36.8	
Approach LOS		F			D			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			30.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			62.8%			ICU Level of Service				B		
Analysis Period (min)			15									
c	Critical Lane Group											

# HCM Signalized Intersection Capacity Analysis

## 17: NB Ramps & Porter/Bay




















Year 2015 Buildout - AM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖	↖	↕↕			↕↕	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	0.95
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		1524	1703	3406			3406	1450
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		1524	1703	3406			3406	1450
Volume (vph)	0	0	0	209	0	150	434	683	0	0	557	565
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	225	0	161	467	734	0	0	599	608
RTOR Reduction (vph)	0	0	0	0	0	119	0	0	0	0	0	221
Lane Group Flow (vph)	0	0	0	225	0	42	467	734	0	0	599	387
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					Perm
Protected Phases				3		3	5	2			6	
Permitted Phases												6
Actuated Green, G (s)				29.2		29.2	31.7	54.5			33.8	33.8
Effective Green, g (s)				28.7		28.7	30.7	55.0			34.3	34.3
Actuated g/C Ratio				0.26		0.26	0.28	0.50			0.31	0.31
Clearance Time (s)				3.5		3.5	3.0	4.5			4.5	4.5
Vehicle Extension (s)				3.0		3.0	3.0	5.0			5.0	5.0
Lane Grp Cap (vph)				862		398	475	1703			1062	452
v/s Ratio Prot				c0.07		0.03	c0.27	0.22			0.18	
v/s Ratio Perm												c0.27
v/c Ratio				0.26		0.11	0.98	0.43			0.56	0.86
Uniform Delay, d1				32.2		30.9	39.4	17.5			31.6	35.5
Progression Factor				1.00		1.00	1.00	1.00			0.46	1.02
Incremental Delay, d2				0.2		0.1	36.7	0.8			1.7	14.7
Delay (s)				32.4		31.0	76.1	18.3			16.0	51.2
Level of Service				C		C	E	B			B	D
Approach Delay (s)		0.0			31.8			40.8			33.7	
Approach LOS		A			C			D			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			36.5									HCM Level of Service D
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			110.0						16.3			
Intersection Capacity Utilization			66.7%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 18: SB Ramps & Porter/Bay




















Year 2015 Buildout - AM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00	1.00					1.00	0.98	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1649	1579	1475					3471	1518	1736	3471		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1649	1579	1475					3471	1518	1736	3471		
Volume (vph)	319	0	296	0	0	0	0	798	182	304	462	0	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	354	0	329	0	0	0	0	887	202	338	513	0	
RTOR Reduction (vph)	0	0	284	0	0	0	0	0	128	0	0	0	
Lane Group Flow (vph)	177	177	45	0	0	0	0	887	74	338	513	0	
Confl. Peds. (#/hr)									10			10	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Split		Prot						Perm		Prot		
Protected Phases	4	4	4					2		1	6		
Permitted Phases									2				
Actuated Green, G (s)	7.1	7.1	7.1					17.6	17.6	13.8	34.6		
Effective Green, g (s)	6.8	6.8	6.8					18.2	18.2	13.0	35.2		
Actuated g/C Ratio	0.14	0.14	0.14					0.36	0.36	0.26	0.70		
Clearance Time (s)	3.7	3.7	3.7					4.6	4.6	3.2	4.6		
Vehicle Extension (s)	3.0	3.0	3.0					5.0	5.0	3.0	5.0		
Lane Grp Cap (vph)	224	215	201					1263	553	451	2444		
v/s Ratio Prot	0.11	c0.11	0.03					c0.26		c0.19	0.15		
v/s Ratio Perm									0.05				
v/c Ratio	0.79	0.82	0.22					0.70	0.13	0.75	0.21		
Uniform Delay, d1	20.9	21.0	19.2					13.6	10.6	17.0	2.6		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Incremental Delay, d2	17.1	21.8	0.6					3.3	0.5	6.7	0.2		
Delay (s)	38.0	42.8	19.8					16.9	11.1	23.7	2.8		
Level of Service	D	D	B					B	B	C	A		
Approach Delay (s)		30.5			0.0			15.8			11.1		
Approach LOS		C			A			B			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			18.1									HCM Level of Service	B
HCM Volume to Capacity ratio			0.74										
Actuated Cycle Length (s)			50.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			76.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 33: NB Ramps & 41st


























Year 2015 Buildout - AM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor				0.91	0.91	1.00		0.91	1.00		0.95	
Frbp, ped/bikes				1.00	1.00	1.00		1.00	0.98		1.00	
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (prot)				1550	3333	1524		4893	1493		3337	
Flt Permitted				0.95	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (perm)				1550	3333	1524		4893	1493		3337	
Volume (vph)	0	0	0	758	999	390	0	548	487	0	801	183
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.92	0.87	0.92	0.87	0.87	0.87	0.87	0.92
Adj. Flow (vph)	0	0	0	871	1086	448	0	630	560	0	921	199
RTOR Reduction (vph)	0	0	0	0	0	70	0	0	329	0	28	0
Lane Group Flow (vph)	0	0	0	614	1343	378	0	630	231	0	1092	0
Confl. Peds. (#/hr)									10			
Heavy Vehicles (%)	2%	2%	2%	6%	2%	6%	2%	6%	6%	6%	6%	2%
Turn Type				Split		Prot			Perm			
Protected Phases				4	4	4		2			6	
Permitted Phases									2			
Actuated Green, G (s)				27.5	27.5	27.5		24.5	24.5		24.5	
Effective Green, g (s)				27.2	27.2	27.2		24.8	24.8		24.8	
Actuated g/C Ratio				0.45	0.45	0.45		0.41	0.41		0.41	
Clearance Time (s)				3.7	3.7	3.7		4.3	4.3		4.3	
Vehicle Extension (s)				3.5	3.5	3.5		3.5	3.5		5.0	
Lane Grp Cap (vph)				703	1511	691		2022	617		1379	
v/s Ratio Prot				0.40	c0.40	0.25		0.13			c0.33	
v/s Ratio Perm									0.16			
v/c Ratio				0.87	0.89	0.55		0.31	0.38		0.79	
Uniform Delay, d1				14.8	15.0	11.9		11.9	12.2		15.3	
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2				11.9	6.9	1.0		0.4	1.7		4.7	
Delay (s)				26.7	21.9	12.9		12.3	14.0		20.1	
Level of Service				C	C	B		B	B		C	
Approach Delay (s)		0.0			21.5			13.1			20.1	
Approach LOS		A			C			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			19.0				HCM Level of Service		B			
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			67.7%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 13: SB Off & 41st




















Year 2015 Buildout - PM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 	 					 	 		  		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.91	0.91	0.88					0.95	0.88	1.00	0.91		
Frbp, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1493	3144	2584					3282	2584	1641	4715		
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1493	3144	2584					3282	2584	1641	4715		
Volume (vph)	178	424	541	0	0	0	0	1407	1148	234	1550	0	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Adj. Flow (vph)	196	466	595	0	0	0	0	1546	1262	257	1703	0	
RTOR Reduction (vph)	0	0	39	0	0	0	0	0	98	0	0	0	
Lane Group Flow (vph)	196	466	556	0	0	0	0	1546	1164	257	1703	0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	
Turn Type	Split		Prot						Prot	Prot			
Protected Phases	4	4	4					2	2	1	6		
Permitted Phases													
Actuated Green, G (s)	28.9	28.9	28.9					52.1	52.1	17.0	73.1		
Effective Green, g (s)	28.6	28.6	28.6					52.4	52.4	17.0	73.4		
Actuated g/C Ratio	0.26	0.26	0.26					0.48	0.48	0.15	0.67		
Clearance Time (s)	3.7	3.7	3.7					4.3	4.3	4.0	4.3		
Vehicle Extension (s)	3.5	3.5	3.5					3.5	3.5	3.0	5.0		
Lane Grp Cap (vph)	388	817	672					1563	1231	254	3146		
v/s Ratio Prot	0.13	0.15	c0.22					c0.47	0.45	c0.16	0.36		
v/s Ratio Perm													
v/c Ratio	0.51	0.57	0.83					0.99	0.95	1.01	0.54		
Uniform Delay, d1	34.7	35.4	38.4					28.5	27.4	46.5	9.5		
Progression Factor	1.00	1.00	1.00					1.13	1.21	1.00	1.00		
Incremental Delay, d2	1.2	1.0	8.5					17.1	12.4	59.5	0.7		
Delay (s)	35.9	36.4	46.8					49.3	45.6	106.0	10.2		
Level of Service	D	D	D					D	D	F	B		
Approach Delay (s)		41.3			0.0			47.7			22.8		
Approach LOS		D			A			D			C		
<b>Intersection Summary</b>													
HCM Average Control Delay			38.2									HCM Level of Service	D
HCM Volume to Capacity ratio			0.95										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			80.4%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 16: Main & Porter/Bay

Year 2015 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.93		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.94		1.00	0.95		1.00	0.95		1.00	1.00	
Flt Protected		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1538		1618	1553		1703	3155		1703	3403	
Flt Permitted		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1538		1618	1553		1703	3155		1703	3403	
Volume (vph)	9	12	19	302	2	54	7	528	280	189	931	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	13	20	318	2	57	7	556	295	199	980	3
RTOR Reduction (vph)	0	20	0	0	11	0	0	45	0	0	0	0
Lane Group Flow (vph)	0	22	0	197	169	0	7	806	0	199	983	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Split			Prot				Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		3.6		20.9	20.9		48.0	82.0		29.0	63.0	
Effective Green, g (s)		3.1		20.4	20.4		47.0	82.5		28.0	63.5	
Actuated g/C Ratio		0.02		0.14	0.14		0.31	0.55		0.19	0.42	
Clearance Time (s)		3.5		3.5	3.5		3.0	4.5		3.0	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		32		220	211		534	1735		318	1441	
v/s Ratio Prot		c0.01		c0.12	0.11		0.00	c0.26		c0.12	c0.29	
v/s Ratio Perm												
v/c Ratio		0.70		0.90	0.80		0.01	0.46		0.63	0.68	
Uniform Delay, d1		73.0		63.8	62.8		35.5	20.4		56.2	35.1	
Progression Factor		1.00		1.00	1.00		1.09	0.35		1.00	1.00	
Incremental Delay, d2		51.4		33.7	18.8		0.0	0.8		3.8	2.6	
Delay (s)		124.4		97.4	81.6		38.7	8.0		60.0	37.7	
Level of Service		F		F	F		D	A		E	D	
Approach Delay (s)		124.4			89.9			8.3			41.5	
Approach LOS		F			F			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			38.7				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			61.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 17: NB Ramps & Porter/Bay

Year 2015 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖	↖	↕↕			↕↕	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	0.94
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		1524	1703	3406			3406	1434
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		1524	1703	3406			3406	1434
Volume (vph)	0	0	0	256	0	278	505	537	0	0	799	453
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	275	0	299	543	577	0	0	859	487
RTOR Reduction (vph)	0	0	0	0	0	258	0	0	0	0	0	86
Lane Group Flow (vph)	0	0	0	275	0	41	543	577	0	0	859	401
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					Perm
Protected Phases				3		3	5	2			6	
Permitted Phases												6
Actuated Green, G (s)				20.9		20.9	48.0	82.0			63.0	63.0
Effective Green, g (s)				20.4		20.4	47.0	82.5			63.5	63.5
Actuated g/C Ratio				0.14		0.14	0.31	0.55			0.42	0.42
Clearance Time (s)				3.5		3.5	3.0	4.5			4.5	4.5
Vehicle Extension (s)				3.0		3.0	3.0	5.0			5.0	5.0
Lane Grp Cap (vph)				449		207	534	1873			1442	607
v/s Ratio Prot				c0.08		0.03	c0.32	0.17			0.25	
v/s Ratio Perm												c0.28
v/c Ratio				0.61		0.20	1.02	0.31			0.60	0.66
Uniform Delay, d1				61.1		57.5	51.5	18.3			33.4	34.6
Progression Factor				1.00		1.00	1.00	1.00			0.24	0.23
Incremental Delay, d2				2.5		0.5	43.2	0.4			1.3	3.9
Delay (s)				63.5		58.0	94.7	18.7			9.2	11.8
Level of Service				E		E	F	B			A	B
Approach Delay (s)		0.0			60.7			55.6			10.1	
Approach LOS		A			E			E			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			36.4									HCM Level of Service D
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			150.0							19.1		
Intersection Capacity Utilization			67.4%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 18: SB Ramps & Porter/Bay




















Year 2015 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	0.98	1.00					1.00	0.98	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	0.91	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1649	1460	1475					3471	1516	1736	3471		
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1649	1460	1475					3471	1516	1736	3471		
Volume (vph)	331	0	456	0	0	0	0	711	256	305	750	0	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	368	0	507	0	0	0	0	790	284	339	833	0	
RTOR Reduction (vph)	0	99	155	0	0	0	0	0	180	0	0	0	
Lane Group Flow (vph)	242	208	171	0	0	0	0	790	104	339	833	0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Split		Prot						Perm		Prot		
Protected Phases	4	4	4					2		1	6		
Permitted Phases									2				
Actuated Green, G (s)	9.9	9.9	9.9					19.5	19.5	14.1	36.8		
Effective Green, g (s)	9.6	9.6	9.6					20.1	20.1	13.3	37.4		
Actuated g/C Ratio	0.17	0.17	0.17					0.37	0.37	0.24	0.68		
Clearance Time (s)	3.7	3.7	3.7					4.6	4.6	3.2	4.6		
Vehicle Extension (s)	3.0	3.0	3.0					5.0	5.0	3.0	5.0		
Lane Grp Cap (vph)	288	255	257					1268	554	420	2360		
v/s Ratio Prot	c0.15	0.14	0.12					c0.23		c0.20	0.24		
v/s Ratio Perm									0.07				
v/c Ratio	0.84	0.82	0.66					0.62	0.19	0.81	0.35		
Uniform Delay, d1	22.0	21.8	21.2					14.3	11.9	19.6	3.7		
Progression Factor	1.07	1.16	1.28					1.00	1.00	1.00	1.00		
Incremental Delay, d2	10.7	9.7	3.2					2.3	0.7	10.8	0.4		
Delay (s)	34.3	35.1	30.4					16.7	12.6	30.5	4.1		
Level of Service	C	D	C					B	B	C	A		
Approach Delay (s)		33.1			0.0			15.6			11.7		
Approach LOS		C			A			B			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			19.1									HCM Level of Service	B
HCM Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			55.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			74.4%									ICU Level of Service	D
Analysis Period (min)			15										
c	Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 33: NB Ramps & 41st

Year 2015 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor				0.91	0.91	1.00		0.91	1.00		0.95	
Frt				1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected				0.95	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (prot)				1610	3350	1583		5085	1583		3432	
Flt Permitted				0.95	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (perm)				1610	3350	1583		5085	1583		3432	
Volume (vph)	0	0	0	908	958	309	0	941	644	0	876	221
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	987	1041	336	0	1023	700	0	952	240
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	434	0	33	0
Lane Group Flow (vph)	0	0	0	653	1375	321	0	1023	266	0	1159	0
Turn Type				Split		Prot			Perm			
Protected Phases				4	4	4		2			6	
Permitted Phases									2			
Actuated Green, G (s)				23.0	23.0	23.0		19.0	19.0		19.0	
Effective Green, g (s)				23.0	23.0	23.0		19.0	19.0		19.0	
Actuated g/C Ratio				0.46	0.46	0.46		0.38	0.38		0.38	
Clearance Time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)				741	1541	728		1932	602		1304	
v/s Ratio Prot				0.41	c0.41	0.20		0.20			c0.34	
v/s Ratio Perm									0.17			
v/c Ratio				0.88	0.89	0.44		0.53	0.44		0.89	
Uniform Delay, d1				12.3	12.4	9.1		12.0	11.5		14.5	
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2				11.9	7.0	0.4		1.0	2.3		9.3	
Delay (s)				24.2	19.3	9.6		13.1	13.9		23.8	
Level of Service				C	B	A		B	B		C	
Approach Delay (s)		0.0			19.3			13.4			23.8	
Approach LOS		A			B			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			18.4				HCM Level of Service		B			
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			50.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			73.2%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

21: NB Off & Park Ave

2015 HOV Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↔↔		↔↔	↔	↕↕			↕↕	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor				0.97		0.88	1.00	0.95			0.95	0.88	
Frbp, ped/bikes				1.00		0.96	1.00	1.00			1.00	0.97	
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00	
Frt				1.00		0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				3303		2571	1703	3406			3406	2605	
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)				3303		2571	1703	3406			3406	2605	
Volume (vph)	0	0	0	286	0	368	362	1370	0	0	414	541	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	
Adj. Flow (vph)	0	0	0	362	0	466	458	1734	0	0	524	685	
RTOR Reduction (vph)	0	0	0	0	0	28	0	0	0	0	0	563	
Lane Group Flow (vph)	0	0	0	362	0	438	458	1734	0	0	524	122	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Turn Type				Prot		custom	Prot					Perm	
Protected Phases				8			5	2			6		
Permitted Phases						8						6	
Actuated Green, G (s)				11.0		11.0	18.3	30.3			8.8	8.8	
Effective Green, g (s)				11.6		11.6	17.5	30.4			8.9	8.9	
Actuated g/C Ratio				0.23		0.23	0.35	0.61			0.18	0.18	
Clearance Time (s)				4.6		4.6	3.2	4.1			4.1	4.1	
Vehicle Extension (s)				3.0		3.0	2.0	3.0			3.0	3.0	
Lane Grp Cap (vph)				766		596	596	2071			606	464	
v/s Ratio Prot				0.11			0.27	c0.51			0.15		
v/s Ratio Perm						c0.17						0.05	
v/c Ratio				0.47		0.74	0.77	0.84			0.86	0.26	
Uniform Delay, d1				16.6		17.8	14.4	7.8			20.0	17.7	
Progression Factor				1.00		1.00	3.09	1.81			1.00	1.00	
Incremental Delay, d2				0.5		4.7	1.3	0.4			15.2	1.4	
Delay (s)				17.0		22.5	46.0	14.6			35.2	19.1	
Level of Service				B		C	D	B			D	B	
Approach Delay (s)		0.0			20.1			21.2			26.1		
Approach LOS		A			C			C			C		
<b>Intersection Summary</b>													
HCM Average Control Delay			22.4		HCM Level of Service						C		
HCM Volume to Capacity ratio			0.81										
Actuated Cycle Length (s)			50.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization			91.5%		ICU Level of Service						F		
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 22: SB Off & Park Ave

2015 HOV Build AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00		0.99					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3303		2661					3406	1524	1703	3406	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3303		2661					3406	1524	1703	3406	
Volume (vph)	1234	0	250	0	0	0	0	498	370	226	474	0
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	1645	0	333	0	0	0	0	664	493	301	632	0
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	36	0	0	0
Lane Group Flow (vph)	1645	0	256	0	0	0	0	664	457	301	632	0
Confl. Peds. (#/hr)	10		10	10			10	10		10	10	10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Prot		custom						custom	Prot		
Protected Phases	4		4					2	2 4	1	6	
Permitted Phases			1									
Actuated Green, G (s)	49.4		68.7					18.9	72.4	19.3	41.9	
Effective Green, g (s)	50.0		69.0					19.0	73.0	19.0	42.0	
Actuated g/C Ratio	0.50		0.69					0.19	0.73	0.19	0.42	
Clearance Time (s)	4.6		4.6					4.1		3.7	4.1	
Vehicle Extension (s)	3.0		3.0					3.0		2.0	3.0	
Lane Grp Cap (vph)	1652		1943					647	1113	324	1431	
v/s Ratio Prot	c0.50		0.07					c0.19	0.30	c0.18	0.19	
v/s Ratio Perm			0.03									
v/c Ratio	1.00		0.13					1.03	0.41	0.93	0.44	
Uniform Delay, d1	24.9		5.3					40.5	5.2	39.8	20.7	
Progression Factor	1.00		1.00					1.02	0.96	0.95	1.39	
Incremental Delay, d2	21.0		0.0					18.2	0.0	24.0	0.8	
Delay (s)	45.9		5.3					59.7	5.0	61.9	29.6	
Level of Service	D		A					E	A	E	C	
Approach Delay (s)		39.1			0.0			36.4			40.0	
Approach LOS		D			A			D			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			38.5								HCM Level of Service	D
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			100.0								Sum of lost time (s)	12.0
Intersection Capacity Utilization			91.5%								ICU Level of Service	F
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 24: Kennedy & Park Ave

2015 HOV Build AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕			↕			↕		↖	↗	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00			0.99			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.95			0.96		1.00	0.95	
Flt Protected	0.95	0.96			0.98			1.00		0.95	1.00	
Satd. Flow (prot)	1618	1631			1650			1715		3303	1674	
Flt Permitted	0.95	0.96			0.98			0.65		0.95	1.00	
Satd. Flow (perm)	1618	1631			1650			1118		3303	1674	
Volume (vph)	232	30	4	315	189	304	3	332	119	176	365	183
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	276	36	5	375	225	362	4	395	142	210	435	218
RTOR Reduction (vph)	0	1	0	0	21	0	0	13	0	0	18	0
Lane Group Flow (vph)	156	160	0	0	941	0	0	528	0	210	635	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Split				Perm			Prot		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2					
Actuated Green, G (s)	13.6	13.6			30.4			26.0		14.0	44.0	
Effective Green, g (s)	13.6	13.6			30.4			26.0		14.0	44.0	
Actuated g/C Ratio	0.14	0.14			0.30			0.26		0.14	0.44	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	220	222			502			291		462	737	
v/s Ratio Prot	0.10	c0.10			c0.57					0.06	c0.38	
v/s Ratio Perm								c0.47				
v/c Ratio	0.71	0.72			1.87			1.82		0.45	0.86	
Uniform Delay, d1	41.3	41.4			34.8			37.0		39.5	25.3	
Progression Factor	1.00	1.00			1.00			1.00		1.03	1.05	
Incremental Delay, d2	10.0	11.0			401.2			380.4		0.7	12.1	
Delay (s)	51.3	52.3			436.0			417.4		41.4	38.6	
Level of Service	D	D			F			F		D	D	
Approach Delay (s)		51.8			436.0			417.4			39.3	
Approach LOS		D			F			F			D	

### Intersection Summary

HCM Average Control Delay	259.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

21: NB Off & Park Ave

2015 HOV Build PM




























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔		↔	↔	↔			↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	1.00	0.95			0.95	0.88
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		2682	1703	3406			3406	2682
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		2682	1703	3406			3406	2682
Volume (vph)	0	0	0	439	0	315	337	669	0	0	569	697
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	556	0	399	427	847	0	0	720	882
RTOR Reduction (vph)	0	0	0	0	0	233	0	0	0	0	0	167
Lane Group Flow (vph)	0	0	0	556	0	166	427	847	0	0	720	715
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					custom
Protected Phases				8		8	5	2			6	6
Permitted Phases												8
Actuated Green, G (s)				12.4		12.4	18.8	33.9			11.9	28.4
Effective Green, g (s)				13.0		13.0	18.0	34.0			12.0	29.0
Actuated g/C Ratio				0.24		0.24	0.33	0.62			0.22	0.53
Clearance Time (s)				4.6		4.6	3.2	4.1			4.1	
Vehicle Extension (s)				3.0		3.0	2.0	3.0			3.0	
Lane Grp Cap (vph)				781		634	557	2106			743	1414
v/s Ratio Prot				c0.17		0.06	c0.25	0.25			c0.21	0.27
v/s Ratio Perm												
v/c Ratio				0.71		0.26	0.77	0.40			0.97	0.51
Uniform Delay, d1				19.3		17.1	16.6	5.3			21.3	8.4
Progression Factor				1.00		1.00	2.32	1.60			1.00	1.00
Incremental Delay, d2				3.1		0.2	5.5	0.1			26.3	0.3
Delay (s)				22.4		17.3	43.9	8.6			47.6	8.7
Level of Service				C		B	D	A			D	A
Approach Delay (s)		0.0			20.3			20.5			26.2	
Approach LOS		A			C			C			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			22.8									HCM Level of Service C
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			55.0									Sum of lost time (s) 12.0
Intersection Capacity Utilization			100.3%									ICU Level of Service G
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 22: SB Off & Park Ave

2015 HOV Build PM

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	 		 					 			 	 		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95			
Frbp, ped/bikes	1.00		0.98					1.00	1.00	1.00	1.00			
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00			
Frt	1.00		0.85					1.00	0.85	1.00	1.00			
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00			
Satd. Flow (prot)	3303		2640					3406	1524	1703	3406			
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00			
Satd. Flow (perm)	3303		2640					3406	1524	1703	3406			
Volume (vph)	739	0	338	0	0	0	0	267	674	432	576	0		
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75		
Adj. Flow (vph)	985	0	451	0	0	0	0	356	899	576	768	0		
RTOR Reduction (vph)	0	0	145	0	0	0	0	0	55	0	0	0		
Lane Group Flow (vph)	985	0	306	0	0	0	0	356	844	576	768	0		
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10		
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%		
Turn Type	Prot		custom						custom		Prot			
Protected Phases	4		4					2	2 4	1	6			
Permitted Phases			1											
Actuated Green, G (s)	30.4		68.6					29.0	63.5	38.2	70.9			
Effective Green, g (s)	31.0		68.9					29.1	64.1	37.9	71.0			
Actuated g/C Ratio	0.28		0.63					0.26	0.58	0.34	0.65			
Clearance Time (s)	4.6		4.6					4.1		3.7	4.1			
Vehicle Extension (s)	3.0		3.0					3.0		2.0	3.0			
Lane Grp Cap (vph)	931		1750					901	888	587	2198			
v/s Ratio Prot	c0.30		0.05					0.10	c0.55	c0.34	0.23			
v/s Ratio Perm			0.07											
v/c Ratio	1.06		0.17					0.40	0.95	0.98	0.35			
Uniform Delay, d1	39.5		8.6					33.2	21.5	35.7	8.9			
Progression Factor	1.00		1.00					0.79	1.26	0.79	1.51			
Incremental Delay, d2	46.1		0.0					0.1	2.8	23.5	0.3			
Delay (s)	85.6		8.7					26.3	29.9	51.5	13.7			
Level of Service	F		A					C	C	D	B			
Approach Delay (s)		61.4			0.0			28.9			29.9			
Approach LOS		E			A			C			C			
<b>Intersection Summary</b>														
HCM Average Control Delay			40.8										HCM Level of Service	D
HCM Volume to Capacity ratio			1.01											
Actuated Cycle Length (s)			110.0										Sum of lost time (s)	12.0
Intersection Capacity Utilization			100.3%										ICU Level of Service	G
Analysis Period (min)			15											
c Critical Lane Group														

# HCM Signalized Intersection Capacity Analysis

## 24: Kennedy & Park Ave

2015 HOV Build PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00			0.98			0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	0.99			0.91			0.95		1.00	0.97	
Flt Protected	0.95	0.99			0.99			1.00		0.95	1.00	
Satd. Flow (prot)	1618	1679			1583			1692		3303	1710	
Flt Permitted	0.95	0.99			0.99			0.95		0.95	1.00	
Satd. Flow (perm)	1618	1679			1583			1611		3303	1710	
Volume (vph)	118	91	4	133	53	330	4	493	252	341	443	130
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	140	108	5	158	63	393	5	587	300	406	527	155
RTOR Reduction (vph)	0	2	0	0	56	0	0	17	0	0	9	0
Lane Group Flow (vph)	123	128	0	0	558	0	0	875	0	406	673	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Split				Perm			Prot		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2					
Actuated Green, G (s)	12.9	12.9			27.1			39.0		15.0	58.0	
Effective Green, g (s)	12.9	12.9			27.1			39.0		15.0	58.0	
Actuated g/C Ratio	0.12	0.12			0.25			0.35		0.14	0.53	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	190	197			390			571		450	902	
v/s Ratio Prot	0.08	c0.08			c0.35					c0.12	0.39	
v/s Ratio Perm								c0.54				
v/c Ratio	0.65	0.65			1.43			1.53		0.90	0.75	
Uniform Delay, d1	46.4	46.4			41.5			35.5		46.8	20.3	
Progression Factor	1.00	1.00			1.00			1.00		1.05	1.07	
Incremental Delay, d2	7.4	7.5			208.4			248.5		20.4	5.4	
Delay (s)	53.8	53.9			249.8			284.0		69.6	27.1	
Level of Service	D	D			F			F		E	C	
Approach Delay (s)		53.8			249.8			284.0			43.0	
Approach LOS		D			F			F			D	
<b>Intersection Summary</b>												
HCM Average Control Delay	164.1			HCM Level of Service				F				
HCM Volume to Capacity ratio	1.28											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)				16.0				
Intersection Capacity Utilization	121.1%			ICU Level of Service				H				
Analysis Period (min)	15											
c Critical Lane Group												



HCM Signalized Intersection Capacity Analysis  
 25: NB Off & State Park

Year 2015 Buildout - AM Peak (Modified)



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations	↔↔	↔	↕↔			↕↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	0.91	0.95			0.91
Frbp, ped/bikes	0.99	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	0.92	0.85	0.95			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3094	1386	3232			4893
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3094	1386	3232			4893
Volume (vph)	316	737	611	314	0	1279
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	355	828	687	353	0	1437
RTOR Reduction (vph)	68	68	66	0	0	0
Lane Group Flow (vph)	701	346	974	0	0	1437
Confl. Peds. (#/hr)		10				
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type		Prot				
Protected Phases	2	2	4			8
Permitted Phases						
Actuated Green, G (s)	48.4	48.4	44.0			43.0
Effective Green, g (s)	49.0	49.0	43.0			43.0
Actuated g/C Ratio	0.49	0.49	0.43			0.43
Clearance Time (s)	4.6	4.6	3.0			4.0
Vehicle Extension (s)	3.0	3.0	2.0			3.0
Lane Grp Cap (vph)	1516	679	1390			2104
v/s Ratio Prot	0.23	c0.25	c0.30			0.29
v/s Ratio Perm						
v/c Ratio	0.46	0.51	0.70			0.68
Uniform Delay, d1	16.8	17.3	23.3			23.0
Progression Factor	1.00	1.00	0.83			0.95
Incremental Delay, d2	1.0	2.7	2.8			1.6
Delay (s)	17.8	20.1	22.1			23.4
Level of Service	B	C	C			C
Approach Delay (s)	18.6		22.1			23.4
Approach LOS	B		C			C
<b>Intersection Summary</b>						
HCM Average Control Delay			21.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			65.1%		ICU Level of Service	C
Analysis Period (min)			15			
c	Critical Lane Group					

# HCM Signalized Intersection Capacity Analysis

## 27: SB Ramps & State Park

Year 2015 Buildout - AM Peak (Modified)

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0			
Lane Util. Factor	0.97		0.88		0.95	1.00		0.95			
Frbp, ped/bikes	1.00		0.95		1.00	1.00		1.00			
Flpb, ped/bikes	1.00		1.00		1.00	1.00		1.00			
Frt	1.00		0.85		1.00	0.85		1.00			
Flt Protected	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (prot)	3242		2499		3343	1495		3343			
Flt Permitted	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (perm)	3242		2499		3343	1495		3343			
Volume (vph)	464	0	429	0	461	382	0	502	0	0	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	510	0	471	0	507	420	0	552	0	0	0
RTOR Reduction (vph)	0	0	307	0	0	164	0	0	0	0	0
Lane Group Flow (vph)	510	0	164	0	507	256	0	552	0	0	0
Confl. Peds. (#/hr)			10						10		
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot		custom			Perm					
Protected Phases	7				2			6			
Permitted Phases			7			2					
Actuated Green, G (s)	31.0		31.0		61.0	61.0		61.0			
Effective Green, g (s)	31.0		31.0		61.0	61.0		61.0			
Actuated g/C Ratio	0.31		0.31		0.61	0.61		0.61			
Clearance Time (s)	4.0		4.0		4.0	4.0		4.0			
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0			
Lane Grp Cap (vph)	1005		775		2039	912		2039			
v/s Ratio Prot	c0.16				0.15			0.17			
v/s Ratio Perm			0.07			c0.17					
v/c Ratio	0.51		0.21		0.25	0.28		0.27			
Uniform Delay, d1	28.2		25.5		9.0	9.2		9.1			
Progression Factor	1.00		1.00		1.00	1.00		0.40			
Incremental Delay, d2	0.4		0.1		0.3	0.8		0.3			
Delay (s)	28.7		25.6		9.3	9.9		3.9			
Level of Service	C		C		A	A		A			
Approach Delay (s)		27.2			9.6			3.9		0.0	
Approach LOS		C			A			A		A	
<b>Intersection Summary</b>											
HCM Average Control Delay			15.3							HCM Level of Service	B
HCM Volume to Capacity ratio			0.36								
Actuated Cycle Length (s)			100.0							Sum of lost time (s)	8.0
Intersection Capacity Utilization			36.6%							ICU Level of Service	A
Analysis Period (min)			15								
c	Critical Lane Group										

# HCM Unsignalized Intersection Capacity Analysis

## 28: Sea Ridge & State Park

Year 2015 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	267	0	48	0	0	2	170	574	0	10	667	254
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	342	0	62	0	0	3	218	736	0	13	855	326
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												251
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	1707	2073	875	2134	2398	388	1191			746		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1782	2185	862	2253	2545	388	1211			746		
tC, single (s)	7.7	6.7	7.1	7.7	6.7	7.1	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	100	76	100	100	100	55			98		
cM capacity (veh/h)	27	20	255	9	12	584	484			813		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	404	3	586	368	868	326
Volume Left	342	0	218	0	13	0
Volume Right	62	3	0	0	0	326
cSH	31	584	484	1700	813	1700
Volume to Capacity	12.84	0.00	0.45	0.22	0.02	0.19
Queue Length 95th (ft)	Err	0	57	0	1	0
Control Delay (s)	Err	11.2	13.5	0.0	0.4	0.0
Lane LOS	F	B	B		A	
Approach Delay (s)	Err	11.2	8.3		0.3	
Approach LOS	F	B				

Intersection Summary		
Average Delay		1584.4
Intersection Capacity Utilization	91.0%	ICU Level of Service
Analysis Period (min)		15
		F

HCM Signalized Intersection Capacity Analysis  
 25: NB Off & State Park

Year 2015 Buildout - PM Peak (Modified)



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	0.91	0.95			0.91
Frbp, ped/bikes	0.99	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	0.96	0.85	0.96			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3188	1386	3253			4893
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3188	1386	3253			4893
Volume (vph)	431	457	728	311	0	1514
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	484	513	818	349	0	1701
RTOR Reduction (vph)	56	94	35	0	0	0
Lane Group Flow (vph)	626	221	1132	0	0	1701
Confl. Peds. (#/hr)		10				
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type		Prot				
Protected Phases	2	2	4			8
Permitted Phases						
Actuated Green, G (s)	29.5	29.5	64.5			63.5
Effective Green, g (s)	28.5	28.5	63.5			63.5
Actuated g/C Ratio	0.28	0.28	0.64			0.64
Clearance Time (s)	3.0	3.0	3.0			4.0
Vehicle Extension (s)	2.0	2.0	2.0			3.0
Lane Grp Cap (vph)	909	395	2066			3107
v/s Ratio Prot	c0.20	0.16	c0.35			0.35
v/s Ratio Perm						
v/c Ratio	0.69	0.56	0.55			0.55
Uniform Delay, d1	31.8	30.4	10.2			10.2
Progression Factor	1.00	1.00	1.07			0.55
Incremental Delay, d2	1.7	1.0	1.0			0.3
Delay (s)	33.6	31.4	11.9			5.9
Level of Service	C	C	B			A
Approach Delay (s)	32.9		11.9			5.9
Approach LOS	C		B			A
<b>Intersection Summary</b>						
HCM Average Control Delay			14.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.59			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			56.6%		ICU Level of Service	B
Analysis Period (min)			15			
c	Critical Lane Group					

# HCM Signalized Intersection Capacity Analysis

## 27: SB Ramps & State Park

Year 2015 Buildout - PM Peak (Modified)

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0			
Lane Util. Factor	0.97		0.88		0.95	1.00		0.95			
Frbp, ped/bikes	1.00		0.95		1.00	1.00		1.00			
Flpb, ped/bikes	1.00		1.00		1.00	1.00		1.00			
Frt	1.00		0.85		1.00	0.85		1.00			
Flt Protected	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (prot)	3242		2499		3343	1495		3343			
Flt Permitted	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (perm)	3242		2499		3343	1495		3343			
Volume (vph)	568	0	559	0	471	404	0	696	0	0	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	624	0	614	0	518	444	0	765	0	0	0
RTOR Reduction (vph)	0	0	118	0	0	218	0	0	0	0	0
Lane Group Flow (vph)	624	0	496	0	518	226	0	765	0	0	0
Confl. Peds. (#/hr)			10						10		
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot		custom			Perm					
Protected Phases	7				2			6			
Permitted Phases			7			2					
Actuated Green, G (s)	41.2		41.2		50.8	50.8		50.8			
Effective Green, g (s)	41.2		41.2		50.8	50.8		50.8			
Actuated g/C Ratio	0.41		0.41		0.51	0.51		0.51			
Clearance Time (s)	4.0		4.0		4.0	4.0		4.0			
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0			
Lane Grp Cap (vph)	1336		1030		1698	759		1698			
v/s Ratio Prot	0.19				0.15			c0.23			
v/s Ratio Perm			c0.20			0.15					
v/c Ratio	0.47		0.48		0.31	0.30		0.45			
Uniform Delay, d1	21.4		21.6		14.3	14.3		15.7			
Progression Factor	1.00		1.00		1.00	1.00		0.98			
Incremental Delay, d2	0.3		0.4		0.5	1.0		0.7			
Delay (s)	21.7		21.9		14.8	15.3		16.1			
Level of Service	C		C		B	B		B			
Approach Delay (s)		21.8			15.0			16.1		0.0	
Approach LOS		C			B			B		A	
<b>Intersection Summary</b>											
HCM Average Control Delay			18.1					HCM Level of Service		B	
HCM Volume to Capacity ratio			0.46								
Actuated Cycle Length (s)			100.0					Sum of lost time (s)		8.0	
Intersection Capacity Utilization			46.5%					ICU Level of Service		A	
Analysis Period (min)			15								
c	Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis  
 28: Sea Ridge & State Park

Year 2015 Buildout - PM Peak (Modified)



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	225	0	90	0	0	9	42	641	0	10	636	609
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	288	0	115	0	0	12	54	822	0	13	815	781
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)											251	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1391	1791	835	1906	2571	431	1606			832		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1463	1936	805	2073	2860	431	1718			832		
tC, single (s)	7.7	6.7	7.1	7.7	6.7	7.1	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	100	56	100	100	98	81			98		
cM capacity (veh/h)	57	40	260	11	10	547	284			753		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>						
Volume Total	404	12	465	411	828	781						
Volume Left	288	0	54	0	13	0						
Volume Right	115	12	0	0	0	781						
cSH	74	547	284	1700	753	1700						
Volume to Capacity	5.46	0.02	0.19	0.24	0.02	0.46						
Queue Length 95th (ft)	Err	2	17	0	1	0						
Control Delay (s)	Err	11.7	6.9	0.0	0.5	0.0						
Lane LOS	F	B	A		A							
Approach Delay (s)	Err	11.7	3.7		0.2							
Approach LOS	F	B										
<b>Intersection Summary</b>												
Average Delay			1393.7									
Intersection Capacity Utilization			80.9%		ICU Level of Service					D		
Analysis Period (min)			15									

# HCM Signalized Intersection Capacity Analysis

30: Rio Del Mar & NB On

Year 2035 Buildout - PM Peak (Modified)

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	  
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	0.88
Frbp, ped/bikes	1.00	1.00			1.00	0.96				1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1687	3374			3374	1445				1603	1603	2656
Flt Permitted	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	1687	3374			3374	1445				1603	1603	2656
Volume (vph)	513	484	0	0	464	151	0	0	0	329	0	483
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	597	563	0	0	540	176	0	0	0	383	0	562
RTOR Reduction (vph)	0	0	0	0	0	101	0	0	0	0	0	428
Lane Group Flow (vph)	597	563	0	0	540	75	0	0	0	192	191	134
Conf. Peds. (#/hr)						10						
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Prot					Perm				Split		Perm
Protected Phases	3	8			4					6	6	
Permitted Phases						4						6
Actuated Green, G (s)	54.0	79.6			22.1	22.1				27.4	27.4	27.4
Effective Green, g (s)	54.0	79.6			21.6	21.6				27.4	27.4	27.4
Actuated g/C Ratio	0.47	0.69			0.19	0.19				0.24	0.24	0.24
Clearance Time (s)	4.0	4.0			3.5	3.5				4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	792	2335			634	271				382	382	633
v/s Ratio Prot	c0.35	0.17			c0.16					c0.12	0.12	
v/s Ratio Perm						0.05						0.05
v/c Ratio	0.75	0.24			0.85	0.28				0.50	0.50	0.21
Uniform Delay, d1	25.0	6.5			45.2	40.0				37.9	37.9	35.1
Progression Factor	1.00	1.00			1.10	1.27				1.00	1.00	1.00
Incremental Delay, d2	6.6	0.1			8.3	0.4				4.7	4.6	0.8
Delay (s)	31.6	6.6			58.0	51.2				42.6	42.5	35.9
Level of Service	C	A			E	D				D	D	D
Approach Delay (s)		19.5			56.3			0.0			38.6	
Approach LOS		B			E			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			35.2				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			115.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			60.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 31: SB On & Rio Del Mar

Year 2035 Buildout - PM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔↔		↔↔					↕↕	↗	↘	↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3183		2584					3282	1468	1641	3282	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3183		2584					3282	1468	1641	3282	
Volume (vph)	292	0	280	0	0	0	0	705	373	329	464	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	321	0	308	0	0	0	0	775	410	362	510	0
RTOR Reduction (vph)	0	0	248	0	0	0	0	0	241	0	0	0
Lane Group Flow (vph)	321	0	60	0	0	0	0	775	169	362	510	0
Confl. Peds. (#/hr)												10
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot		custom						Perm	Prot		
Protected Phases	7		7					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	20.6		20.6					44.7	44.7	31.2	80.0	
Effective Green, g (s)	21.4		21.4					45.3	45.3	31.3	80.6	
Actuated g/C Ratio	0.19		0.19					0.41	0.41	0.28	0.73	
Clearance Time (s)	4.8		4.8					4.6	4.6	4.1	4.6	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	619		503					1352	605	467	2405	
v/s Ratio Prot	c0.10		0.02					c0.24		c0.22	0.16	
v/s Ratio Perm									0.12			
v/c Ratio	0.52		0.12					0.57	0.28	0.78	0.21	
Uniform Delay, d1	39.7		36.5					24.9	21.5	36.1	4.7	
Progression Factor	1.00		1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7		0.1					1.8	1.1	7.9	0.2	
Delay (s)	40.4		36.6					26.7	22.6	44.0	4.9	
Level of Service	D		D					C	C	D	A	
Approach Delay (s)		38.6		0.0				25.3			21.1	
Approach LOS		D		A				C			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			27.0								HCM Level of Service	C
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			110.0								Sum of lost time (s)	12.0
Intersection Capacity Utilization			60.4%								ICU Level of Service	B
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 32: Soquel & Rio Del Mar

Year 2035 Buildout - PM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕		↗	↕	↗		↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frbp, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frt		1.00	0.85		1.00		1.00	1.00	0.85		0.96	
Flt Protected		0.99	1.00		0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1749	1509		1736		1687	1776	1509		1667	
Flt Permitted		0.99	1.00		0.98		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1749	1509		1736		1687	1776	1509		1667	
Volume (vph)	54	124	276	245	345	7	510	139	318	5	94	47
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	70	161	358	318	448	9	662	181	413	6	122	61
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	273	0	15	0
Lane Group Flow (vph)	0	231	358	0	774	0	662	181	140	0	174	0
Confl. Peds. (#/hr)						10						10
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Split		Free	Split			Split		Perm	Split		
Protected Phases	2!	2!		6!	6!		8	8		13	13	
Permitted Phases			Free						8			
Actuated Green, G (s)		47.5	115.0		47.5		39.0	39.0	39.0		17.0	
Effective Green, g (s)		47.0	115.0		47.0		39.0	39.0	39.0		17.0	
Actuated g/C Ratio		0.41	1.00		0.41		0.34	0.34	0.34		0.15	
Clearance Time (s)		3.5			3.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		715	1509		709		572	602	512		246	
v/s Ratio Prot		0.13			c0.45		c0.39	0.10			c0.10	
v/s Ratio Perm			0.24						0.09			
v/c Ratio		0.32	0.24		1.09		1.16	0.30	0.27		0.71	
Uniform Delay, d1		23.2	0.0		34.0		38.0	28.0	27.7		46.6	
Progression Factor		1.00	1.00		1.00		0.92	0.91	0.59		1.00	
Incremental Delay, d2		1.2	0.4		61.7		88.5	1.2	1.3		15.7	
Delay (s)		24.4	0.4		95.7		123.4	26.7	17.6		62.3	
Level of Service		C	A		F		F	C	B		E	
Approach Delay (s)		9.8			95.7			74.7			62.3	
Approach LOS		A			F			E			E	

### Intersection Summary

HCM Average Control Delay	66.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

























! Phase conflict between lane groups.

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

30: Rio Del Mar & NB On

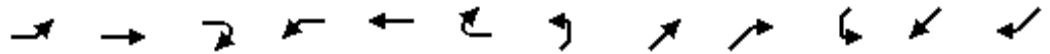
Year 2035 Buildout - PM Peak (Modified)

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	  
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	0.88
Frbp, ped/bikes	1.00	1.00			1.00	0.97				1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1687	3374			3374	1461				1603	1603	2656
Flt Permitted	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	1687	3374			3374	1461				1603	1603	2656
Volume (vph)	468	623	0	0	774	286	0	0	0	367	0	523
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	544	724	0	0	900	333	0	0	0	427	0	608
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	0	0	0	447
Lane Group Flow (vph)	544	724	0	0	900	231	0	0	0	214	213	161
Confl. Peds. (#/hr)						10						
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Prot					Perm				Split		
Protected Phases	3	8			4					6	6	6
Permitted Phases						4						
Actuated Green, G (s)	40.0	86.0			42.5	42.5				21.5	21.5	21.5
Effective Green, g (s)	39.5	86.0			42.5	42.5				21.0	21.0	21.0
Actuated g/C Ratio	0.34	0.75			0.37	0.37				0.18	0.18	0.18
Clearance Time (s)	3.5	4.0			4.0	4.0				3.5	3.5	3.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	579	2523			1247	540				293	293	485
v/s Ratio Prot	c0.32	0.21			c0.27					c0.13	0.13	0.06
v/s Ratio Perm						0.16						
v/c Ratio	0.94	0.29			0.72	0.43				0.73	0.73	0.33
Uniform Delay, d1	36.6	4.7			31.2	27.1				44.3	44.3	40.9
Progression Factor	1.00	1.00			0.79	0.63				1.00	1.00	1.00
Incremental Delay, d2	23.2	0.3			2.6	1.7				9.0	8.7	0.4
Delay (s)	59.8	4.9			27.1	18.7				53.3	53.0	41.3
Level of Service	E	A			C	B				D	D	D
Approach Delay (s)		28.5			24.8			0.0			46.2	
Approach LOS		C			C			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			32.4				HCM Level of Service					C
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			115.0				Sum of lost time (s)					12.0
Intersection Capacity Utilization			67.5%				ICU Level of Service					C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 31: SB On & Rio Del Mar

Year 2035 Buildout - PM Peak (Modified)






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔↔		↔↔					↕↕	↗	↘	↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3183		2584					3282	1468	1641	3282	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3183		2584					3282	1468	1641	3282	
Volume (vph)	265	0	546	0	0	0	0	826	267	361	780	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	291	0	600	0	0	0	0	908	293	397	857	0
RTOR Reduction (vph)	0	0	250	0	0	0	0	0	180	0	0	0
Lane Group Flow (vph)	291	0	350	0	0	0	0	908	113	397	857	0
Confl. Peds. (#/hr)												10
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot		custom						Perm	Prot		
Protected Phases	7		7					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	22.7		22.7					38.0	38.0	25.8	67.9	
Effective Green, g (s)	23.5		23.5					38.6	38.6	25.9	68.5	
Actuated g/C Ratio	0.24		0.24					0.39	0.39	0.26	0.68	
Clearance Time (s)	4.8		4.8					4.6	4.6	4.1	4.6	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	748		607					1267	567	425	2248	
v/s Ratio Prot	0.09		c0.14					c0.28		c0.24	0.26	
v/s Ratio Perm									0.08			
v/c Ratio	0.39		0.58					0.72	0.20	0.93	0.38	
Uniform Delay, d1	32.2		33.8					26.1	20.4	36.2	6.7	
Progression Factor	1.00		1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3		1.3					3.5	0.8	27.6	0.5	
Delay (s)	32.5		35.2					29.6	21.2	63.8	7.2	
Level of Service	C		D					C	C	E	A	
Approach Delay (s)		34.3			0.0			27.5			25.1	
Approach LOS		C			A			C			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			28.4								HCM Level of Service	C
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0								Sum of lost time (s)	12.0
Intersection Capacity Utilization			67.5%								ICU Level of Service	C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 32: Soquel & Rio Del Mar

Year 2035 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frbp, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frt		1.00	0.85		1.00		1.00	1.00	0.85		0.99	
Flt Protected		1.00	1.00		0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1772	1509		1723		1687	1776	1509		1758	
Flt Permitted		1.00	1.00		0.97		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1772	1509		1723		1687	1776	1509		1758	
Volume (vph)	11	246	651	256	174	2	559	278	309	5	153	8
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	14	319	845	332	226	3	726	361	401	6	199	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	234	0	2	0
Lane Group Flow (vph)	0	333	845	0	561	0	726	361	167	0	213	0
Confl. Peds. (#/hr)						10						10
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Split		Free	Split			Split		Perm	Split		
Protected Phases	2!	2!		6!	6!		8	8		13	13	
Permitted Phases			Free						8			
Actuated Green, G (s)		38.5	115.0		38.5		48.0	48.0	48.0		17.0	
Effective Green, g (s)		38.0	115.0		38.0		48.0	48.0	48.0		17.0	
Actuated g/C Ratio		0.33	1.00		0.33		0.42	0.42	0.42		0.15	
Clearance Time (s)		3.5			3.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		586	1509		569		704	741	630		260	
v/s Ratio Prot		0.19			c0.33		c0.43	0.20			c0.12	
v/s Ratio Perm			0.56						0.11			
v/c Ratio		0.57	0.56		0.99		1.03	0.49	0.27		0.82	
Uniform Delay, d1		31.7	0.0		38.2		33.5	24.5	22.0		47.5	
Progression Factor		1.00	1.00		1.00		0.90	0.92	0.46		1.00	
Incremental Delay, d2		1.3	1.5		34.4		41.0	2.1	1.0		24.3	
Delay (s)		33.0	1.5		72.7		71.1	24.7	11.0		71.8	
Level of Service		C	A		E		E	C	B		E	
Approach Delay (s)		10.4			72.7			43.6			71.8	
Approach LOS		B			E			D			E	

### Intersection Summary

HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

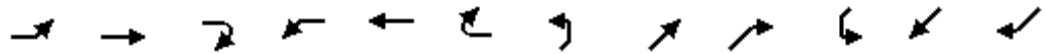
! Phase conflict between lane groups.

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 33: NB on & Freedom

Year 2015 - AM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations					↕	↗	↘	↕			↕	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor					0.95	0.95	1.00	0.95			1.00	0.88	
Frbp, ped/bikes					0.97	0.97	1.00	1.00			1.00	0.98	
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00	
Frt					0.88	0.85	1.00	1.00			1.00	0.85	
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1458	1415	1719	3438			1810	2661	
Flt Permitted					0.99	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1458	1415	1719	3438			1810	2661	
Volume (vph)	0	0	0	22	15	352	38	594	0	0	394	776	
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	
Adj. Flow (vph)	0	0	0	31	21	489	53	825	0	0	547	1078	
RTOR Reduction (vph)	0	0	0	0	124	124	0	0	0	0	0	424	
Lane Group Flow (vph)	0	0	0	0	164	129	53	825	0	0	547	654	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Turn Type				Perm		Perm	Prot					Perm	
Protected Phases					8		5	2			6		
Permitted Phases				8		8						6	
Actuated Green, G (s)					15.8	15.8	13.5	81.2			63.7	63.7	
Effective Green, g (s)					15.8	15.8	13.5	81.2			63.7	63.7	
Actuated g/C Ratio					0.15	0.15	0.13	0.77			0.61	0.61	
Clearance Time (s)					4.0	4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					219	213	221	2659			1098	1614	
v/s Ratio Prot							0.03	c0.24			c0.30		
v/s Ratio Perm					0.11	0.09						0.25	
v/c Ratio					0.75	0.61	0.24	0.31			0.50	0.41	
Uniform Delay, d1					42.7	41.7	41.1	3.5			11.6	10.8	
Progression Factor					1.00	1.00	1.29	0.21			1.00	1.00	
Incremental Delay, d2					13.1	4.8	0.5	0.2			1.6	0.8	
Delay (s)					55.8	46.5	53.5	1.0			13.3	11.5	
Level of Service					E	D	D	A			B	B	
Approach Delay (s)		0.0			51.4			4.1			12.1		
Approach LOS		A			D			A			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			16.8		HCM Level of Service						B		
HCM Volume to Capacity ratio			0.52										
Actuated Cycle Length (s)			105.0		Sum of lost time (s)						12.0		
Intersection Capacity Utilization			54.5%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 34: SB Off & Freedom

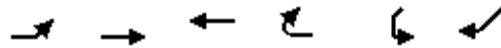
Year 2015 - AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.97					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1618	1618	1476					3241		1703	1792	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1618	1618	1476					3241		1703	1792	
Volume (vph)	521	0	265	0	0	0	0	111	41	302	114	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	651	0	331	0	0	0	0	139	51	378	142	0
RTOR Reduction (vph)	0	0	245	0	0	0	0	28	0	0	0	0
Lane Group Flow (vph)	326	325	86	0	0	0	0	162	0	378	142	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	27.2	27.2	27.2					38.0		27.8	69.8	
Effective Green, g (s)	27.2	27.2	27.2					38.0		27.8	69.8	
Actuated g/C Ratio	0.26	0.26	0.26					0.36		0.26	0.66	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	419	419	382					1173		451	1191	
v/s Ratio Prot	c0.20	0.20						c0.05		c0.22	0.08	
v/s Ratio Perm			0.06									
v/c Ratio	0.78	0.78	0.22					0.14		0.84	0.12	
Uniform Delay, d1	36.1	36.1	30.6					22.5		36.5	6.4	
Progression Factor	1.00	1.00	1.00					1.00		0.74	1.46	
Incremental Delay, d2	8.8	8.7	0.3					0.2		11.3	0.2	
Delay (s)	44.9	44.8	30.9					22.8		38.2	9.6	
Level of Service	D	D	C					C		D	A	
Approach Delay (s)		40.2			0.0			22.8			30.4	
Approach LOS		D			A			C			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			35.2					HCM Level of Service			D	
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			105.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			54.5%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

35: Bonita & Freedom

Year 2015 - AM Peak



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕	↑	↗	↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	0.97	1.00
Frbp, ped/bikes		1.00	1.00	1.00	1.00	0.95
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		0.96	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1708	1792	1524	3303	1444
Flt Permitted		0.76	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1345	1792	1524	3303	1444
Volume (vph)	19	7	65	133	225	154
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	24	9	81	166	281	192
RTOR Reduction (vph)	0	0	0	0	0	33
Lane Group Flow (vph)	0	33	81	166	281	159
Confl. Peds. (#/hr)	10			10	10	10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type	Perm			pt+ov		Perm
Protected Phases		6	2	2 8	8	
Permitted Phases	6					8
Actuated Green, G (s)		9.9	9.9	105.0	87.1	87.1
Effective Green, g (s)		9.9	9.9	105.0	87.1	87.1
Actuated g/C Ratio		0.09	0.09	1.00	0.83	0.83
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		127	169	1524	2740	1198
v/s Ratio Prot			c0.05	0.11	0.09	
v/s Ratio Perm		0.02				c0.11
v/c Ratio		0.26	0.48	0.11	0.10	0.13
Uniform Delay, d1		44.1	45.1	0.0	1.7	1.7
Progression Factor		1.00	1.00	1.00	1.54	3.59
Incremental Delay, d2		1.1	2.1	0.0	0.1	0.2
Delay (s)		45.2	47.2	0.0	2.6	6.4
Level of Service		D	D	A	A	A
Approach Delay (s)		45.2	15.5		4.1	
Approach LOS		D	B		A	
<b>Intersection Summary</b>						
HCM Average Control Delay			9.7		HCM Level of Service	A
HCM Volume to Capacity ratio			0.17			
Actuated Cycle Length (s)			105.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			28.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Signalized Intersection Capacity Analysis

## 33: NB on & Freedom

Year 2015 Buildout - PM Peak (Modified)



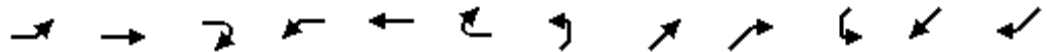
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations					↔	↗	↘	↕			↕	↗↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0	
Lane Util. Factor					0.95	0.95	1.00	0.95			1.00	0.88	
Frbp, ped/bikes					0.97	0.96	1.00	1.00			1.00	0.98	
Flpb, ped/bikes					0.99	1.00	1.00	1.00			1.00	1.00	
Frt					0.88	0.85	1.00	1.00			1.00	0.85	
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)					1435	1401	1719	3438			1810	2662	
Flt Permitted					0.99	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (perm)					1435	1401	1719	3438			1810	2662	
Volume (vph)	0	0	0	22	0	219	56	831	0	0	424	688	
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	
Adj. Flow (vph)	0	0	0	31	0	304	78	1154	0	0	589	956	
RTOR Reduction (vph)	0	0	0	0	102	102	0	0	0	0	0	354	
Lane Group Flow (vph)	0	0	0	0	74	57	78	1154	0	0	589	602	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Turn Type				Perm		Perm	Prot					Perm	
Protected Phases					8		5	2			6		
Permitted Phases				8		8						6	
Actuated Green, G (s)					10.5	10.5	16.4	86.5			66.1	66.1	
Effective Green, g (s)					10.5	10.5	16.4	86.5			66.1	66.1	
Actuated g/C Ratio					0.10	0.10	0.16	0.82			0.63	0.63	
Clearance Time (s)					4.0	4.0	4.0	4.0			4.0	4.0	
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)					144	140	268	2832			1139	1676	
v/s Ratio Prot							0.05	c0.34			c0.33		
v/s Ratio Perm					0.05	0.04						0.23	
v/c Ratio					0.52	0.41	0.29	0.41			0.52	0.36	
Uniform Delay, d1					44.8	44.3	39.2	2.5			10.7	9.3	
Progression Factor					1.00	1.00	0.54	0.17			1.00	1.00	
Incremental Delay, d2					3.1	1.9	0.5	0.3			1.7	0.6	
Delay (s)					47.9	46.3	21.6	0.8			12.4	9.9	
Level of Service					D	D	C	A			B	A	
Approach Delay (s)		0.0			47.2			2.1			10.8		
Approach LOS		A			D			A			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			11.3		HCM Level of Service						B		
HCM Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			105.0		Sum of lost time (s)						8.0		
Intersection Capacity Utilization			67.9%		ICU Level of Service						C		
Analysis Period (min)			15										
c Critical Lane Group													



# HCM Signalized Intersection Capacity Analysis

## 34: SB Off & Freedom

Year 2015 Buildout - PM Peak (Modified)

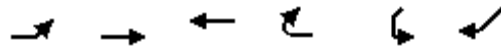


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.97					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1618	1618	1476					3324		1703	1792	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1618	1618	1476					3324		1703	1792	
Volume (vph)	704	0	264	0	0	0	0	183	28	243	203	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	880	0	330	0	0	0	0	229	35	304	254	0
RTOR Reduction (vph)	0	0	221	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	440	440	109	0	0	0	0	255	0	304	254	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Perm					Prot				
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	34.7	34.7	34.7					35.5		22.8	62.3	
Effective Green, g (s)	34.7	34.7	34.7					35.5		22.8	62.3	
Actuated g/C Ratio	0.33	0.33	0.33					0.34		0.22	0.59	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	535	535	488					1124		370	1063	
v/s Ratio Prot	c0.27	0.27						0.08		c0.18	c0.14	
v/s Ratio Perm			0.07									
v/c Ratio	0.82	0.82	0.22					0.23		0.82	0.24	
Uniform Delay, d1	32.3	32.3	25.4					24.9		39.2	10.1	
Progression Factor	1.00	1.00	1.00					1.01		1.36	1.38	
Incremental Delay, d2	9.9	9.9	0.2					0.5		12.0	0.5	
Delay (s)	42.2	42.2	25.6					25.6		65.1	14.5	
Level of Service	D	D	C					C		E	B	
Approach Delay (s)		37.7			0.0			25.6			42.1	
Approach LOS		D			A			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			37.3								HCM Level of Service	D
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			105.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			67.9%								ICU Level of Service	C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 35: Bonita & Freedom

Year 2015 Buildout - PM Peak (Modified)



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕	↑	↗	↗↘	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	0.97	1.00
Frbp, ped/bikes		1.00	1.00	1.00	1.00	0.95
Flpb, ped/bikes		0.98	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		0.96	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1688	1792	1524	3303	1444
Flt Permitted		0.75	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1313	1792	1524	3303	1444
Volume (vph)	35	5	7	176	407	60
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	44	6	9	220	509	75
RTOR Reduction (vph)	0	0	0	0	0	12
Lane Group Flow (vph)	0	50	9	220	509	63
Confl. Peds. (#/hr)	10			10	10	10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type	Perm			pt+ov		Perm
Protected Phases		6	2	2 8	8	
Permitted Phases	6					8
Actuated Green, G (s)		9.4	9.4	105.0	87.6	87.6
Effective Green, g (s)		9.4	9.4	105.0	87.6	87.6
Actuated g/C Ratio		0.09	0.09	1.00	0.83	0.83
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		118	160	1524	2756	1205
v/s Ratio Prot			0.01	0.14	c0.15	
v/s Ratio Perm		c0.04				0.04
v/c Ratio		0.42	0.06	0.14	0.18	0.05
Uniform Delay, d1		45.2	43.7	0.0	1.7	1.5
Progression Factor		1.00	1.00	1.00	0.99	0.58
Incremental Delay, d2		2.4	0.1	0.0	0.1	0.1
Delay (s)		47.7	43.9	0.0	1.8	0.9
Level of Service		D	D	A	A	A
Approach Delay (s)		47.7	1.8		1.7	
Approach LOS		D	A		A	
<b>Intersection Summary</b>						
HCM Average Control Delay			4.4		HCM Level of Service	A
HCM Volume to Capacity ratio			0.21			
Actuated Cycle Length (s)			105.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			28.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

**YEAR 2035 HOV BUILD CONDITIONS**

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# HCM Signalized Intersection Capacity Analysis

## 1: Rooney St & Pacheco Ave

Year 2035 Buildout - AM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	*1.00		1.00	1.00		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.90		1.00	0.99		1.00	0.89			0.98	
Flt Protected	1.00	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1863	1671		1770	1847		1770	1664			1805	
Flt Permitted	1.00	1.00		0.95	1.00		0.50	1.00			0.52	
Satd. Flow (perm)	1863	1671		1770	1847		929	1664			943	
Volume (vph)	83	201	438	421	80	4	371	107	263	4	81	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	218	476	458	87	4	403	116	286	4	88	16
RTOR Reduction (vph)	0	56	0	0	2	0	0	63	0	0	4	0
Lane Group Flow (vph)	90	638	0	458	89	0	403	339	0	0	104	0
Confl. Peds. (#/hr)						10						10
Turn Type	Split		Split		pm+pt		Perm					
Protected Phases	4	4	3	3		2	5				1	
Permitted Phases						5			1			
Actuated Green, G (s)	48.8	48.8		34.0	34.0		45.0	45.0			16.8	
Effective Green, g (s)	49.0	49.0		34.0	34.0		45.0	45.0			17.0	
Actuated g/C Ratio	0.35	0.35		0.24	0.24		0.32	0.32			0.12	
Clearance Time (s)	4.2	4.2		4.0	4.0		4.0	4.0			4.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	652	585		430	449		443	535			115	
v/s Ratio Prot	0.05	c0.38		c0.26	0.05		c0.16	0.20				
v/s Ratio Perm							c0.14				0.11	
v/c Ratio	0.14	1.09		1.07	0.20		0.91	0.63			0.90	
Uniform Delay, d1	31.1	45.5		53.0	42.2		47.9	40.5			60.7	
Progression Factor	1.00	1.00		1.00	1.00		0.83	0.80			1.00	
Incremental Delay, d2	0.4	64.3		61.8	0.2		21.7	2.4			60.4	
Delay (s)	31.5	109.8		114.8	42.4		61.6	34.7			121.1	
Level of Service	C	F		F	D		E	C			F	
Approach Delay (s)		100.8			102.8			48.1			121.1	
Approach LOS		F			F			D			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			83.4			HCM Level of Service					F	
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)		12.0				
Intersection Capacity Utilization			98.0%			ICU Level of Service					F	
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 3: Fairmount & Morrissey

Year 2035 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↗			↗↘		↗↘			↗↘	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	4.0
Lane Util. Factor			1.00			0.88		0.95			0.95	1.00
Frbp, ped/bikes			1.00			1.00		1.00			1.00	0.96
Flpb, ped/bikes			1.00			1.00		1.00			1.00	1.00
Frt			0.86			0.85		0.98			1.00	0.85
Flt Protected			1.00			1.00		1.00			1.00	1.00
Satd. Flow (prot)			1611			2787		3471			3539	1521
Flt Permitted			1.00			1.00		1.00			1.00	1.00
Satd. Flow (perm)			1611			2787		3471			3539	1521
Volume (vph)	0	0	700	0	0	495	0	1383	202	0	1335	547
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	761	0	0	538	0	1503	220	0	1451	595
RTOR Reduction (vph)	0	0	5	0	0	79	0	15	0	0	0	187
Lane Group Flow (vph)	0	0	756	0	0	459	0	1708	0	0	1451	408
Confl. Peds. (#/hr)			10									10
Turn Type			custom			custom						Perm
Protected Phases			5			1		2			6	
Permitted Phases												6
Actuated Green, G (s)			34.8			16.0		50.4			31.4	31.4
Effective Green, g (s)			35.0			16.0		51.0			32.0	32.0
Actuated g/C Ratio			0.47			0.21		0.68			0.43	0.43
Clearance Time (s)			4.2			4.0		4.6			4.6	4.6
Vehicle Extension (s)			3.0			3.0		5.0			5.0	5.0
Lane Grp Cap (vph)			752			595		2360			1510	649
v/s Ratio Prot			c0.47			0.16		0.49			c0.41	
v/s Ratio Perm												0.27
v/c Ratio			1.01			0.77		0.72			0.96	0.63
Uniform Delay, d1			20.0			27.8		7.6			20.9	16.8
Progression Factor			1.00			1.00		1.00			1.00	1.00
Incremental Delay, d2			34.2			6.2		2.0			15.6	4.6
Delay (s)			54.2			33.9		9.5			36.4	21.4
Level of Service			D			C		A			D	C
Approach Delay (s)		54.2			33.9			9.5			32.1	
Approach LOS		D			C			A			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			27.9			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			87.9%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 5: NB On-Ramp & Morrissey

Year 2035 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				↔	↔		↔	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor				0.97	1.00		1.00	0.95			1.00	1.00
Frt				1.00	0.85		1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1583		1770	3539			1863	1583
Flt Permitted				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1583		1770	3539			1863	1583
Volume (vph)	0	0	0	983	0	227	206	514	0	0	697	243
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1068	0	247	224	559	0	0	758	264
RTOR Reduction (vph)	0	0	0	0	123	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	1068	124	0	224	559	0	0	758	240
Turn Type				Prot			Prot					Perm
Protected Phases				3	8		5	2			6	
Permitted Phases												6
Actuated Green, G (s)				47.1	47.1		30.5	84.9			50.4	50.4
Effective Green, g (s)				47.1	47.1		30.5	84.9			50.4	50.4
Actuated g/C Ratio				0.34	0.34		0.22	0.61			0.36	0.36
Clearance Time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1155	533		386	2146			671	570
v/s Ratio Prot				c0.31	0.08		c0.13	0.16			c0.41	
v/s Ratio Perm												0.15
v/c Ratio				0.92	0.23		0.58	0.26			1.13	0.42
Uniform Delay, d1				44.7	33.4		49.0	12.9			44.8	33.8
Progression Factor				1.00	1.00		1.00	1.12			1.32	1.36
Incremental Delay, d2				12.3	0.2		2.2	0.3			60.4	0.2
Delay (s)				57.0	33.7		51.3	14.7			119.7	46.3
Level of Service				E	C		D	B			F	D
Approach Delay (s)		0.0			52.6			25.2			100.8	
Approach LOS		A			D			C			F	

### Intersection Summary

HCM Average Control Delay	61.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	158.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 9: SB Off-Ramp & Morrissey

Year 2035 Buildout - AM Peak (Modified)






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*1.00	*1.00					*1.00	1.00	1.00	*1.00	
Frbp, ped/bikes	1.00	0.95	0.95					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1771	1771					3725	1863	1770	3725	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1771	1771					3725	1863	1770	3725	
Volume (vph)	76	0	334	0	0	0	0	644	1234	132	1548	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	0	363	0	0	0	0	700	1341	143	1683	0
RTOR Reduction (vph)	0	29	29	0	0	0	0	0	249	0	0	0
Lane Group Flow (vph)	83	152	153	0	0	0	0	700	1092	143	1683	0
Confl. Peds. (#/hr)			10						10			10
Turn Type	Split		Perm						Prot	Prot		
Protected Phases	4	4						2	2	1	6	
Permitted Phases			4									
Actuated Green, G (s)	16.3	16.3	16.3					93.8	93.8	16.1	114.5	
Effective Green, g (s)	16.9	16.9	16.9					94.4	94.4	16.7	115.1	
Actuated g/C Ratio	0.12	0.12	0.12					0.67	0.67	0.12	0.82	
Clearance Time (s)	4.6	4.6	4.6					4.6	4.6	4.6	4.6	
Vehicle Extension (s)	3.0	3.0	3.0					3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	214	214	214					2512	1256	211	3062	
v/s Ratio Prot	0.05	0.09						0.19	c0.59	c0.08	0.45	
v/s Ratio Perm			c0.09									
v/c Ratio	0.39	0.71	0.71					0.28	0.87	0.68	0.55	
Uniform Delay, d1	56.8	59.2	59.2					9.1	18.0	59.1	4.0	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.24	0.03	
Incremental Delay, d2	1.2	10.6	10.8					0.3	8.4	0.8	0.1	
Delay (s)	57.9	69.8	70.0					9.4	26.3	74.2	0.2	
Level of Service	E	E	E					A	C	E	A	
Approach Delay (s)		67.7			0.0			20.5			6.0	
Approach LOS		E			A			C			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			19.2					HCM Level of Service		B		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			140.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			158.2%					ICU Level of Service		H		
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 1: Rooney St & Pacheco Ave

Year 2035 Buildout - PM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00		
Frbp, ped/bikes	1.00	1.00		1.00	0.97		1.00	1.00			1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00		
Frt	1.00	0.91		1.00	0.92		1.00	0.89			0.99		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99		
Satd. Flow (prot)	1770	1695		1770	1666		1770	1653			1811		
Flt Permitted	0.95	1.00		0.95	1.00		0.61	1.00			0.26		
Satd. Flow (perm)	1770	1695		1770	1666		1136	1653			475		
Volume (vph)	24	72	108	177	38	42	425	171	513	45	95	16	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	26	78	117	192	41	46	462	186	558	49	103	17	
RTOR Reduction (vph)	0	59	0	0	39	0	0	120	0	0	4	0	
Lane Group Flow (vph)	26	136	0	192	48	0	462	624	0	0	165	0	
Conf. Peds. (#/hr)	10												
Turn Type	Split		Split		pm+pt		Perm						
Protected Phases	4	4		3	3		2	5				1	
Permitted Phases							5	1					
Actuated Green, G (s)	17.1	17.1		12.9	12.9		47.8	47.8				27.0	
Effective Green, g (s)	17.3	17.3		12.9	12.9		47.8	47.8				27.0	
Actuated g/C Ratio	0.19	0.19		0.14	0.14		0.53	0.53				0.30	
Clearance Time (s)	4.2	4.2		4.0	4.0		4.0	4.0				4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0				3.0	
Lane Grp Cap (vph)	340	326		254	239		722	878				143	
v/s Ratio Prot	0.01	c0.08		c0.11	0.03		0.12	c0.38					
v/s Ratio Perm							0.22	c0.35					
v/c Ratio	0.08	0.42		0.76	0.20		0.64	0.71				1.15	
Uniform Delay, d1	29.8	31.9		37.0	34.0		19.3	15.9				31.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00				1.00	
Incremental Delay, d2	0.4	3.9		12.1	0.4		1.9	2.7				122.1	
Delay (s)	30.2	35.8		49.1	34.4		21.1	18.6				153.6	
Level of Service	C	D		D	C		C	B				F	
Approach Delay (s)	35.2				44.5		19.6			153.6			
Approach LOS	D				D		B			F			
<b>Intersection Summary</b>													
HCM Average Control Delay	37.2		HCM Level of Service		D								
HCM Volume to Capacity ratio	0.79												
Actuated Cycle Length (s)	90.0		Sum of lost time (s)		12.0								
Intersection Capacity Utilization	76.3%		ICU Level of Service		D								
Analysis Period (min)	15												

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

## 3: Fairmount & Morrissey

Year 2035 Buildout - PM Peak (Modified)



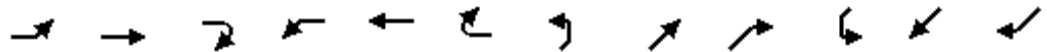
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations			↗			↖↗		↖↗			↖↗	↖↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0		4.0			4.0	4.0
Lane Util. Factor			1.00			0.88		0.95			0.95	1.00
Frbp, ped/bikes			1.00			1.00		1.00			1.00	0.96
Flpb, ped/bikes			1.00			1.00		1.00			1.00	1.00
Frt			0.86			0.85		0.97			1.00	0.85
Flt Protected			1.00			1.00		1.00			1.00	1.00
Satd. Flow (prot)			1611			2787		3448			3539	1519
Flt Permitted			1.00			1.00		1.00			1.00	1.00
Satd. Flow (perm)			1611			2787		3448			3539	1519
Volume (vph)	0	0	585	0	0	771	0	1450	299	0	1227	640
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	636	0	0	838	0	1576	325	0	1334	696
RTOR Reduction (vph)	0	0	15	0	0	35	0	21	0	0	0	220
Lane Group Flow (vph)	0	0	621	0	0	803	0	1880	0	0	1334	476
Confl. Peds. (#/hr)			10									10
Turn Type			custom			custom						Perm
Protected Phases			5			1		2			6	
Permitted Phases												6
Actuated Green, G (s)			32.2			24.4		46.8			39.0	39.0
Effective Green, g (s)			32.4			24.6		47.4			39.6	39.6
Actuated g/C Ratio			0.40			0.31		0.59			0.50	0.50
Clearance Time (s)			4.2			4.2		4.6			4.6	4.6
Vehicle Extension (s)			3.0			3.0		5.0			5.0	5.0
Lane Grp Cap (vph)			652			857		2043			1752	752
v/s Ratio Prot			c0.39			0.29		c0.55			0.38	
v/s Ratio Perm												0.31
v/c Ratio			0.95			0.94		0.92			0.76	0.63
Uniform Delay, d1			23.1			27.0		14.6			16.4	14.9
Progression Factor			1.00			1.00		1.00			1.00	1.00
Incremental Delay, d2			24.0			17.3		8.3			3.2	4.0
Delay (s)			47.1			44.3		22.9			19.6	18.9
Level of Service			D			D		C			B	B
Approach Delay (s)		47.1			44.3			22.9			19.3	
Approach LOS		D			D			C			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			27.7								C	
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			80.0							4.0		
Intersection Capacity Utilization			83.3%								E	
Analysis Period (min)			15									

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 5: NB On-Ramp & Morrissey

Year 2035 Buildout - PM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations				↔	↔		↔	↕			↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Lane Util. Factor				0.97	1.00		1.00	0.95			1.00	1.00
Frt				1.00	0.85		1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)				3433	1583		1770	3539			1863	1583
Flt Permitted				0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)				3433	1583		1770	3539			1863	1583
Volume (vph)	0	0	0	1408	0	428	376	681	0	0	253	127
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1530	0	465	409	740	0	0	275	138
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	45
Lane Group Flow (vph)	0	0	0	1530	415	0	409	740	0	0	275	93
Turn Type				Prot			Prot					Perm
Protected Phases				3	8		5	2			6	
Permitted Phases												6
Actuated Green, G (s)				62.0	62.0		26.0	50.0			20.0	20.0
Effective Green, g (s)				62.0	62.0		26.0	50.0			20.0	20.0
Actuated g/C Ratio				0.52	0.52		0.22	0.42			0.17	0.17
Clearance Time (s)				4.0	4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)				1774	818		384	1475			311	264
v/s Ratio Prot				c0.45	0.26		c0.23	0.21			c0.15	
v/s Ratio Perm												0.06
v/c Ratio				0.86	0.51		1.07	0.50			0.88	0.35
Uniform Delay, d1				25.3	19.0		47.0	25.8			48.9	44.3
Progression Factor				1.00	1.00		1.14	1.25			1.00	1.00
Incremental Delay, d2				5.8	0.5		62.7	1.1			28.6	3.7
Delay (s)				31.1	19.5		116.1	33.4			77.4	47.9
Level of Service				C	B		F	C			E	D
Approach Delay (s)		0.0			28.4			62.8			67.6	
Approach LOS		A			C			E			E	

### Intersection Summary

HCM Average Control Delay	44.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	145.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 9: SB Off-Ramp & Morrissey

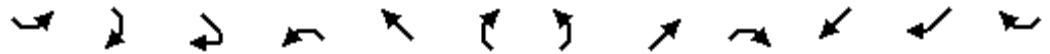
Year 2035 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*1.00	*1.00					*1.00	1.00	1.00	*1.00	
Frbp, ped/bikes	1.00	0.96	0.96					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1781	1781					3725	1863	1770	3725	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1781	1781					3725	1863	1770	3725	
Volume (vph)	98	0	246	0	0	0	0	959	1262	40	1621	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	107	0	267	0	0	0	0	1042	1372	43	1762	0
RTOR Reduction (vph)	0	43	43	0	0	0	0	0	245	0	0	0
Lane Group Flow (vph)	107	90	91	0	0	0	0	1042	1127	43	1762	0
Confl. Peds. (#/hr)			10						10			10
Turn Type	Split		Perm						Prot	Prot		
Protected Phases	4	4						2	2	1	6	
Permitted Phases			4									
Actuated Green, G (s)	12.3	12.3	12.3					85.8	85.8	8.1	98.5	
Effective Green, g (s)	12.9	12.9	12.9					86.4	86.4	8.7	99.1	
Actuated g/C Ratio	0.11	0.11	0.11					0.72	0.72	0.07	0.83	
Clearance Time (s)	4.6	4.6	4.6					4.6	4.6	4.6	4.6	
Vehicle Extension (s)	3.0	3.0	3.0					3.5	3.5	3.5	3.5	
Lane Grp Cap (vph)	190	191	191					2682	1341	128	3076	
v/s Ratio Prot	c0.06	0.05						0.28	c0.60	0.02	c0.47	
v/s Ratio Perm			0.05									
v/c Ratio	0.56	0.47	0.48					0.39	0.84	0.34	0.57	
Uniform Delay, d1	50.9	50.3	50.4					6.5	11.9	52.9	3.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.15	0.31	
Incremental Delay, d2	3.8	1.8	1.9					0.4	6.5	0.9	0.4	
Delay (s)	54.7	52.2	52.3					7.0	18.4	61.7	1.4	
Level of Service	D	D	D					A	B	E	A	
Approach Delay (s)		52.9			0.0			13.5			2.9	
Approach LOS		D			A			B			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			12.5					HCM Level of Service		B		
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			120.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			145.0%					ICU Level of Service		H		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 8: NB On & Soquel Dr.

Year 2035 HOV Build - AM Peak



Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Lane Configurations	↶	↶		↶↷	↶	↶	↶	↶↶	↶	↶↶	↶↷	↶
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		*1.00	0.95	0.95	1.00	0.95	1.00	0.95	0.88	
Frbp, ped/bikes	1.00	1.00		1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.90	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1687	1583		3725	1488	1434	1770	3539	1583	3539	2787	
Flt Permitted	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1687	1583		3725	1488	1434	1770	3539	1583	3539	2787	
Volume (vph)	123	160	107	1569	149	638	144	2226	900	1498	1090	38
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	174	116	1705	157	672	157	2420	978	1628	1185	41
RTOR Reduction (vph)	0	16	0	0	22	22	0	0	148	0	1	0
Lane Group Flow (vph)	129	274	0	1705	425	360	157	2420	830	1628	1225	0
Confl. Peds. (#/hr)	10					10						
Heavy Vehicles (%)	7%	2%	2%	2%	7%	7%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	custom		Prot		Prot	Prot		custom		Prot	
Protected Phases	4	8		7	3	3	5	2	2 3	6	6	
Permitted Phases												
Actuated Green, G (s)	14.7	16.0		53.0	55.1	55.1	11.0	69.0	127.3	54.0	54.0	
Effective Green, g (s)	14.7	16.0		53.0	54.3	54.3	11.0	69.0	127.3	54.0	54.0	
Actuated g/C Ratio	0.10	0.11		0.35	0.36	0.36	0.07	0.46	0.85	0.36	0.36	
Clearance Time (s)	4.0	4.0		4.0	3.2	3.2	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165	169		1316	539	519	130	1628	1343	1274	1003	
v/s Ratio Prot	0.08	c0.17		c0.46	0.29	0.25	0.09	c0.68	0.52	0.46	0.44	
v/s Ratio Perm												
v/c Ratio	0.78	1.62		1.30	0.79	0.69	1.21	1.49	0.62	1.28	1.22	
Uniform Delay, d1	66.1	67.0		48.5	42.7	40.8	69.5	40.5	3.6	48.0	48.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.15	0.64	20.63	1.00	1.00	
Incremental Delay, d2	21.0	304.9		138.8	7.5	4.0	100.2	219.2	0.1	131.2	108.6	
Delay (s)	87.1	371.9		187.3	50.2	44.7	180.4	245.2	74.6	179.2	156.6	
Level of Service	F	F		F	D	D	F	F	E	F	F	
Approach Delay (s)					141.6			195.4		169.5		
Approach LOS					F			F		F		
<b>Intersection Summary</b>												
HCM Average Control Delay			176.9		HCM Level of Service					F		
HCM Volume to Capacity ratio			1.43									
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			113.0%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 10: SB On-Ramp & Soquel Ave.

Year 2035 HOV Build - AM Peak



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations			↶	↷	↶	↷
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			1.00	1.00	1.00	1.00
Frt			1.00	1.00	1.00	0.85
Flt Protected			0.95	1.00	1.00	1.00
Satd. Flow (prot)			1770	1863	1863	1583
Flt Permitted			0.95	1.00	1.00	1.00
Satd. Flow (perm)			1770	1863	1863	1583
Volume (vph)	0	0	322	949	1164	305
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	350	1032	1265	332
RTOR Reduction (vph)	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	350	1032	1265	300
Turn Type			Prot			Perm
Protected Phases			7	4	8	
Permitted Phases						8
Actuated Green, G (s)			18.1	87.0	60.9	60.9
Effective Green, g (s)			18.1	87.0	60.9	60.9
Actuated g/C Ratio			0.21	1.00	0.70	0.70
Clearance Time (s)			4.0	4.0	4.0	4.0
Vehicle Extension (s)			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)			368	1863	1304	1108
v/s Ratio Prot			c0.20	0.55	c0.68	
v/s Ratio Perm						0.19
v/c Ratio			0.95	0.55	0.97	0.27
Uniform Delay, d1			34.0	0.0	12.2	4.8
Progression Factor			1.00	1.00	1.00	1.00
Incremental Delay, d2			34.2	0.4	18.1	0.1
Delay (s)			68.3	0.4	30.3	5.0
Level of Service			E	A	C	A
Approach Delay (s)	0.0			17.6	25.1	
Approach LOS	A			B	C	



























Intersection Summary

HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

40: Soquel Ave. & Soquel Dr.

Year 2035 HOV Build - AM Peak

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	  	 						 		 	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	*1.00	*1.00		1.00		1.00		0.95		0.97	0.95	1.00
Frt	1.00	1.00		1.00		0.85		0.95		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	5588	3725		1770		1583		3362		3433	3539	1583
Flt Permitted	1.00	1.00		0.95		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	5588	3725		1770		1583		3362		3433	3539	1583
Volume (vph)	1448	506	286	276	0	888	0	934	468	297	2428	505
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1574	550	311	300	0	965	0	1015	509	323	2639	549
RTOR Reduction (vph)	0	13	0	0	0	4	0	40	0	0	0	44
Lane Group Flow (vph)	1574	848	0	300	0	961	0	1484	0	323	2639	505
Turn Type	Prot		Prot		custom					Prot		Perm
Protected Phases	1	6	5		3			4		3	8	
Permitted Phases						5						
Actuated Green, G (s)	65.0	39.0	22.0		55.0			40.0		33.0	77.0	77.0
Effective Green, g (s)	65.0	39.0	22.0		55.0			40.0		33.0	77.0	77.0
Actuated g/C Ratio	0.43	0.26	0.15		0.37			0.27		0.22	0.51	0.51
Clearance Time (s)	4.0	4.0	4.0		4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	2421	969	260		623			897		755	1817	813
v/s Ratio Prot	0.28	c0.23	0.17		c0.34			c0.44		0.09	0.75	
v/s Ratio Perm						0.27						
v/c Ratio	0.65	0.87	1.15		1.54			1.65		0.43	1.45	0.62
Uniform Delay, d1	33.5	53.2	64.0		47.5			55.0		50.4	36.5	26.1
Progression Factor	1.00	1.00	1.00		1.00			1.00		0.69	0.55	0.43
Incremental Delay, d2	0.6	8.9	103.8		251.8			299.7		0.0	203.9	0.3
Delay (s)	34.2	62.0	167.8		299.3			354.7		34.7	224.1	11.4
Level of Service	C	E	F		F			F		C	F	B
Approach Delay (s)	44.0		268.1			354.7			173.4			
Approach LOS	D		F			F			F			
<b>Intersection Summary</b>												
HCM Average Control Delay	182.7		HCM Level of Service			F						
HCM Volume to Capacity ratio	1.39											
Actuated Cycle Length (s)	150.0		Sum of lost time (s)			12.0						
Intersection Capacity Utilization	133.3%		ICU Level of Service			H						
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: NB On & Soquel Dr.

Year 2035 HOV Build - PM Peak



Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		*1.00	*1.00	*1.00	1.00	*1.00	1.00	0.95	0.88	
Frbp, ped/bikes	1.00	1.00		1.00	0.98	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.87	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1687	1583		3725	1502	1494	1770	3725	1583	3539	2787	
Flt Permitted	0.95	1.00		1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1687	1583		3725	1502	1494	1770	3725	1583	3539	2787	
Volume (vph)	143	71	83	1221	67	1356	73	2312	1449	1586	1058	64
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	151	77	90	1327	71	1427	79	2513	1575	1724	1150	70
RTOR Reduction (vph)	0	59	0	0	76	0	0	0	291	0	4	0
Lane Group Flow (vph)	151	108	0	1327	600	822	79	2513	1284	1724	1216	0
Confl. Peds. (#/hr)	10					10						
Heavy Vehicles (%)	7%	2%	2%	2%	7%	7%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	custom		Prot	custom	Prot	custom	Prot	custom		Prot	
Protected Phases	4	8		7	3	3	5	2	2 3	6	6	
Permitted Phases						7						
Actuated Green, G (s)	16.0	10.8		36.0	30.8	50.8	4.0	32.0	66.8	24.0	24.0	
Effective Green, g (s)	16.0	10.8		35.2	30.0	50.0	4.0	32.0	66.0	24.0	24.0	
Actuated g/C Ratio	0.18	0.12		0.39	0.33	0.56	0.04	0.36	0.73	0.27	0.27	
Clearance Time (s)	4.0	4.0		3.2	3.2	3.2	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	190		1457	501	830	79	1324	1161	944	743	
v/s Ratio Prot	0.09	0.07		0.36	c0.40	c0.33	0.04	c0.67	c0.81	0.49	0.44	
v/s Ratio Perm						0.22						
v/c Ratio	0.50	0.57		0.91	1.20	0.99	1.00	1.90	1.11	1.83	1.64	
Uniform Delay, d1	33.4	37.4		25.9	30.0	19.8	43.0	29.0	12.0	33.0	33.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	3.9		8.8	107.0	28.7	101.3	407.0	60.5	376.0	292.3	
Delay (s)	34.7	41.3		34.8	137.0	48.5	144.3	436.0	72.5	409.0	325.3	
Level of Service	C	D		C	F	D	F	F	E	F	F	
Approach Delay (s)					63.2			293.0		374.3		
Approach LOS					E			F		F		

Intersection Summary			
HCM Average Control Delay	245.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	138.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis  
 10: Soquel Ave. & SB On-Ramp

Year 2035 HOV Build - PM Peak



Movement	EBL2	EBL	SEL	SER	SWR	SWR2
Lane Configurations	↖	↖			↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00	1.00
Frt	1.00	1.00			0.85	0.85
Flt Protected	0.95	0.95			1.00	1.00
Satd. Flow (prot)	1770	1770			1583	1583
Flt Permitted	0.95	0.95			1.00	1.00
Satd. Flow (perm)	1770	1770			1583	1583
Volume (vph)	687	1677	0	0	837	213
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	747	1823	0	0	910	232
RTOR Reduction (vph)	0	0	0	0	0	39
Lane Group Flow (vph)	747	1823	0	0	910	193
Turn Type	Prot			Perm		
Protected Phases	7	4			8	
Permitted Phases						8
Actuated Green, G (s)	51.0	130.0			71.0	71.0
Effective Green, g (s)	51.0	130.0			71.0	71.0
Actuated g/C Ratio	0.39	1.00			0.55	0.55
Clearance Time (s)	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	694	1770			865	865
v/s Ratio Prot	0.42	c1.03			0.57	
v/s Ratio Perm						0.12
v/c Ratio	1.08	1.03			1.05	0.22
Uniform Delay, d1	39.5	65.0			29.5	15.2
Progression Factor	1.00	1.00			1.00	1.00
Incremental Delay, d2	56.6	29.5			45.2	0.1
Delay (s)	96.1	94.5			74.7	15.4
Level of Service	F	F			E	B
Approach Delay (s)		94.9	0.0		62.7	
Approach LOS		F	A		E	

**Intersection Summary**




























HCM Average Control Delay	85.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



# HCM Signalized Intersection Capacity Analysis

40: Soquel Ave. & Soquel Dr.

Year 2035 HOV Build - PM Peak

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	  	 						 		  	 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	*1.00	*1.00		1.00		1.00		0.95		*1.00	*1.00	1.00
Frt	1.00	0.96		1.00		0.85		0.95		1.00	1.00	0.85
Flt Protected	1.00	1.00		0.95		1.00		1.00		1.00	1.00	1.00
Satd. Flow (prot)	5588	3574		1770		1583		3364		3725	3725	1583
Flt Permitted	1.00	1.00		0.95		1.00		1.00		1.00	1.00	1.00
Satd. Flow (perm)	5588	3574		1770		1583		3364		3725	3725	1583
Volume (vph)	1097	483	180	189	0	648	0	2089	1032	849	1296	733
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1192	525	196	205	0	704	0	2271	1122	923	1409	797
RTOR Reduction (vph)	0	26	0	0	0	12	0	35	0	0	0	0
Lane Group Flow (vph)	1192	695	0	205	0	692	0	3358	0	923	1409	797
Turn Type	Prot			Prot		custom				Prot		pm+ov
Protected Phases	1	6		5		3		4		3	8	1
Permitted Phases						5						8
Actuated Green, G (s)	53.6	33.6		16.0		40.0		60.4		24.0	88.4	142.0
Effective Green, g (s)	53.6	33.6		16.0		40.0		60.4		24.0	88.4	142.0
Actuated g/C Ratio	0.36	0.22		0.11		0.27		0.40		0.16	0.59	0.95
Clearance Time (s)	4.0	4.0		4.0		4.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1997	801		189		464		1355		596	2195	1583
v/s Ratio Prot	0.21	c0.19		0.12		c0.24		c1.00		0.25	0.38	0.18
v/s Ratio Perm						0.20						0.32
v/c Ratio	0.60	0.87		1.08		1.49		2.48		1.55	0.64	0.50
Uniform Delay, d1	39.4	56.1		67.0		55.0		44.8		63.0	20.3	0.4
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	9.8		89.8		232.6		667.5		255.1	1.5	0.3
Delay (s)	39.9	65.8		156.8		287.6		712.3		318.1	21.8	0.7
Level of Service	D	E		F		F		F		F	C	A
Approach Delay (s)		49.6			258.1			712.3			103.8	
Approach LOS		D			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			328.7			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.77									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			161.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 13: SB Off & 41st




















Year 2035 Buildout - AM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	0.88					0.95	0.88	1.00	*1.00	
Frbp, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00					1.00	1.00	1.00	1.00	
Satd. Flow (prot)	1493	3378	2584					3282	2787	1863	5182	
Flt Permitted	0.95	1.00	1.00					1.00	1.00	1.00	1.00	
Satd. Flow (perm)	1493	3378	2584					3282	2787	1863	5182	
Volume (vph)	198	418	766	0	0	0	0	1139	1321	232	1932	0
Peak-hour factor, PHF	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Adj. Flow (vph)	218	454	842	0	0	0	0	1252	1436	252	2123	0
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	216	0	0	0
Lane Group Flow (vph)	205	467	835	0	0	0	0	1252	1220	252	2123	0
Confl. Peds. (#/hr)			10									10
Heavy Vehicles (%)	10%	2%	10%	2%	2%	2%	10%	10%	2%	2%	10%	10%
Turn Type	Split		Prot						Prot	Prot		
Protected Phases	4	4	4					2	2	1	6	
Permitted Phases												
Actuated Green, G (s)	31.3	31.3	31.3					28.7	28.7	18.0	50.7	
Effective Green, g (s)	31.0	31.0	31.0					29.0	29.0	18.0	51.0	
Actuated g/C Ratio	0.34	0.34	0.34					0.32	0.32	0.20	0.57	
Clearance Time (s)	3.7	3.7	3.7					4.3	4.3	4.0	4.3	
Vehicle Extension (s)	3.5	3.5	3.5					3.5	3.5	3.0	5.0	
Lane Grp Cap (vph)	514	1164	890					1058	898	373	2936	
v/s Ratio Prot	0.14	0.14	c0.32					0.38	c0.44	0.14	c0.41	
v/s Ratio Perm												
v/c Ratio	0.40	0.40	0.94					1.18	1.36	0.68	0.72	
Uniform Delay, d1	22.4	22.4	28.6					30.5	30.5	33.3	14.3	
Progression Factor	1.00	1.00	1.00					1.00	1.00	0.92	0.81	
Incremental Delay, d2	0.6	0.3	17.2					92.3	168.5	1.7	0.6	
Delay (s)	23.0	22.7	45.8					122.8	199.0	32.4	12.1	
Level of Service	C	C	D					F	F	C	B	
Approach Delay (s)		35.6			0.0			163.5			14.3	
Approach LOS		D			A			F			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			80.2								HCM Level of Service	F
HCM Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			84.7%								ICU Level of Service	E
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 16: Main & Porter/Bay
























Year 2035 Buildout - AM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.97		1.00	0.96		1.00	0.96		1.00	1.00	
Flt Protected		0.99		0.95	0.96		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1720		1618	1572		1703	3216		1703	3390	
Flt Permitted		0.99		0.95	0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1720		1618	1572		1703	3216		1703	3390	
Volume (vph)	2	5	2	599	9	80	23	718	270	95	592	14
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	2	5	2	631	9	84	24	756	284	100	623	15
RTOR Reduction (vph)	0	2	0	0	9	0	0	33	0	0	1	0
Lane Group Flow (vph)	0	7	0	378	337	0	24	1007	0	100	637	0
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		0.8		32.5	32.5		33.0	60.0		11.7	39.2	
Effective Green, g (s)		0.3		32.0	32.0		32.0	60.5		11.2	39.7	
Actuated g/C Ratio		0.00		0.27	0.27		0.27	0.50		0.09	0.33	
Clearance Time (s)		3.5		3.5	3.5		3.0	4.5		3.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		4		431	419		454	1621		159	1122	
v/s Ratio Prot		c0.00		c0.23	0.21		0.01	c0.31		0.06	c0.19	
v/s Ratio Perm												
v/c Ratio		1.75		0.88	0.80		0.05	0.62		0.63	0.57	
Uniform Delay, d1		59.9		42.1	41.1		32.7	21.5		52.4	33.1	
Progression Factor		1.00		1.00	1.00		0.51	0.22		1.00	1.00	
Incremental Delay, d2		788.1		17.8	10.7		0.0	1.6		7.6	2.1	
Delay (s)		847.9		60.0	51.8		16.7	6.3		60.0	35.2	
Level of Service		F		E	D		B	A		E	D	
Approach Delay (s)		847.9			56.1			6.5			38.5	
Approach LOS		F			E			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			33.0			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			70.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c	Critical Lane Group											

# HCM Signalized Intersection Capacity Analysis

## 17: NB Ramps & Porter/Bay





















Year 2035 Buildout - AM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 			 	 			 	 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	0.95
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		1524	1703	3406			3406	1446
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		1524	1703	3406			3406	1446
Volume (vph)	0	0	0	454	0	150	476	861	0	0	738	455
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	488	0	161	512	926	0	0	794	489
RTOR Reduction (vph)	0	0	0	0	0	118	0	0	0	0	0	124
Lane Group Flow (vph)	0	0	0	488	0	43	512	926	0	0	794	365
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					Perm
Protected Phases				3		3	5	2			6	
Permitted Phases												6
Actuated Green, G (s)				32.5		32.5	33.0	60.0			39.2	39.2
Effective Green, g (s)				32.0		32.0	32.0	60.5			39.7	39.7
Actuated g/C Ratio				0.27		0.27	0.27	0.50			0.33	0.33
Clearance Time (s)				3.5		3.5	3.0	4.5			4.5	4.5
Vehicle Extension (s)				3.0		3.0	3.0	5.0			5.0	5.0
Lane Grp Cap (vph)				881		406	454	1717			1127	478
v/s Ratio Prot				c0.15		0.03	c0.30	0.27			0.23	
v/s Ratio Perm												c0.25
v/c Ratio				0.55		0.11	1.13	0.54			0.70	0.76
Uniform Delay, d1				37.9		33.2	44.0	20.3			35.0	36.0
Progression Factor				1.00		1.00	1.00	1.00			0.53	0.74
Incremental Delay, d2				0.8		0.1	82.0	1.2			2.7	8.2
Delay (s)				38.6		33.3	126.0	21.5			21.3	35.0
Level of Service				D		C	F	C			C	D
Approach Delay (s)		0.0			37.3			58.7			26.5	
Approach LOS		A			D			E			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			42.3		HCM Level of Service						D	
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						16.3	
Intersection Capacity Utilization			69.7%		ICU Level of Service						C	
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 18: SB Ramps & Porter/Bay




















Year 2035 Buildout - AM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00	1.00	1.00					1.00	0.97	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	0.93	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1649	1506	1475					3471	1511	1736	3471		
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1649	1506	1475					3471	1511	1736	3471		
Volume (vph)	327	0	403	0	0	0	0	1010	256	370	822	0	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	363	0	448	0	0	0	0	1122	284	411	913	0	
RTOR Reduction (vph)	0	47	161	0	0	0	0	0	170	0	0	0	
Lane Group Flow (vph)	225	213	165	0	0	0	0	1122	114	411	913	0	
Confl. Peds. (#/hr)									10			10	
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	
Turn Type	Split		Prot						Perm		Prot		
Protected Phases	4	4	4					2		1	6		
Permitted Phases									2				
Actuated Green, G (s)	11.3	11.3	11.3					27.4	27.4	19.8	50.4		
Effective Green, g (s)	11.0	11.0	11.0					28.0	28.0	19.0	51.0		
Actuated g/C Ratio	0.16	0.16	0.16					0.40	0.40	0.27	0.73		
Clearance Time (s)	3.7	3.7	3.7					4.6	4.6	3.2	4.6		
Vehicle Extension (s)	3.0	3.0	3.0					5.0	5.0	3.0	5.0		
Lane Grp Cap (vph)	259	237	232					1388	604	471	2529		
v/s Ratio Prot	0.14	c0.14	0.11					c0.32		c0.24	0.26		
v/s Ratio Perm									0.08				
v/c Ratio	0.87	0.90	0.71					0.81	0.19	0.87	0.36		
Uniform Delay, d1	28.8	28.9	28.0					18.6	13.6	24.3	3.5		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Incremental Delay, d2	25.1	32.3	9.8					5.2	0.7	16.2	0.4		
Delay (s)	53.9	61.3	37.8					23.8	14.3	40.5	3.9		
Level of Service	D	E	D					C	B	D	A		
Approach Delay (s)		49.8			0.0			21.9			15.3		
Approach LOS		D			A			C			B		
<b>Intersection Summary</b>													
HCM Average Control Delay			25.8									HCM Level of Service	C
HCM Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			89.4%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 33: NB Ramps & 41st



























Year 2035 Buildout - AM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor				*1.00	0.91	1.00		0.91	1.00		*1.00	
Frt				1.00	1.00	1.00		1.00	0.85		1.00	
Flt Protected				1.00	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (prot)				1863	3368	1863		5085	1583		3725	
Flt Permitted				1.00	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (perm)				1863	3368	1863		5085	1583		3725	
Volume (vph)	0	0	0	730	931	417	0	805	532	0	1434	264
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	793	1012	453	0	875	578	0	1559	287
RTOR Reduction (vph)	0	0	0	0	0	51	0	0	299	0	18	0
Lane Group Flow (vph)	0	0	0	640	1165	402	0	875	279	0	1828	0
Turn Type				Split		Prot			Perm			
Protected Phases				4	4	4		2			6	
Permitted Phases									2			
Actuated Green, G (s)				38.6	38.6	38.6		43.1	43.1		43.1	
Effective Green, g (s)				38.6	38.6	38.6		43.4	43.4		43.4	
Actuated g/C Ratio				0.43	0.43	0.43		0.48	0.48		0.48	
Clearance Time (s)				4.0	4.0	4.0		4.3	4.3		4.3	
Vehicle Extension (s)				3.0	3.0	3.0		3.5	3.5		5.0	
Lane Grp Cap (vph)				799	1444	799		2452	763		1796	
v/s Ratio Prot				0.34	c0.35	0.22		0.17			c0.49	
v/s Ratio Perm									0.18			
v/c Ratio				0.80	0.81	0.50		0.36	0.37		1.02	
Uniform Delay, d1				22.4	22.4	18.7		14.6	14.6		23.3	
Progression Factor				1.00	1.00	1.00		1.09	4.24		1.00	
Incremental Delay, d2				5.8	3.4	0.5		0.0	0.1		25.9	
Delay (s)				28.2	25.8	19.2		15.9	62.2		49.2	
Level of Service				C	C	B		B	E		D	
Approach Delay (s)		0.0			25.2			34.3			49.2	
Approach LOS		A			C			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			35.5				HCM Level of Service		D			
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			86.0%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 13: SB Off & 41st




















Year 2035 Buildout - PM Peak (Modified)

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 	 					 	 		  		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	0.95	0.88					0.95	0.88	1.00	*1.00		
Frbp, ped/bikes	1.00	1.00	0.97					1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00					1.00	1.00	1.00	1.00		
Satd. Flow (prot)	1641	3539	2516					3282	2787	1863	5182		
Flt Permitted	0.95	1.00	1.00					1.00	1.00	1.00	1.00		
Satd. Flow (perm)	1641	3539	2516					3282	2787	1863	5182		
Volume (vph)	225	424	754	0	0	0	0	1923	1439	252	1909	0	
Peak-hour factor, PHF	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91	
Adj. Flow (vph)	247	461	829	0	0	0	0	2113	1564	274	2098	0	
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	80	0	0	0	
Lane Group Flow (vph)	247	461	810	0	0	0	0	2113	1484	274	2098	0	
Confl. Peds. (#/hr)			10									10	
Heavy Vehicles (%)	10%	2%	10%	2%	2%	2%	10%	10%	2%	2%	10%	10%	
Turn Type	Split		Perm						Perm	Prot			
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)	41.3	41.3	41.3					75.7	75.7	21.0	100.7		
Effective Green, g (s)	41.0	41.0	41.0					76.0	76.0	21.0	101.0		
Actuated g/C Ratio	0.27	0.27	0.27					0.51	0.51	0.14	0.67		
Clearance Time (s)	3.7	3.7	3.7					4.3	4.3	4.0	4.3		
Vehicle Extension (s)	3.5	3.5	3.5					3.5	3.5	3.0	5.0		
Lane Grp Cap (vph)	449	967	688					1663	1412	261	3489		
v/s Ratio Prot	0.15	0.13						c0.64		c0.15	0.40		
v/s Ratio Perm			c0.32						0.53				
v/c Ratio	0.55	0.48	1.18					1.27	1.05	1.05	0.60		
Uniform Delay, d1	46.6	45.5	54.5					37.0	37.0	64.5	13.4		
Progression Factor	1.00	1.00	1.00					1.16	1.19	1.10	1.22		
Incremental Delay, d2	1.6	0.4	94.5					124.0	31.4	31.7	0.1		
Delay (s)	48.2	46.0	149.0					166.9	75.5	102.9	16.5		
Level of Service	D	D	F					F	E	F	B		
Approach Delay (s)		101.9			0.0			128.0			26.5		
Approach LOS		F			A			F			C		
<b>Intersection Summary</b>													
HCM Average Control Delay			91.0									HCM Level of Service	F
HCM Volume to Capacity ratio			1.21										
Actuated Cycle Length (s)			150.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			92.8%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 16: Main & Porter/Bay

Year 2035 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00		0.95	0.95		1.00	0.95		1.00	0.95	
Frbp, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.96		1.00	0.95		1.00	1.00	
Flt Protected		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1655		1618	1563		1703	3187		1703	3404	
Flt Permitted		0.99		0.95	0.97		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1655		1618	1563		1703	3187		1703	3404	
Volume (vph)	9	12	21	372	2	55	7	649	280	220	1098	3
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	13	22	392	2	58	7	683	295	232	1156	3
RTOR Reduction (vph)	0	22	0	0	8	0	0	29	0	0	0	0
Lane Group Flow (vph)	0	22	0	237	207	0	7	949	0	232	1159	0
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		3.2		23.5	23.5		48.0	83.4		24.9	60.8	
Effective Green, g (s)		2.7		23.0	23.0		47.0	83.9		24.4	61.3	
Actuated g/C Ratio		0.02		0.15	0.15		0.31	0.56		0.16	0.41	
Clearance Time (s)		3.5		3.5	3.5		3.0	4.5		3.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)		30		248	240		534	1783		277	1391	
v/s Ratio Prot		c0.01		c0.15	0.13		0.00	c0.30		0.14	c0.34	
v/s Ratio Perm												
v/c Ratio		0.75		0.96	0.86		0.01	0.53		0.84	0.83	
Uniform Delay, d1		73.3		63.0	61.9		35.5	20.7		60.9	39.8	
Progression Factor		1.00		1.00	1.00		0.64	0.40		1.00	1.00	
Incremental Delay, d2		66.5		44.5	25.5		0.0	1.0		19.3	6.0	
Delay (s)		139.8		107.5	87.5		22.6	9.4		80.2	45.8	
Level of Service		F		F	F		C	A		F	D	
Approach Delay (s)		139.8			98.0			9.5			51.5	
Approach LOS		F			F			A			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			45.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			68.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 17: NB Ramps & Porter/Bay





















Year 2035 Buildout - PM Peak (Modified)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔↔		↗	↘	↕↕			↕↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	1.00
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	0.94
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		1524	1703	3406			3406	1434
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		1524	1703	3406			3406	1434
Volume (vph)	0	0	0	367	0	279	615	657	0	0	990	501
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	395	0	300	661	706	0	0	1065	539
RTOR Reduction (vph)	0	0	0	0	0	254	0	0	0	0	0	79
Lane Group Flow (vph)	0	0	0	395	0	46	661	706	0	0	1065	460
Confl. Peds. (#/hr)						10			10			10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					Perm
Protected Phases				3		3	5	2			6	
Permitted Phases												6
Actuated Green, G (s)				23.5		23.5	48.0	83.4			60.8	60.8
Effective Green, g (s)				23.0		23.0	47.0	83.9			61.3	61.3
Actuated g/C Ratio				0.15		0.15	0.31	0.56			0.41	0.41
Clearance Time (s)				3.5		3.5	3.0	4.5			4.5	4.5
Vehicle Extension (s)				3.0		3.0	3.0	5.0			5.0	5.0
Lane Grp Cap (vph)				506		234	534	1905			1392	586
v/s Ratio Prot				c0.12		0.03	c0.39	0.21			0.31	
v/s Ratio Perm												c0.32
v/c Ratio				0.78		0.20	1.24	0.37			0.77	0.78
Uniform Delay, d1				61.1		55.4	51.5	18.4			38.2	38.6
Progression Factor				1.00		1.00	1.00	1.00			0.27	0.23
Incremental Delay, d2				7.7		0.4	122.4	0.6			2.2	5.6
Delay (s)				68.7		55.8	173.9	18.9			12.4	14.5
Level of Service				E		E	F	B			B	B
Approach Delay (s)		0.0			63.2			93.8			13.1	
Approach LOS		A			E			F			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			52.7									HCM Level of Service D
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			150.0						18.7			
Intersection Capacity Utilization			81.9%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 18: SB Ramps & Porter/Bay




















Year 2035 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95	0.91	0.95					0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00	1.00	1.00					1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Frt	1.00	0.92	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1649	1498	1475					3471	1515	1736	3471	
Flt Permitted	0.95	0.98	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1649	1498	1475					3471	1515	1736	3471	
Volume (vph)	373	0	414	0	0	0	0	899	358	313	1044	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	414	0	460	0	0	0	0	999	398	348	1160	0
RTOR Reduction (vph)	0	66	80	0	0	0	0	0	245	0	0	0
Lane Group Flow (vph)	262	246	220	0	0	0	0	999	153	348	1160	0
Conf. Peds. (#/hr)									10			10
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Turn Type	Split		Prot						Perm		Prot	
Protected Phases	4	4	4					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	11.3	11.3	11.3					22.4	22.4	14.8	40.4	
Effective Green, g (s)	11.0	11.0	11.0					23.0	23.0	14.0	41.0	
Actuated g/C Ratio	0.18	0.18	0.18					0.38	0.38	0.23	0.68	
Clearance Time (s)	3.7	3.7	3.7					4.6	4.6	3.2	4.6	
Vehicle Extension (s)	3.0	3.0	3.0					5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)	302	275	270					1331	581	405	2372	
v/s Ratio Prot	0.16	c0.16	0.15					c0.29		c0.20	0.33	
v/s Ratio Perm									0.10			
v/c Ratio	0.87	0.89	0.81					0.75	0.26	0.86	0.49	
Uniform Delay, d1	23.8	23.9	23.5					16.0	12.7	22.1	4.5	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.1	28.5	17.0					3.9	1.1	16.4	0.7	
Delay (s)	45.9	52.4	40.5					19.9	13.8	38.4	5.2	
Level of Service	D	D	D					B	B	D	A	
Approach Delay (s)		46.4			0.0			18.2			12.9	
Approach LOS		D			A			B			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			22.6									HCM Level of Service C
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			60.0									Sum of lost time (s) 12.0
Intersection Capacity Utilization			95.0%									ICU Level of Service F
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 33: NB Ramps & 41st



















Year 2035 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor				*1.00	0.91	1.00		0.91	1.00		*1.00	
Frt				1.00	1.00	1.00		1.00	0.85		1.00	
Flt Protected				1.00	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (prot)				1863	3368	1863		5085	1583		3725	
Flt Permitted				1.00	0.99	1.00		1.00	1.00		1.00	
Satd. Flow (perm)				1863	3368	1863		5085	1583		3725	
Volume (vph)	0	0	0	885	1126	313	0	1513	635	0	1276	315
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	962	1224	340	0	1645	690	0	1387	342
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	438	0	30	0
Lane Group Flow (vph)	0	0	0	775	1411	340	0	1645	252	0	1699	0
Turn Type				Split		Perm			Perm			
Protected Phases				8	8			2			6	
Permitted Phases						8			2			
Actuated Green, G (s)				39.6	39.6	39.6		27.4	27.4		27.4	
Effective Green, g (s)				39.6	39.6	39.6		27.4	27.4		27.4	
Actuated g/C Ratio				0.53	0.53	0.53		0.37	0.37		0.37	
Clearance Time (s)				4.0	4.0	4.0		4.0	4.0		4.0	
Vehicle Extension (s)				3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)				984	1778	984		1858	578		1361	
v/s Ratio Prot				0.42	c0.42			0.32			c0.46	
v/s Ratio Perm						0.18			0.16			
v/c Ratio				0.79	0.79	0.35		0.89	0.44		1.25	
Uniform Delay, d1				14.3	14.4	10.2		22.3	18.0		23.8	
Progression Factor				0.98	0.95	0.84		1.09	6.38		1.00	
Incremental Delay, d2				3.8	2.2	0.2		0.7	0.2		117.9	
Delay (s)				17.7	15.9	8.8		24.9	114.8		141.7	
Level of Service				B	B	A		C	F		F	
Approach Delay (s)		0.0			15.5			51.5			141.7	
Approach LOS		A			B			D			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			61.4				HCM Level of Service		E			
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			89.9%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

21: NB On & Park Ave
























Year 2035 - AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	1.00	0.95			0.95	0.88
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		2682	1703	3406			3406	2682
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		2682	1703	3406			3406	2682
Volume (vph)	0	0	0	515	0	714	712	2142	0	0	415	935
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	652	0	904	901	2711	0	0	525	1184
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	0	0	53
Lane Group Flow (vph)	0	0	0	652	0	900	901	2711	0	0	525	1131
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					custom
Protected Phases				8		8	5	2			6	6
Permitted Phases												8
Actuated Green, G (s)				30.4		30.4	49.8	75.9			22.9	57.4
Effective Green, g (s)				31.0		31.0	49.0	76.0			23.0	58.0
Actuated g/C Ratio				0.27		0.27	0.43	0.66			0.20	0.50
Clearance Time (s)				4.6		4.6	3.2	4.1			4.1	
Vehicle Extension (s)				3.0		3.0	2.0	3.0			3.0	
Lane Grp Cap (vph)				890		723	726	2251			681	1353
v/s Ratio Prot				0.20		c0.34	c0.53	c0.80			0.15	0.42
v/s Ratio Perm												
v/c Ratio				0.73		1.24	1.24	1.20			0.77	0.84
Uniform Delay, d1				38.2		42.0	33.0	19.5			43.5	24.4
Progression Factor				1.00		1.00	1.82	1.27			1.00	1.00
Incremental Delay, d2				3.1		121.4	109.6	92.4			8.2	4.6
Delay (s)				41.4		163.4	169.8	117.1			51.7	29.1
Level of Service				D		F	F	F			D	C
Approach Delay (s)		0.0			112.3			130.2			36.0	
Approach LOS		A			F			F			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			102.8									F
HCM Volume to Capacity ratio			1.22									
Actuated Cycle Length (s)			115.0								8.0	
Intersection Capacity Utilization			139.0%									H
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 22: SB Off & Park Ave

Year 2035 - AM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 		 					 		 	 		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3303		2668					3406	1524	1703	3406		
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3303		2668					3406	1524	1703	3406		
Volume (vph)	1796	0	448	0	0	0	0	1058	460	175	755	0	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
Adj. Flow (vph)	2395	0	597	0	0	0	0	1411	613	233	1007	0	
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	7	0	0	0	
Lane Group Flow (vph)	2395	0	562	0	0	0	0	1411	606	233	1007	0	
Confl. Peds. (#/hr)	10		10	10			10	10		10	10	10	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Turn Type	Prot		custom						custom		Prot		
Protected Phases	4		4					2	2 4	1	6		
Permitted Phases			1										
Actuated Green, G (s)	55.4		67.7					34.9	94.4	12.3	50.9		
Effective Green, g (s)	56.0		68.0					35.0	95.0	12.0	51.0		
Actuated g/C Ratio	0.49		0.59					0.30	0.83	0.10	0.44		
Clearance Time (s)	4.6		4.6					4.1		3.7	4.1		
Vehicle Extension (s)	3.0		3.0					3.0		2.0	3.0		
Lane Grp Cap (vph)	1608		1670					1037	1259	178	1510		
v/s Ratio Prot	c0.72		0.16					c0.41	0.40	c0.14	0.30		
v/s Ratio Perm			0.05										
v/c Ratio	1.49		0.34					1.36	0.48	1.31	0.67		
Uniform Delay, d1	29.5		12.0					40.0	2.9	51.5	25.3		
Progression Factor	1.00		1.00					0.89	1.07	1.61	1.60		
Incremental Delay, d2	223.6		0.1					162.9	0.0	167.2	1.7		
Delay (s)	253.1		12.1					198.6	3.1	249.9	42.3		
Level of Service	F		B					F	A	F	D		
Approach Delay (s)		205.0			0.0			139.4			81.3		
Approach LOS		F			A			F			F		
<b>Intersection Summary</b>													
HCM Average Control Delay			159.2									HCM Level of Service	F
HCM Volume to Capacity ratio			1.42										
Actuated Cycle Length (s)			115.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			139.0%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

# HCM Signalized Intersection Capacity Analysis

## 24: Kennedy & Park Ave

Year 2035 - AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00			0.99			0.99		1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.95			0.96		1.00	0.95	
Flt Protected	0.95	0.97			0.98			1.00		0.95	1.00	
Satd. Flow (prot)	1618	1645			1647			1713		3303	1666	
Flt Permitted	0.95	0.97			0.98			0.69		0.95	1.00	
Satd. Flow (perm)	1618	1645			1647			1178		3303	1666	
Volume (vph)	232	62	5	457	369	537	3	749	270	407	519	277
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	276	74	6	544	439	639	4	892	321	485	618	330
RTOR Reduction (vph)	0	1	0	0	20	0	0	11	0	0	17	0
Lane Group Flow (vph)	175	180	0	0	1602	0	0	1206	0	485	931	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split			Split			Perm			Prot		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2					
Actuated Green, G (s)	15.2	15.2			37.8			39.0		7.0	50.0	
Effective Green, g (s)	15.2	15.2			37.8			39.0		7.0	50.0	
Actuated g/C Ratio	0.13	0.13			0.33			0.34		0.06	0.43	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	214	217			541			399		201	724	
v/s Ratio Prot	0.11	c0.11			c0.97					c0.15	0.56	
v/s Ratio Perm								c1.02				
v/c Ratio	0.82	0.83			2.96			3.02		2.41	1.29	
Uniform Delay, d1	48.6	48.6			38.6			38.0		54.0	32.5	
Progression Factor	1.00	1.00			1.00			1.00		0.94	0.89	
Incremental Delay, d2	20.9	22.7			887.4			916.6		648.4	137.5	
Delay (s)	69.5	71.4			926.0			954.6		698.9	166.3	
Level of Service	E	E			F			F		F	F	
Approach Delay (s)		70.4			926.0			954.6			346.6	
Approach LOS		E			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay	688.3		HCM Level of Service				F					
HCM Volume to Capacity ratio	2.62											
Actuated Cycle Length (s)	115.0				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	195.5%		ICU Level of Service				H					
Analysis Period (min)	15											
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 21: NB On & Park Ave

Year 2035 - PM Peak


























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖↗		↖↗	↖	↗↗			↗↗	↖↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				0.97		0.88	1.00	0.95			0.95	0.88
Frbp, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Flpb, ped/bikes				1.00		1.00	1.00	1.00			1.00	1.00
Frt				1.00		0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				3303		2682	1703	3406			3406	2682
Flt Permitted				0.95		1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)				3303		2682	1703	3406			3406	2682
Volume (vph)	0	0	0	828	0	452	762	1437	0	0	739	1123
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	1048	0	572	965	1819	0	0	935	1422
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	1048	0	533	965	1819	0	0	935	1379
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type				Prot		custom	Prot					custom
Protected Phases				8		8	5	2			6	6
Permitted Phases												
Actuated Green, G (s)				27.4		27.4	49.8	78.9			25.9	57.4
Effective Green, g (s)				28.0		28.0	49.0	79.0			26.0	58.0
Actuated g/C Ratio				0.24		0.24	0.43	0.69			0.23	0.50
Clearance Time (s)				4.6		4.6	3.2	4.1			4.1	
Vehicle Extension (s)				3.0		3.0	2.0	3.0			3.0	
Lane Grp Cap (vph)				804		653	726	2340			770	1353
v/s Ratio Prot				c0.32		0.20	c0.57	0.53			c0.27	0.51
v/s Ratio Perm												
v/c Ratio				1.30		0.82	1.33	0.78			1.21	1.02
Uniform Delay, d1				43.5		41.1	33.0	12.1			44.5	28.5
Progression Factor				1.00		1.00	1.74	1.89			1.00	1.00
Incremental Delay, d2				145.6		7.8	149.0	0.2			108.2	29.4
Delay (s)				189.1		48.9	206.6	23.1			152.7	57.9
Level of Service				F		D	F	C			F	E
Approach Delay (s)		0.0			139.6			86.7			95.5	
Approach LOS		A			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			102.4									F
HCM Volume to Capacity ratio			1.29									
Actuated Cycle Length (s)			115.0						12.0			
Intersection Capacity Utilization			179.5%									H
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 22: SB Off & Park Ave

Year 2035 - PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 		 					 		 	 		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95		
Frbp, ped/bikes	1.00		0.98					1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00		
Frt	1.00		0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3303		2641					3406	1524	1703	3406		
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3303		2641					3406	1524	1703	3406		
Volume (vph)	1210	0	754	0	0	0	0	989	1316	684	883	0	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	
Adj. Flow (vph)	1613	0	1005	0	0	0	0	1319	1755	912	1177	0	
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	4	0	0	0	
Lane Group Flow (vph)	1613	0	922	0	0	0	0	1319	1751	912	1177	0	
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10	
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	
Turn Type	Prot		custom						custom		Prot		
Protected Phases	4		4					2	2 4	1	6		
Permitted Phases			1										
Actuated Green, G (s)	29.4		61.7					40.9	74.4	32.3	76.9		
Effective Green, g (s)	30.0		62.0					41.0	75.0	32.0	77.0		
Actuated g/C Ratio	0.26		0.54					0.36	0.65	0.28	0.67		
Clearance Time (s)	4.6		4.6					4.1		3.7	4.1		
Vehicle Extension (s)	3.0		3.0					3.0		2.0	3.0		
Lane Grp Cap (vph)	862		1516					1214	994	474	2281		
v/s Ratio Prot	0.49		0.16					0.39	c1.15	c0.54	0.35		
v/s Ratio Perm			0.19										
v/c Ratio	1.87		0.61					1.09	1.76	1.92	0.52		
Uniform Delay, d1	42.5		18.2					37.0	20.0	41.5	9.6		
Progression Factor	1.00		1.00					0.87	0.97	1.68	3.52		
Incremental Delay, d2	396.5		0.7					40.5	343.2	418.5	0.1		
Delay (s)	439.0		18.9					72.8	362.5	488.3	33.8		
Level of Service	F		B					E	F	F	C		
Approach Delay (s)		277.7			0.0			238.2			232.2		
Approach LOS		F			A			F			F		
<b>Intersection Summary</b>													
HCM Average Control Delay			249.9									HCM Level of Service	F
HCM Volume to Capacity ratio			1.81										
Actuated Cycle Length (s)			115.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			179.5%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													



# HCM Signalized Intersection Capacity Analysis

## 24: Kennedy & Park Ave

Year 2035 - PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95			1.00			1.00		0.97	1.00	
Frbp, ped/bikes	1.00	1.00			0.98			0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00			1.00		1.00	1.00	
Frt	1.00	1.00			0.91			0.97		1.00	0.98	
Flt Protected	0.95	1.00			0.99			1.00		0.95	1.00	
Satd. Flow (prot)	1618	1689			1569			1732		3303	1733	
Flt Permitted	0.95	1.00			0.99			0.67		0.95	1.00	
Satd. Flow (perm)	1618	1689			1569			1160		3303	1733	
Volume (vph)	145	137	4	241	89	766	4	1394	351	693	790	154
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	173	163	5	287	106	912	5	1660	418	825	940	183
RTOR Reduction (vph)	0	1	0	0	71	0	0	8	0	0	6	0
Lane Group Flow (vph)	166	174	0	0	1234	0	0	2075	0	825	1117	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split			Split			Perm			Prot		
Protected Phases	4	4		8	8			2		1	6	
Permitted Phases							2					
Actuated Green, G (s)	14.8	14.8			32.2			43.0		9.0	56.0	
Effective Green, g (s)	14.8	14.8			32.2			43.0		9.0	56.0	
Actuated g/C Ratio	0.13	0.13			0.28			0.37		0.08	0.49	
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)	208	217			439			434		258	844	
v/s Ratio Prot	0.10	c0.10			c0.79					c0.25	0.64	
v/s Ratio Perm								c1.79				
v/c Ratio	0.80	0.80			2.81			4.78		3.20	1.32	
Uniform Delay, d1	48.6	48.7			41.4			36.0		53.0	29.5	
Progression Factor	1.00	1.00			1.00			1.00		0.79	1.15	
Incremental Delay, d2	18.9	18.9			820.9			1706.6		997.2	152.3	
Delay (s)	67.5	67.6			862.3			1742.6		1039.2	186.1	
Level of Service	E	E			F			F		F	F	
Approach Delay (s)		67.5			862.3			1742.6			547.4	
Approach LOS		E			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			1029.5			HCM Level of Service				F		
HCM Volume to Capacity ratio			3.40									
Actuated Cycle Length (s)			115.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			234.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 25: NB Off & State Park

Year 2035 Buildout - AM Peak (Modified)



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	0.91	0.95			0.91
Frbp, ped/bikes	1.00	0.99	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	0.96	0.85	0.93			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3207	1366	3180			4893
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3207	1366	3180			4893
Volume (vph)	647	1036	809	639	0	2025
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	727	1164	909	718	0	2275
RTOR Reduction (vph)	28	0	110	0	0	0
Lane Group Flow (vph)	954	909	1517	0	0	2275
Confl. Peds. (#/hr)		10				
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type		Free				
Protected Phases	2		4			8
Permitted Phases		Free				
Actuated Green, G (s)	56.4	130.0	66.0			65.0
Effective Green, g (s)	57.0	130.0	65.0			65.0
Actuated g/C Ratio	0.44	1.00	0.50			0.50
Clearance Time (s)	4.6		3.0			4.0
Vehicle Extension (s)	3.0		2.0			3.0
Lane Grp Cap (vph)	1406	1366	1590			2447
v/s Ratio Prot	0.30		c0.48			0.46
v/s Ratio Perm		c0.67				
v/c Ratio	0.68	0.67	0.95			0.93
Uniform Delay, d1	29.2	0.0	31.1			30.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.7	2.6	14.0			7.8
Delay (s)	31.8	2.6	45.1			38.2
Level of Service	C	A	D			D
Approach Delay (s)	17.8		45.1			38.2
Approach LOS	B		D			D
<b>Intersection Summary</b>						
HCM Average Control Delay			33.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	4.0
Intersection Capacity Utilization			79.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

# HCM Signalized Intersection Capacity Analysis

## 27: SB Ramps & State Park

Year 2035 Buildout - AM Peak (Modified)

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0			
Lane Util. Factor	0.97		0.88		0.95	1.00		0.95			
Frbp, ped/bikes	1.00		0.98		1.00	1.00		1.00			
Flpb, ped/bikes	1.00		1.00		1.00	1.00		1.00			
Frt	1.00		0.85		1.00	0.85		1.00			
Flt Protected	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (prot)	3242		2566		3343	1495		3343			
Flt Permitted	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (perm)	3242		2566		3343	1495		3343			
Volume (vph)	705	0	913	0	743	794	0	855	0	0	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	775	0	1003	0	816	873	0	940	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	311	0	0	0	0	0
Lane Group Flow (vph)	775	0	1003	0	816	562	0	940	0	0	0
Confl. Peds. (#/hr)			10						10		
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot		Free			Perm					
Protected Phases	7				2			6			
Permitted Phases			Free			2					
Actuated Green, G (s)	45.5		150.0		96.5	96.5		86.1			
Effective Green, g (s)	45.5		150.0		96.5	96.5		86.1			
Actuated g/C Ratio	0.30		1.00		0.64	0.64		0.57			
Clearance Time (s)	4.0				4.0	4.0		4.0			
Vehicle Extension (s)	3.0				3.0	3.0		3.0			
Lane Grp Cap (vph)	983		2566		2151	962		1919			
v/s Ratio Prot	c0.24				0.24			0.28			
v/s Ratio Perm			0.39			c0.38					
v/c Ratio	0.79		0.39		0.38	0.58		0.49			
Uniform Delay, d1	47.8		0.0		12.6	15.3		18.9			
Progression Factor	1.00		1.00		1.00	1.00		1.00			
Incremental Delay, d2	4.3		0.4		0.5	2.6		0.9			
Delay (s)	52.1		0.4		13.1	17.9		19.8			
Level of Service	D		A		B	B		B			
Approach Delay (s)		23.0			15.6			19.8		0.0	
Approach LOS		C			B			B		A	
<b>Intersection Summary</b>											
HCM Average Control Delay			19.5					HCM Level of Service		B	
HCM Volume to Capacity ratio			0.65								
Actuated Cycle Length (s)			150.0					Sum of lost time (s)		8.0	
Intersection Capacity Utilization			55.4%					ICU Level of Service		B	
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis  
 28: Sea Ridge & State Park

Year 2035 Buildout - AM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔			↕	↗
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	501	0	55	2	5	2	161	1034	0	10	1385	373
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	642	0	71	3	6	3	206	1326	0	13	1776	478
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)											251	
pX, platoon unblocked	0.81	0.81	0.81	0.81	0.81		0.81					
vC, conflicting volume	2903	3560	1796	3630	4038	683	2264			1336		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3354	4167	1985	4255	4759	683	2564			1336		
tC, single (s)	7.7	6.7	7.1	7.7	6.7	7.1	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	0	0	0	0	99	0			97		
cM capacity (veh/h)	0	0	38	0	0	372	123			478		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>						
Volume Total	713	12	869	663	1788	478						
Volume Left	642	3	206	0	13	0						
Volume Right	71	3	0	0	0	478						
cSH	0	0	123	1700	478	1700						
Volume to Capacity	Err	Err	1.68	0.39	0.03	0.28						
Queue Length 95th (ft)	Err	Err	386	0	2	0						
Control Delay (s)	Err	Err	593.2	0.0	0.1	0.0						
Lane LOS	F	F	F		A							
Approach Delay (s)	Err	Err	336.6		0.1							
Approach LOS	F	F										
<b>Intersection Summary</b>												
Average Delay			Err									
Intersection Capacity Utilization			154.6%		ICU Level of Service					H		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis  
 25: NB Off & State Park

Year 2035 Buildout - PM Peak (Modified)



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	0.91	0.95			0.91
Frbp, ped/bikes	1.00	0.99	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	0.85	0.94			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3303	1366	3213			4893
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3303	1366	3213			4893
Volume (vph)	873	479	944	572	0	2249
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	981	538	1061	643	0	2527
RTOR Reduction (vph)	0	0	67	0	0	0
Lane Group Flow (vph)	981	538	1637	0	0	2527
Confl. Peds. (#/hr)		10				
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type		Free				
Protected Phases	2		4			8
Permitted Phases		Free				
Actuated Green, G (s)	43.6	130.0	80.4			79.4
Effective Green, g (s)	42.6	130.0	79.4			79.4
Actuated g/C Ratio	0.33	1.00	0.61			0.61
Clearance Time (s)	3.0		3.0			4.0
Vehicle Extension (s)	2.0		2.0			3.0
Lane Grp Cap (vph)	1082	1366	1962			2988
v/s Ratio Prot	c0.30		0.51			c0.52
v/s Ratio Perm		0.39				
v/c Ratio	0.91	0.39	0.83			0.85
Uniform Delay, d1	41.8	0.0	20.1			20.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	10.6	0.9	4.4			3.2
Delay (s)	52.4	0.9	24.4			23.5
Level of Service	D	A	C			C
Approach Delay (s)	34.1		24.4			23.5
Approach LOS	C		C			C

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

# HCM Signalized Intersection Capacity Analysis

## 27: SB Ramps & State Park

Year 2035 Buildout - PM Peak (Modified)

Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0		4.0			
Lane Util. Factor	0.97		0.88		0.95	1.00		0.95			
Frbp, ped/bikes	1.00		0.98		1.00	1.00		1.00			
Flpb, ped/bikes	1.00		1.00		1.00	1.00		1.00			
Frt	1.00		0.85		1.00	0.85		1.00			
Flt Protected	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (prot)	3242		2566		3343	1495		3343			
Flt Permitted	0.95		1.00		1.00	1.00		1.00			
Satd. Flow (perm)	3242		2566		3343	1495		3343			
Volume (vph)	794	0	1099	0	722	820	0	1143	0	0	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	873	0	1208	0	793	901	0	1256	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	506	0	0	0	0	0
Lane Group Flow (vph)	873	0	1208	0	793	395	0	1256	0	0	0
Confl. Peds. (#/hr)			10						10		
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot		Free			Perm					
Protected Phases	7				2			6			
Permitted Phases			Free			2					
Actuated Green, G (s)	76.3		150.0		65.7	65.7		65.7			
Effective Green, g (s)	76.3		150.0		65.7	65.7		65.7			
Actuated g/C Ratio	0.51		1.00		0.44	0.44		0.44			
Clearance Time (s)	4.0				4.0	4.0		4.0			
Vehicle Extension (s)	3.0				3.0	3.0		3.0			
Lane Grp Cap (vph)	1649		2566		1464	655		1464			
v/s Ratio Prot	c0.27				0.24			c0.38			
v/s Ratio Perm			0.47			0.26					
v/c Ratio	0.53		0.47		0.54	0.60		0.86			
Uniform Delay, d1	24.8		0.0		31.1	32.2		37.9			
Progression Factor	1.00		1.00		1.00	1.00		1.00			
Incremental Delay, d2	0.3		0.6		1.4	4.1		6.7			
Delay (s)	25.1		0.6		32.5	36.3		44.7			
Level of Service	C		A		C	D		D			
Approach Delay (s)		10.9			34.5			44.7		0.0	
Approach LOS		B			C			D		A	
<b>Intersection Summary</b>											
HCM Average Control Delay			27.3							HCM Level of Service	C
HCM Volume to Capacity ratio			0.68								
Actuated Cycle Length (s)			150.0							Sum of lost time (s)	8.0
Intersection Capacity Utilization			68.1%							ICU Level of Service	C
Analysis Period (min)			15								
c	Critical Lane Group										

# HCM Unsignalized Intersection Capacity Analysis

## 28: Sea Ridge & State Park

Year 2035 Buildout - PM Peak (Modified)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Stop			Stop			Free			Free	↕
Grade		0%			0%			0%			0%	↕
Volume (veh/h)	354	0	104	2	5	9	42	1179	1	10	1316	916
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	454	0	133	3	6	12	54	1512	1	13	1687	1174
Pedestrians		10			10			10			10	10
Lane Width (ft)		12.0			12.0			12.0			12.0	12.0
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	4.0
Percent Blockage		1			1			1			1	1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												251
pX, platoon unblocked	0.64	0.64	0.64	0.64	0.64		0.64					
vC, conflicting volume	2611	3353	1707	3486	4527	776	2872			1523		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3535	4703	2113	4912	6550	776	3945			1523		
tC, single (s)	7.7	6.7	7.1	7.7	6.7	7.1	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.3		
p0 queue free %	0	0	0	0	0	96	0			97		
cM capacity (veh/h)	0	0	24	0	0	322	25			403		

























Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	587	21	810	757	1700	1174
Volume Left	454	3	54	0	13	0
Volume Right	133	12	0	1	0	1174
cSH	0	0	25	1700	403	1700
Volume to Capacity	Err	Err	2.12	0.45	0.03	0.69
Queue Length 95th (ft)	Err	Err	165	0	2	0
Control Delay (s)	Err	Err	1473.0	0.0	59.8	0.0
Lane LOS	F	F	F		F	
Approach Delay (s)	Err	Err	761.2		35.3	
Approach LOS	F	F				

Intersection Summary		
Average Delay		Err
Intersection Capacity Utilization	116.7%	ICU Level of Service
Analysis Period (min)	15	H

# HCM Signalized Intersection Capacity Analysis

30: Rio Del Mar & NB On

Year 2035 HOV Build - AM Peak

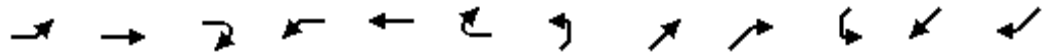
												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	  
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	0.88
Frbp, ped/bikes	1.00	1.00			1.00	0.96				1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1687	3374			3374	1449				1603	1603	2656
Flt Permitted	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	1687	3374			3374	1449				1603	1603	2656
Volume (vph)	784	731	0	0	699	196	0	0	0	631	0	812
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	912	850	0	0	813	228	0	0	0	734	0	944
RTOR Reduction (vph)	0	0	0	0	0	91	0	0	0	0	0	0
Lane Group Flow (vph)	912	850	0	0	813	137	0	0	0	367	367	944
Conf. Peds. (#/hr)						10						
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Prot					Perm				Prot		Free
Protected Phases	3	8			4					1	6	
Permitted Phases						4						Free
Actuated Green, G (s)	42.0	69.0			23.5	23.5				18.0	24.0	105.0
Effective Green, g (s)	42.0	69.0			23.0	23.0				18.0	24.0	105.0
Actuated g/C Ratio	0.40	0.66			0.22	0.22				0.17	0.23	1.00
Clearance Time (s)	4.0	4.0			3.5	3.5				4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	675	2217			739	317				275	427	2656
v/s Ratio Prot	c0.54	0.25			c0.24					c0.23	c0.15	
v/s Ratio Perm						0.09					0.08	0.36
v/c Ratio	1.35	0.38			1.10	0.43				1.33	0.86	0.36
Uniform Delay, d1	31.5	8.3			41.0	35.4				43.5	38.9	0.0
Progression Factor	1.00	1.00			0.82	0.66				1.00	1.00	1.00
Incremental Delay, d2	167.7	0.5			55.5	2.0				173.2	19.7	0.4
Delay (s)	199.2	8.8			89.1	25.3				216.7	58.5	0.4
Level of Service	F	A			F	C				F	E	A
Approach Delay (s)		107.3			75.1			0.0			60.4	
Approach LOS		F			E			A			E	
<b>Intersection Summary</b>												
HCM Average Control Delay			82.3				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.22									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			80.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												



# HCM Signalized Intersection Capacity Analysis

## 31: SB On & Rio Del Mar

Year 2035 HOV Build - AM Peak






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔↔		↔↔					↕↕	↔	↔	↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97		0.88					0.95	1.00	*1.00	0.95	
Frbp, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	1.00	1.00	
Satd. Flow (prot)	3183		2584					3282	1468	1727	3282	
Flt Permitted	0.95		1.00					1.00	1.00	1.00	1.00	
Satd. Flow (perm)	3183		2584					3282	1468	1727	3282	
Volume (vph)	507	0	362	0	0	0	0	1008	514	566	764	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	557	0	398	0	0	0	0	1108	565	622	840	0
RTOR Reduction (vph)	0	0	326	0	0	0	0	0	280	0	0	0
Lane Group Flow (vph)	557	0	72	0	0	0	0	1108	285	622	840	0
Conf. Peds. (#/hr)												10
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot		custom						Perm	Prot		
Protected Phases	7		7					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	19.2		19.2					37.4	37.4	39.9	81.4	
Effective Green, g (s)	20.0		20.0					38.0	38.0	40.0	82.0	
Actuated g/C Ratio	0.18		0.18					0.35	0.35	0.36	0.75	
Clearance Time (s)	4.8		4.8					4.6	4.6	4.1	4.6	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	579		470					1134	507	628	2447	
v/s Ratio Prot	c0.17		0.03					c0.34		c0.36	0.26	
v/s Ratio Perm									0.19			
v/c Ratio	0.96		0.15					0.98	0.56	0.99	0.34	
Uniform Delay, d1	44.6		37.9					35.6	29.2	34.8	4.8	
Progression Factor	1.00		1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2	28.0		0.2					21.8	4.5	33.4	0.4	
Delay (s)	72.6		38.0					57.3	33.7	68.2	5.2	
Level of Service	E		D					E	C	E	A	
Approach Delay (s)		58.2			0.0			49.3			32.0	
Approach LOS		E			A			D			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			45.2					HCM Level of Service		D		
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			110.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			80.0%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 32: Soquel & Rio Del Mar

Year 2035 HOV Build - AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frbp, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		0.98	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frt		1.00	0.85		1.00		1.00	1.00	0.85		0.96	
Flt Protected		0.98	1.00		0.98		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1733	1509		1735		1687	1776	1509		1666	
Flt Permitted		0.98	1.00		0.98		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1733	1509		1735		1687	1776	1509		1666	
Volume (vph)	131	138	450	245	382	14	788	330	425	9	201	104
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	170	179	584	318	496	18	1023	429	552	12	261	135
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	352	0	17	0
Lane Group Flow (vph)	0	349	584	0	831	0	1023	429	200	0	391	0
Conf. Peds. (#/hr)						10						10
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Split		Free	Split			Split		Perm	Split		
Protected Phases	2!	2!		6!	6!		8	8		13	13	
Permitted Phases			Free						8			
Actuated Green, G (s)		35.5	105.0		35.5		38.0	38.0	38.0		20.0	
Effective Green, g (s)		35.0	105.0		35.0		38.0	38.0	38.0		20.0	
Actuated g/C Ratio		0.33	1.00		0.33		0.36	0.36	0.36		0.19	
Clearance Time (s)		3.5			3.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		578	1509		578		611	643	546		317	
v/s Ratio Prot		0.20			c0.48		c0.61	0.24			c0.23	
v/s Ratio Perm			0.39						0.13			
v/c Ratio		0.60	0.39		1.44		1.67	0.67	0.37		1.23	
Uniform Delay, d1		29.2	0.0		35.0		33.5	28.2	24.6		42.5	
Progression Factor		1.00	1.00		1.00		1.31	1.34	4.37		1.00	
Incremental Delay, d2		4.6	0.8		207.0		310.3	5.2	1.8		129.4	
Delay (s)		33.8	0.8		242.0		354.0	42.8	109.5		171.9	
Level of Service		C	A		F		F	D	F		F	
Approach Delay (s)		13.1			242.0			220.1			171.9	
Approach LOS		B			F			F			F	

### Intersection Summary

HCM Average Control Delay	173.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	123.8%	ICU Level of Service	H
Analysis Period (min)	15		
























! Phase conflict between lane groups.

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

30: Rio Del Mar & NB On

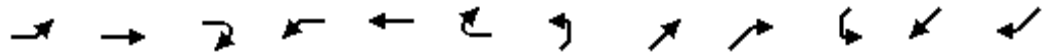
Year 2035 Buildout - PM Peak (Modified)

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		 			 						 	 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95	1.00				0.95	0.95	0.88
Frbp, ped/bikes	1.00	1.00			1.00	0.97				1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00				1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (prot)	1687	3374			3374	1464				1603	1603	2656
Flt Permitted	0.95	1.00			1.00	1.00				0.95	0.95	1.00
Satd. Flow (perm)	1687	3374			3374	1464				1603	1603	2656
Volume (vph)	584	1187	0	0	1334	483	0	0	0	573	0	993
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	679	1380	0	0	1551	562	0	0	0	666	0	1155
RTOR Reduction (vph)	0	0	0	0	0	118	0	0	0	0	0	76
Lane Group Flow (vph)	679	1380	0	0	1551	444	0	0	0	333	333	1079
Conf. Peds. (#/hr)						10						
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Prot					Perm				Split		
Protected Phases	3	8			4					6	6	6
Permitted Phases						4						
Actuated Green, G (s)	27.0	67.0			36.0	36.0				30.0	30.0	30.0
Effective Green, g (s)	27.0	67.0			36.0	36.0				30.0	30.0	30.0
Actuated g/C Ratio	0.26	0.64			0.34	0.34				0.29	0.29	0.29
Clearance Time (s)	4.0	4.0			4.0	4.0				4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	3.0
Lane Grp Cap (vph)	434	2153			1157	502				458	458	759
v/s Ratio Prot	c0.40	0.41			c0.46					0.21	0.21	c0.41
v/s Ratio Perm						0.30						
v/c Ratio	1.56	0.64			1.34	0.88				0.73	0.73	1.42
Uniform Delay, d1	39.0	11.6			34.5	32.5				33.8	33.8	37.5
Progression Factor	0.76	0.99			0.97	0.94				1.00	1.00	1.00
Incremental Delay, d2	259.7	0.9			153.8	2.4				5.7	5.7	197.6
Delay (s)	289.4	12.4			187.2	33.1				39.5	39.5	235.1
Level of Service	F	B			F	C				D	D	F
Approach Delay (s)		103.7			146.2			0.0			163.5	
Approach LOS		F			F			A			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			136.9				HCM Level of Service				F	
HCM Volume to Capacity ratio			1.43									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)				12.0	
Intersection Capacity Utilization			95.1%				ICU Level of Service				F	
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 31: SB On & Rio Del Mar

Year 2035 Buildout - PM Peak (Modified)






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	↔↔		↔↔					↕↕	↔	↔	↕↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97		0.88					0.95	1.00	1.00	0.95	
Frbp, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00	1.00	1.00	
Frt	1.00		0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3183		2584					3282	1468	1641	3282	
Flt Permitted	0.95		1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3183		2584					3282	1468	1641	3282	
Volume (vph)	440	0	651	0	0	0	0	1331	328	618	1289	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	484	0	715	0	0	0	0	1463	360	679	1416	0
RTOR Reduction (vph)	0	0	99	0	0	0	0	0	176	0	0	0
Lane Group Flow (vph)	484	0	616	0	0	0	0	1463	184	679	1416	0
Confl. Peds. (#/hr)												10
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Turn Type	Prot		custom						Perm		Prot	
Protected Phases	7		7					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	22.2		22.2					47.1	47.1	22.2	73.4	
Effective Green, g (s)	23.0		23.0					47.7	47.7	22.3	74.0	
Actuated g/C Ratio	0.22		0.22					0.45	0.45	0.21	0.70	
Clearance Time (s)	4.8		4.8					4.6	4.6	4.1	4.6	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	697		566					1491	667	349	2313	
v/s Ratio Prot	0.15		c0.24					c0.45		c0.41	0.43	
v/s Ratio Perm									0.13			
v/c Ratio	0.69		1.09					0.98	0.28	1.95	0.61	
Uniform Delay, d1	37.8		41.0					28.2	17.9	41.4	8.0	
Progression Factor	1.00		1.00					1.00	1.00	0.79	0.21	
Incremental Delay, d2	3.0		64.0					19.2	1.0	426.5	0.1	
Delay (s)	40.8		105.0					47.5	18.9	459.1	1.8	
Level of Service	D		F					D	B	F	A	
Approach Delay (s)		79.0			0.0			41.8			150.0	
Approach LOS		E			A			D			F	
<b>Intersection Summary</b>												
HCM Average Control Delay			94.8								HCM Level of Service	F
HCM Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			105.0								Sum of lost time (s)	12.0
Intersection Capacity Utilization			95.1%								ICU Level of Service	F
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 32: Soquel & Rio Del Mar

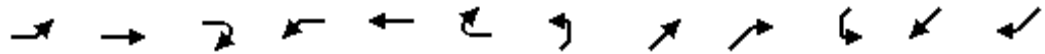
Year 2035 Buildout - PM Peak (Modified)

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frbp, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00	1.00		1.00	
Frt		1.00	0.85		1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00	1.00		0.97		0.95	1.00	1.00		1.00	
Satd. Flow (prot)		1772	1509		1716		1687	1776	1509		1768	
Flt Permitted		1.00	1.00		0.97		0.95	1.00	1.00		1.00	
Satd. Flow (perm)		1772	1509		1716		1687	1776	1509		1768	
Volume (vph)	11	246	1061	381	174	2	992	710	478	5	375	8
Peak-hour factor, PHF	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Adj. Flow (vph)	14	319	1378	495	226	3	1288	922	621	6	487	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	254	0	1	0
Lane Group Flow (vph)	0	333	1378	0	724	0	1288	922	367	0	502	0
Confl. Peds. (#/hr)						10						10
Heavy Vehicles (%)	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Turn Type	Split		Free	Split			Split		Perm		Split	
Protected Phases	2	2		6	6		8	8		13	13	
Permitted Phases			Free						8			
Actuated Green, G (s)		12.5	105.0		23.5		33.0	33.0	33.0		21.0	
Effective Green, g (s)		12.0	105.0		23.0		33.0	33.0	33.0		21.0	
Actuated g/C Ratio		0.11	1.00		0.22		0.31	0.31	0.31		0.20	
Clearance Time (s)		3.5			3.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)		203	1509		376		530	558	474		354	
v/s Ratio Prot		c0.19			c0.42		c0.76	0.52			c0.28	
v/s Ratio Perm			0.91						0.24			
v/c Ratio		1.64	0.91		1.93		2.43	1.65	0.77		1.42	
Uniform Delay, d1		46.5	0.0		41.0		36.0	36.0	32.6		42.0	
Progression Factor		1.00	1.00		1.00		1.11	1.11	1.33		1.00	
Incremental Delay, d2		309.3	10.0		426.2		646.2	297.2	5.6		204.3	
Delay (s)		355.8	10.0		467.2		686.3	337.3	49.1		246.3	
Level of Service		F	A		F		F	F	D		F	
Approach Delay (s)		77.3			467.2		432.9				246.3	
Approach LOS		E			F		F				F	
<b>Intersection Summary</b>												
HCM Average Control Delay			315.5				HCM Level of Service				F	
HCM Volume to Capacity ratio			1.96									
Actuated Cycle Length (s)			105.0				Sum of lost time (s)				16.0	
Intersection Capacity Utilization			132.7%				ICU Level of Service				H	
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 33: NB on & Freedom

Year 2035 - AM Peak






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↔	↗	↘	↕			↕	↗↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor					0.95	0.95	1.00	0.95			1.00	0.88
Frbp, ped/bikes					0.98	0.97	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1455	1421	1719	3438			1810	2662
Flt Permitted					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1455	1421	1719	3438			1810	2662
Volume (vph)	0	0	0	22	15	444	38	681	0	0	586	941
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	31	21	617	53	946	0	0	814	1307
RTOR Reduction (vph)	0	0	0	0	133	133	0	0	0	0	0	471
Lane Group Flow (vph)	0	0	0	0	221	182	53	946	0	0	814	836
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					19.5	19.5	6.3	77.5			67.2	67.2
Effective Green, g (s)					19.5	19.5	6.3	77.5			67.2	67.2
Actuated g/C Ratio					0.19	0.19	0.06	0.74			0.64	0.64
Clearance Time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					270	264	103	2538			1158	1704
v/s Ratio Prot							c0.03	0.28			c0.45	
v/s Ratio Perm					0.15	0.13						0.31
v/c Ratio					0.82	0.69	0.51	0.37			0.70	0.49
Uniform Delay, d1					41.1	39.9	47.9	5.0			12.4	9.9
Progression Factor					1.00	1.00	1.12	0.39			1.00	1.00
Incremental Delay, d2					17.4	7.6	3.4	0.3			3.6	1.0
Delay (s)					58.4	47.5	57.2	2.3			16.0	10.9
Level of Service					E	D	E	A			B	B
Approach Delay (s)		0.0			53.3			5.2			12.9	
Approach LOS		A			D			A			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			18.0									HCM Level of Service B
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			105.0									Sum of lost time (s) 12.0
Intersection Capacity Utilization			65.2%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 34: SB Off & Freedom

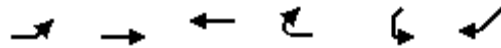
Year 2035 - AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations								 				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.97					0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1618	1618	1476					3143		1703	1792	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1618	1618	1476					3143		1703	1792	
Volume (vph)	608	0	672	0	0	0	0	111	84	451	157	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	760	0	840	0	0	0	0	139	105	564	196	0
RTOR Reduction (vph)	0	0	455	0	0	0	0	83	0	0	0	0
Lane Group Flow (vph)	380	380	385	0	0	0	0	161	0	564	196	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	33.3	33.3	33.3					22.1		37.6	63.7	
Effective Green, g (s)	33.3	33.3	33.3					22.1		37.6	63.7	
Actuated g/C Ratio	0.32	0.32	0.32					0.21		0.36	0.61	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	513	513	468					662		610	1087	
v/s Ratio Prot	0.23	0.23						c0.05		c0.33	0.11	
v/s Ratio Perm			c0.26									
v/c Ratio	0.74	0.74	0.82					0.24		0.92	0.18	
Uniform Delay, d1	32.0	32.0	33.1					34.5		32.3	9.1	
Progression Factor	1.00	1.00	1.00					0.98		1.30	1.96	
Incremental Delay, d2	5.7	5.7	11.1					0.9		15.2	0.3	
Delay (s)	37.7	37.7	44.2					34.6		57.4	18.1	
Level of Service	D	D	D					C		E	B	
Approach Delay (s)		41.1			0.0			34.6			47.3	
Approach LOS		D			A			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay			42.3									HCM Level of Service D
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			105.0							12.0		
Intersection Capacity Utilization			65.2%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

## 35: Bonita & Freedom

Year 2035 - AM Peak



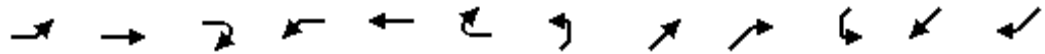
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕	↕	↗	↖↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	0.97	1.00
Frbp, ped/bikes		1.00	1.00	1.00	1.00	0.95
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		0.97	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1717	1792	1524	3303	1444
Flt Permitted		0.64	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1131	1792	1524	3303	1444
Volume (vph)	25	12	103	170	503	326
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	31	15	129	212	629	408
RTOR Reduction (vph)	0	0	0	0	0	77
Lane Group Flow (vph)	0	46	129	212	629	331
Confl. Peds. (#/hr)	10			10	10	10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type	Perm			pt+ov		Perm
Protected Phases		6	2	2 8	8	
Permitted Phases	6					8
Actuated Green, G (s)		11.9	11.9	105.0	85.1	85.1
Effective Green, g (s)		11.9	11.9	105.0	85.1	85.1
Actuated g/C Ratio		0.11	0.11	1.00	0.81	0.81
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		128	203	1524	2677	1170
v/s Ratio Prot			c0.07	0.14	0.19	
v/s Ratio Perm	0.04					c0.23
v/c Ratio	0.36	0.64	0.14	0.23	0.28	
Uniform Delay, d1	43.0	44.5	0.0	2.3	2.4	
Progression Factor	1.00	1.00	1.00	1.37	4.04	
Incremental Delay, d2	1.7	6.4	0.0	0.1	0.4	
Delay (s)	44.8	50.8	0.0	3.3	10.3	
Level of Service	D	D	A	A	B	
Approach Delay (s)	44.8	19.3		6.0		
Approach LOS	D	B		A		
<b>Intersection Summary</b>						
HCM Average Control Delay		10.5		HCM Level of Service		B
HCM Volume to Capacity ratio		0.33				
Actuated Cycle Length (s)		105.0		Sum of lost time (s)		8.0
Intersection Capacity Utilization		35.6%		ICU Level of Service		A
Analysis Period (min)		15				
c Critical Lane Group						



# HCM Signalized Intersection Capacity Analysis

## 33: NB on & Freedom

Year 2035 - PM Peak



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations					↔	↗	↖	↗↗			↖	↖↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor					0.95	0.95	1.00	0.95			1.00	0.88
Frbp, ped/bikes					0.96	0.95	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					0.87	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					1417	1392	1719	3438			1810	2663
Flt Permitted					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (perm)					1417	1392	1719	3438			1810	2663
Volume (vph)	0	0	0	14	0	193	100	1127	0	0	757	969
Peak-hour factor, PHF	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	19	0	268	139	1565	0	0	1051	1346
RTOR Reduction (vph)	0	0	0	0	79	79	0	0	0	0	0	256
Lane Group Flow (vph)	0	0	0	0	70	59	139	1565	0	0	1051	1090
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type				Perm		Perm	Prot					Perm
Protected Phases					8		5	2			6	
Permitted Phases				8		8						6
Actuated Green, G (s)					8.8	8.8	11.4	88.2			72.8	72.8
Effective Green, g (s)					8.8	8.8	11.4	88.2			72.8	72.8
Actuated g/C Ratio					0.08	0.08	0.11	0.84			0.69	0.69
Clearance Time (s)					4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)					3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)					119	117	187	2888			1255	1846
v/s Ratio Prot							c0.08	0.46			c0.58	
v/s Ratio Perm					0.05	0.04						0.41
v/c Ratio					0.59	0.51	0.74	0.54			0.84	0.59
Uniform Delay, d1					46.4	46.0	45.4	2.5			11.8	8.4
Progression Factor					1.00	1.00	1.24	1.33			1.00	1.00
Incremental Delay, d2					7.3	3.4	10.2	0.5			6.8	1.4
Delay (s)					53.6	49.4	66.5	3.8			18.5	9.8
Level of Service					D	D	E	A			B	A
Approach Delay (s)		0.0			51.6			8.9			13.6	
Approach LOS		A			D			A			B	
<b>Intersection Summary</b>												
HCM Average Control Delay			14.3									HCM Level of Service B
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			105.0								12.0	
Intersection Capacity Utilization			97.1%									ICU Level of Service F
Analysis Period (min)			15									
c Critical Lane Group												

# HCM Signalized Intersection Capacity Analysis

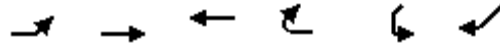
## 34: SB Off & Freedom

Year 2035 - PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor	0.95	0.95	1.00					0.95		1.00	1.00	
Frbp, ped/bikes	1.00	1.00	0.97					1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00					1.00		1.00	1.00	
Frt	1.00	1.00	0.85					0.98		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1618	1618	1476					3325		1703	1792	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1618	1618	1476					3325		1703	1792	
Volume (vph)	825	0	531	0	0	0	0	402	61	342	429	0
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	1031	0	664	0	0	0	0	502	76	428	536	0
RTOR Reduction (vph)	0	0	173	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	516	515	491	0	0	0	0	567	0	428	536	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Turn Type	Split		Perm							Prot		
Protected Phases	4	4						2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	38.7	38.7	38.7					25.9		28.4	58.3	
Effective Green, g (s)	38.7	38.7	38.7					25.9		28.4	58.3	
Actuated g/C Ratio	0.37	0.37	0.37					0.25		0.27	0.56	
Clearance Time (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0					3.0		3.0	3.0	
Lane Grp Cap (vph)	596	596	544					820		461	995	
v/s Ratio Prot	0.32	0.32						c0.17		c0.25	0.30	
v/s Ratio Perm			c0.33									
v/c Ratio	0.87	0.86	0.90					0.69		0.93	0.54	
Uniform Delay, d1	30.7	30.7	31.4					35.9		37.3	14.8	
Progression Factor	1.00	1.00	1.00					0.91		0.66	1.42	
Incremental Delay, d2	12.5	12.4	18.2					4.5		15.5	1.1	
Delay (s)	43.3	43.1	49.6					37.0		40.1	22.2	
Level of Service	D	D	D					D		D	C	
Approach Delay (s)		45.7			0.0			37.0			30.1	
Approach LOS		D			A			D			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			39.5					HCM Level of Service			D	
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			105.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			97.1%					ICU Level of Service		F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis  
 35: Bonita & Freedom

Year 2035 - PM Peak



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕	↑	↗	↗↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00	1.00	1.00	0.97	1.00
Frbp, ped/bikes		1.00	1.00	1.00	1.00	0.95
Flpb, ped/bikes		0.98	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	0.85
Flt Protected		0.96	1.00	1.00	0.95	1.00
Satd. Flow (prot)		1683	1792	1524	3303	1444
Flt Permitted		0.74	1.00	1.00	0.95	1.00
Satd. Flow (perm)		1296	1792	1524	3303	1444
Volume (vph)	77	6	7	386	879	81
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	96	8	9	482	1099	101
RTOR Reduction (vph)	0	0	0	0	0	20
Lane Group Flow (vph)	0	104	9	482	1099	81
Confl. Peds. (#/hr)	10			10	10	10
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%
Turn Type	Perm			pt+ov		Perm
Protected Phases		6	2	2 8	8	
Permitted Phases	6					8
Actuated Green, G (s)		12.6	12.6	105.0	84.4	84.4
Effective Green, g (s)		12.6	12.6	105.0	84.4	84.4
Actuated g/C Ratio		0.12	0.12	1.00	0.80	0.80
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		156	215	1524	2655	1161
v/s Ratio Prot			0.01	0.32	c0.33	
v/s Ratio Perm		c0.08				0.06
v/c Ratio		0.67	0.04	0.32	0.41	0.07
Uniform Delay, d1		44.2	40.9	0.0	3.0	2.1
Progression Factor		1.00	1.00	1.00	1.70	2.85
Incremental Delay, d2		10.3	0.1	0.1	0.3	0.1
Delay (s)		54.5	40.9	0.1	5.5	6.2
Level of Service		D	D	A	A	A
Approach Delay (s)		54.5	0.9		5.5	
Approach LOS		D	A		A	
<b>Intersection Summary</b>						
HCM Average Control Delay			7.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			105.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			43.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

APPENDIX B

**SIMTRAFFIC CALCULATION SHEETS**

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**2015 HOV BUILD CONDITIONS**

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1: Rooney St & Pacheco Ave Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	26.5	10.9	4.5	8.3	50.2
Delay / Veh (s)	198.8	253.3	27.4	240.1	133.4
Stop Delay (hr)	25.7	10.7	4.2	8.2	48.8
St Del/Veh (s)	193.2	249.1	25.3	234.9	129.5
Travel Dist (mi)	26.0	12.0	26.0	12.1	76.1
Travel Time (hr)	27.7	11.4	6.0	8.8	53.9
Avg Speed (mph)	3	2	4	2	3
Vehicles Entered	478	159	598	128	1363
Vehicles Exited	480	151	595	123	1349
Hourly Exit Rate	480	151	595	123	1349

3: Fairmount & Morrissey Performance by approach

Approach	EB	WB	NE	SW	All
Total Delay (hr)	4.8	2.3	2.7	6.2	16.0
Delay / Veh (s)	22.5	16.4	9.5	16.8	15.9
Stop Delay (hr)	3.2	2.2	1.5	5.2	12.0
St Del/Veh (s)	14.7	15.1	5.2	14.2	11.9
Travel Dist (mi)	97.4	67.6	104.5	72.3	341.8
Travel Time (hr)	8.8	5.2	6.4	10.9	31.3
Avg Speed (mph)	11	13	17	7	11
Vehicles Entered	772	515	1016	1325	3628
Vehicles Exited	775	516	1011	1315	3617
Hourly Exit Rate	775	516	1011	1315	3617

5: NB On-Ramp & Morrissey Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	6.2	5.0	2.7	13.9
Delay / Veh (s)	23.4	30.3	19.5	24.5
Stop Delay (hr)	5.3	4.4	2.4	12.1
St Del/Veh (s)	20.1	26.5	17.5	21.3
Travel Dist (mi)	89.0	40.7	21.2	150.9
Travel Time (hr)	9.8	6.9	4.0	20.7
Avg Speed (mph)	9	6	5	7
Vehicles Entered	956	591	500	2047
Vehicles Exited	945	592	503	2040
Hourly Exit Rate	945	592	503	2040

9: SB Off-Ramp & Morrissey Performance by approach

Approach	EB	SB	NE	All
Total Delay (hr)	3.4	6.7	3.3	13.5
Delay / Veh (s)	31.2	22.4	8.3	16.6
Stop Delay (hr)	3.3	5.7	2.4	11.4
St Del/Veh (s)	29.7	19.2	6.1	14.1
Travel Dist (mi)	26.9	73.1	75.3	175.2
Travel Time (hr)	4.7	10.7	7.6	23.0
Avg Speed (mph)	6	7	10	8
Vehicles Entered	395	1073	1444	2912
Vehicles Exited	394	1078	1443	2915
Hourly Exit Rate	394	1078	1443	2915

46: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	5.5	5.5
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	3.0	3.0
Travel Dist (mi)	4.9	4.9
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	8	8
Vehicles Entered	287	287
Vehicles Exited	287	287
Hourly Exit Rate	287	287

139: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	1.6	1.6
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	70.1	70.1
Travel Time (hr)	4.2	4.2
Avg Speed (mph)	17	17
Vehicles Entered	996	996
Vehicles Exited	997	997
Hourly Exit Rate	997	997

142: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	4.1	4.1
Stop Delay (hr)	0.8	0.8
St Del/Veh (s)	4.0	4.0
Travel Dist (mi)	3.4	3.4
Travel Time (hr)	1.0	1.0
Avg Speed (mph)	4	4
Vehicles Entered	752	752
Vehicles Exited	752	752
Hourly Exit Rate	752	752

144: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	1.6	1.6
Delay / Veh (s)	7.6	7.6
Stop Delay (hr)	0.8	0.8
St Del/Veh (s)	4.0	4.0
Travel Dist (mi)	23.8	23.8
Travel Time (hr)	2.4	2.4
Avg Speed (mph)	10	10
Vehicles Entered	754	754
Vehicles Exited	753	753
Hourly Exit Rate	753	753

149: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.8	1.8
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	1.6	1.6
Travel Dist (mi)	1.7	1.7
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	7	7
Vehicles Entered	287	287
Vehicles Exited	287	287
Hourly Exit Rate	287	287



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151: NB On-Ramp & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.4	2.4
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	24.6	24.6
Travel Time (hr)	1.5	1.5
Avg Speed (mph)	17	17
Vehicles Entered	373	373
Vehicles Exited	371	371
Hourly Exit Rate	371	371

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Total Network Performance

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Total Delay (hr)	99.4
Delay / Veh (s)	81.2
Stop Delay (hr)	86.7
St Del/Veh (s)	70.8
Travel Dist (mi)	1386.4
Travel Time (hr)	160.4
Avg Speed (mph)	10
Vehicles Entered	4424
Vehicles Exited	4395
Hourly Exit Rate	4395

Intersection: 1: Rooney St & Pacheo Ave

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	71	302	364	135	129	137	321
Average Queue (ft)	23	268	193	21	74	98	177
95th Queue (ft)	75	343	370	86	139	170	373
Link Distance (ft)		276	400		112	112	503
Upstream Blk Time (%)		36	10		8	19	7
Queuing Penalty (veh)		0	0		23	58	0
Storage Bay Dist (ft)	50			164			
Storage Blk Time (%)	2	62	29	0			
Queuing Penalty (veh)	9	41	6	0			

Intersection: 3: Fairmount & Morrissey

Movement	EB	WB	WB	NE	NE	SW	SW	SW
Directions Served	R	R	R	T	TR	T	T	R
Maximum Queue (ft)	545	187	178	139	403	220	267	133
Average Queue (ft)	282	85	90	36	152	189	178	77
95th Queue (ft)	498	153	164	98	319	248	268	159
Link Distance (ft)	665	687	687	529	529	180	180	
Upstream Blk Time (%)	1				0	19	13	
Queuing Penalty (veh)	0				0	132	87	
Storage Bay Dist (ft)								100
Storage Blk Time (%)							20	0
Queuing Penalty (veh)							68	1

Intersection: 5: NB On-Ramp & Morrissey

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	TR	L	T	T	T	R
Maximum Queue (ft)	306	305	200	179	158	260	172	181
Average Queue (ft)	146	146	68	84	65	146	117	64
95th Queue (ft)	240	240	154	151	128	252	187	165
Link Distance (ft)	422	422	422	254	254	254	112	112
Upstream Blk Time (%)					0	3	17	3
Queuing Penalty (veh)					0	6	47	9
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 9: SB Off-Ramp & Morrissey

Movement	EB	EB	EB	B8	SB	SB	SB	NE	NE	NE
Directions Served	L	TR	R	T	L	R	R	L	L	R
Maximum Queue (ft)	88	222	190	18	140	270	278	186	177	200
Average Queue (ft)	13	84	86	1	58	158	163	78	62	98
95th Queue (ft)	50	180	167	14	120	285	295	147	134	181
Link Distance (ft)		294		616	254	254	254	180	180	180
Upstream Blk Time (%)		0				3	3	0	0	1
Queuing Penalty (veh)		0				10	13	2	0	4
Storage Bay Dist (ft)	200		200							
Storage Blk Time (%)		1	1							
Queuing Penalty (veh)		2	3							

Intersection: 46: NB On-Ramp &

Movement	WB
Directions Served	T
Maximum Queue (ft)	87
Average Queue (ft)	52
95th Queue (ft)	78
Link Distance (ft)	48
Upstream Blk Time (%)	7
Queuing Penalty (veh)	20
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 139: SB On-Ramp &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 142: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	58	60
Average Queue (ft)	42	46
95th Queue (ft)	53	60
Link Distance (ft)	-12	-12
Upstream Blk Time (%)	4	10
Queuing Penalty (veh)	15	39
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 144: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	88	102
Average Queue (ft)	49	58
95th Queue (ft)	74	88
Link Distance (ft)	125	125
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 149: NB On-Ramp &

Movement	WB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	50
95th Queue (ft)	65
Link Distance (ft)	-5
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 151: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	15
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	278
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 595

1: Rooney St & Pacheco Ave Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.3	5.3	3.3	1.5	12.4
Delay / Veh (s)	42.6	56.8	16.9	56.8	33.8
Stop Delay (hr)	2.2	4.8	2.8	1.4	11.3
St Del/Veh (s)	39.9	52.0	14.7	52.9	30.7
Travel Dist (mi)	10.9	26.0	31.3	9.3	77.5
Travel Time (hr)	2.8	6.4	5.1	1.9	16.2
Avg Speed (mph)	4	4	6	5	5
Vehicles Entered	194	339	691	97	1321
Vehicles Exited	196	334	693	98	1321
Hourly Exit Rate	196	334	693	98	1321

3: Fairmount & Morrissey Performance by approach

Approach	EB	WB	NE	SW	All
Total Delay (hr)	11.8	4.2	17.3	9.9	43.3
Delay / Veh (s)	46.5	24.4	58.9	27.0	39.8
Stop Delay (hr)	8.4	3.8	14.4	8.4	35.0
St Del/Veh (s)	33.1	21.9	49.0	22.9	32.2
Travel Dist (mi)	114.0	81.7	109.3	71.2	376.2
Travel Time (hr)	16.5	7.6	21.4	13.0	58.5
Avg Speed (mph)	8	11	8	5	8
Vehicles Entered	914	627	1062	1321	3924
Vehicles Exited	910	626	1059	1318	3913
Hourly Exit Rate	910	626	1059	1318	3913

5: NB On-Ramp & Morrissey Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	13.2	5.7	1.7	20.6
Delay / Veh (s)	43.5	29.4	12.5	32.5
Stop Delay (hr)	11.8	4.8	1.4	17.9
St Del/Veh (s)	38.6	24.7	10.4	28.3
Travel Dist (mi)	102.6	46.6	23.2	172.4
Travel Time (hr)	17.4	7.4	3.0	27.8
Avg Speed (mph)	6	6	8	6
Vehicles Entered	1105	696	491	2292
Vehicles Exited	1085	694	495	2274
Hourly Exit Rate	1085	694	495	2274

9: SB Off-Ramp & Morrissey Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	6.7	7.5	9.4	23.6
Delay / Veh (s)	72.1	17.5	31.1	28.7
Stop Delay (hr)	6.5	6.2	7.8	20.5
St Del/Veh (s)	70.1	14.4	26.0	24.9
Travel Dist (mi)	22.7	80.9	75.2	178.8
Travel Time (hr)	7.7	11.9	12.6	32.2
Avg Speed (mph)	3	7	6	6
Vehicles Entered	337	1542	1093	2972
Vehicles Exited	332	1540	1076	2948
Hourly Exit Rate	332	1540	1076	2948

46: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	5.5	5.5
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	2.9	2.9
Travel Dist (mi)	6.2	6.2
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	8	8
Vehicles Entered	359	359
Vehicles Exited	360	360
Hourly Exit Rate	360	360

139: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	1.7	1.7
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	0.3	0.3
Travel Dist (mi)	64.7	64.7
Travel Time (hr)	3.8	3.8
Avg Speed (mph)	17	17
Vehicles Entered	930	930
Vehicles Exited	931	931
Hourly Exit Rate	931	931

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142: SB On-Ramp & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	3.6	3.6
Stop Delay (hr)	0.6	0.6
St Del/Veh (s)	3.4	3.4
Travel Dist (mi)	2.9	2.9
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	4	4
Vehicles Entered	629	629
Vehicles Exited	629	629
Hourly Exit Rate	629	629

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144: SB On-Ramp & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.1	1.1
Delay / Veh (s)	6.5	6.5
Stop Delay (hr)	0.5	0.5
St Del/Veh (s)	3.0	3.0
Travel Dist (mi)	19.8	19.8
Travel Time (hr)	1.8	1.8
Avg Speed (mph)	11	11
Vehicles Entered	629	629
Vehicles Exited	629	629
Hourly Exit Rate	629	629

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149: NB On-Ramp & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.8	1.8
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.6	1.6
Travel Dist (mi)	2.1	2.1
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	7	7
Vehicles Entered	360	360
Vehicles Exited	360	360
Hourly Exit Rate	360	360



151: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.5	2.5
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	32.1	32.1
Travel Time (hr)	1.9	1.9
Avg Speed (mph)	17	17
Vehicles Entered	490	490
Vehicles Exited	489	489
Hourly Exit Rate	489	489

Total Network Performance

Total Delay (hr)	106.8
Delay / Veh (s)	82.7
Stop Delay (hr)	88.0
St Del/Veh (s)	68.2
Travel Dist (mi)	1475.4
Travel Time (hr)	168.7
Avg Speed (mph)	9
Vehicles Entered	4683
Vehicles Exited	4617
Hourly Exit Rate	4617

Intersection: 1: Rooney St & Pacheo Ave

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	71	263	409	166	145	144	175
Average Queue (ft)	11	115	242	37	56	103	81
95th Queue (ft)	44	221	386	109	128	185	148
Link Distance (ft)		288	400		126	126	504
Upstream Blk Time (%)		1	1		2	14	
Queuing Penalty (veh)		0	0		7	50	
Storage Bay Dist (ft)	50			164			
Storage Blk Time (%)	0	41	25	0			
Queuing Penalty (veh)	0	8	10	0			

Intersection: 3: Fairmount & Morrissey

Movement	EB	WB	WB	NE	NE	SW	SW	SW
Directions Served	R	R	R	T	TR	T	T	R
Maximum Queue (ft)	675	290	287	535	543	208	225	138
Average Queue (ft)	486	127	132	138	427	185	177	96
95th Queue (ft)	771	240	237	424	647	212	229	166
Link Distance (ft)	658	682	682	521	521	172	172	
Upstream Blk Time (%)	10			1	16	37	27	
Queuing Penalty (veh)	0			0	0	247	180	
Storage Bay Dist (ft)								100
Storage Blk Time (%)							37	0
Queuing Penalty (veh)							151	2

Intersection: 5: NB On-Ramp & Morrissey

Movement	WB	WB	WB	B4	B4	B4	NB	NB	NB	SB	SB
Directions Served	L	L	TR	T	T	T	L	T	T	T	R
Maximum Queue (ft)	407	424	405	158	156	140	287	155	244	172	173
Average Queue (ft)	214	225	160	25	27	21	181	40	114	103	41
95th Queue (ft)	481	486	406	157	161	145	294	105	222	184	125
Link Distance (ft)	423	423	423	552	552	552	253	253	253	126	126
Upstream Blk Time (%)	10	12	3	0	0	0	5	0	0	7	1
Queuing Penalty (veh)	0	0	0	0	0	0	11	0	1	18	2
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 9: SB Off-Ramp & Morrissey

Movement	EB	EB	EB	B8	NE	NE	NE	SW	SW	SW
Directions Served	L	TR	R	T	T	T	R	L	T	T
Maximum Queue (ft)	146	299	220	67	197	244	213	61	289	282
Average Queue (ft)	33	119	113	8	133	155	119	14	197	201
95th Queue (ft)	126	277	226	66	203	240	201	42	339	341
Link Distance (ft)		291		616	172	172	172	253	253	253
Upstream Blk Time (%)		5			3	6	1		13	14
Queuing Penalty (veh)		0			15	31	6		48	53
Storage Bay Dist (ft)	200		200							
Storage Blk Time (%)	0	8	10							
Queuing Penalty (veh)	0	16	19							

Intersection: 46: NB On-Ramp &

Movement	WB
Directions Served	T
Maximum Queue (ft)	93
Average Queue (ft)	57
95th Queue (ft)	83
Link Distance (ft)	48
Upstream Blk Time (%)	8
Queuing Penalty (veh)	28
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 139: SB On-Ramp &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 142: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	58	59
Average Queue (ft)	41	45
95th Queue (ft)	52	59
Link Distance (ft)	-12	-12
Upstream Blk Time (%)	1	4
Queuing Penalty (veh)	4	14
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 144: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	61	80
Average Queue (ft)	41	48
95th Queue (ft)	59	69
Link Distance (ft)	125	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 149: NB On-Ramp &

Movement	WB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	49
95th Queue (ft)	61
Link Distance (ft)	-5
Upstream Blk Time (%)	0
Queuing Penalty (veh)	2
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 151: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	10
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	273
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 923

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	6242	6149	6241	6224	6170	6116	6180	6099
Vehs Exited	6237	6171	6232	6198	6176	6101	6165	6077
Starting Vehs	229	257	233	212	225	242	223	225
Ending Vehs	234	235	242	238	219	257	238	247
Denied Entry Before	32	27	20	25	10	46	17	20
Denied Entry After	630	792	764	654	691	826	657	792
Travel Distance (mi)	2311	2276	2307	2294	2287	2258	2291	2262
Travel Time (hr)	539.2	636.4	659.0	535.4	557.5	634.4	609.1	608.4
Total Delay (hr)	445.0	543.9	564.9	442.1	464.6	542.3	515.9	516.4
Total Stops	13587	13424	15096	12965	13378	13754	13439	12922
Fuel Used (gal)	470.6	525.7	541.1	469.2	482.5	525.8	510.9	509.8

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	6242	6149	6241	6224	6170	6116	6180	6099
Vehs Exited	6237	6171	6232	6198	6176	6101	6165	6077
Starting Vehs	229	257	233	212	225	242	223	225
Ending Vehs	234	235	242	238	219	257	238	247
Denied Entry Before	32	27	20	25	10	46	17	20
Denied Entry After	630	792	764	654	691	826	657	792
Travel Distance (mi)	2311	2276	2307	2294	2287	2258	2291	2262
Travel Time (hr)	539.2	636.4	659.0	535.4	557.5	634.4	609.1	608.4
Total Delay (hr)	445.0	543.9	564.9	442.1	464.6	542.3	515.9	516.4
Total Stops	13587	13424	15096	12965	13378	13754	13439	12922
Fuel Used (gal)	470.6	525.7	541.1	469.2	482.5	525.8	510.9	509.8

2: Soquel Ave. & Performance by approach

Approach	EB	NW	All
Total Delay (hr)	0.7	0.0	0.7
Delay / Veh (s)	1.9	0.2	1.6
Travel Time (hr)	3.7	0.5	4.2
Avg Speed (mph)	16	15	16
Vehicles Entered	1372	267	1639
Vehicles Exited	1374	267	1641
Hourly Exit Rate	1374	267	1641

8: NB On & Soquel Dr. Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	12.6	9.3	13.0	287.8	322.7
Delay / Veh (s)	155.5	32.5	23.4	710.2	242.4
Travel Time (hr)	13.5	10.6	28.0	293.8	346.0
Avg Speed (mph)	2	3	14	5	7
Vehicles Entered	294	1029	2008	1452	4783
Vehicles Exited	288	1033	2014	1466	4801
Hourly Exit Rate	288	1033	2014	1466	4801

9: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	4.7	4.7
Travel Time (hr)	2.2	2.2
Avg Speed (mph)	18	18
Vehicles Entered	595	595
Vehicles Exited	595	595
Hourly Exit Rate	595	595

10: Soquel Ave. & SB On-Ramp Performance by approach

Approach	EB	SW	All
Total Delay (hr)	4.4	73.4	77.8
Delay / Veh (s)	17.2	291.5	153.7
Travel Time (hr)	8.4	76.8	85.2
Avg Speed (mph)	10	5	7
Vehicles Entered	916	910	1826
Vehicles Exited	914	904	1818
Hourly Exit Rate	914	904	1818

12: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.7	1.7
Travel Time (hr)	1.0	1.0
Avg Speed (mph)	13	13
Vehicles Entered	430	430
Vehicles Exited	430	430
Hourly Exit Rate	430	430

14: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	7.7	7.7
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	7	7
Vehicles Entered	311	311
Vehicles Exited	311	311
Hourly Exit Rate	311	311

16: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	3.2	3.2
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	6	6
Vehicles Entered	311	311
Vehicles Exited	311	311
Hourly Exit Rate	311	311

40: Soquel Ave. & Soquel Dr. Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	8.7	12.6	15.5	20.4	57.2
Delay / Veh (s)	22.7	61.8	50.3	39.8	40.6
Travel Time (hr)	11.6	16.2	17.8	33.8	79.5
Avg Speed (mph)	3	4	4	11	7
Vehicles Entered	1376	735	1113	1854	5078
Vehicles Exited	1376	731	1110	1844	5061
Hourly Exit Rate	1376	731	1110	1844	5061



123: NB On-Ramp & Commercial Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	5.9	5.9
Delay / Veh (s)	0.4	21.3	13.2
Travel Time (hr)	1.3	9.2	10.5
Avg Speed (mph)	11	11	11
Vehicles Entered	623	990	1613
Vehicles Exited	623	991	1614
Hourly Exit Rate	623	991	1614

160: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.8	1.8
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	23	23
Vehicles Entered	268	268
Vehicles Exited	268	268
Hourly Exit Rate	268	268

170: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	5.5	5.5
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	8	8
Vehicles Entered	188	188
Vehicles Exited	188	188
Hourly Exit Rate	188	188

172: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	3.7	3.7
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	7	7
Vehicles Entered	188	188
Vehicles Exited	188	188
Hourly Exit Rate	188	188

188: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.0	2.0
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	9	9
Vehicles Entered	510	510
Vehicles Exited	509	509
Hourly Exit Rate	509	509

190: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	1.6	1.6
Delay / Veh (s)	11.0	11.0
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	6	6
Vehicles Entered	513	513
Vehicles Exited	510	510
Hourly Exit Rate	510	510

309: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.1	2.1
Travel Time (hr)	1.8	1.8
Avg Speed (mph)	13	13
Vehicles Entered	624	624
Vehicles Exited	624	624
Hourly Exit Rate	624	624

311: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.1	2.1
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	7	7
Vehicles Entered	537	537
Vehicles Exited	537	537
Hourly Exit Rate	537	537

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313: NB On-Ramp & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	6.9	6.9
Travel Time (hr)	1.3	1.3
Avg Speed (mph)	7	7
Vehicles Entered	536	536
Vehicles Exited	537	537
Hourly Exit Rate	537	537

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Total Network Performance

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Total Delay (hr)	496.0
Delay / Veh (s)	288.9
Travel Time (hr)	589.0
Avg Speed (mph)	9
Vehicles Entered	6187
Vehicles Exited	6173
Hourly Exit Rate	6173

Intersection: 2: Soquel Ave. &

Movement	EB	EB	EB	EB	EB	B18	B18
Directions Served	R	R	R	R	R	T	T
Maximum Queue (ft)	29	48	8	122	162	4	8
Average Queue (ft)	1	3	0	26	36	0	0
95th Queue (ft)	12	22	6	90	119	4	8
Link Distance (ft)		168	168	168	168	192	192
Upstream Blk Time (%)				0	1		
Queuing Penalty (veh)				0	0		
Storage Bay Dist (ft)	100						
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: NB On & Soquel Dr.

Movement	SE	SE	NW	NW	NW	NW	NE	NE	NE	NE	SW	SW
Directions Served	L	R>	<	<	TR	R	L	T	T	R	T	T
Maximum Queue (ft)	108	381	147	146	145	80	265	476	583	293	581	587
Average Queue (ft)	66	280	138	134	72	34	107	286	304	61	525	571
95th Queue (ft)	116	442	155	150	137	86	215	407	471	227	633	610
Link Distance (ft)		357	86	86	86			900	900	900	562	562
Upstream Blk Time (%)		24	52	58	7	0					8	19
Queuing Penalty (veh)		0	170	189	22	0					0	0
Storage Bay Dist (ft)	65					197	400					
Storage Blk Time (%)	22	64			7	0		0				34
Queuing Penalty (veh)	48	50			4	1		1				243

Intersection: 8: NB On & Soquel Dr.

Movement	SW	SW
Directions Served	R	R>
Maximum Queue (ft)	149	136
Average Queue (ft)	132	102
95th Queue (ft)	157	154
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	100
Storage Blk Time (%)	37	13
Queuing Penalty (veh)	231	79

Intersection: 9: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	121	113
Average Queue (ft)	45	32
95th Queue (ft)	103	86
Link Distance (ft)	304	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Soquel Ave. & SB On-Ramp

Movement	EB	EB	SW	SW
Directions Served	<	L	R	>
Maximum Queue (ft)	397	411	480	160
Average Queue (ft)	165	115	447	98
95th Queue (ft)	300	344	541	207
Link Distance (ft)	375	375	446	
Upstream Blk Time (%)	0	1	39	
Queuing Penalty (veh)	1	4	0	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			46	0
Queuing Penalty (veh)			93	1

Intersection: 12: SB On-Ramp &

Movement	EB
Directions Served	T
Maximum Queue (ft)	93
Average Queue (ft)	11
95th Queue (ft)	51
Link Distance (ft)	108
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 14: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	111
Average Queue (ft)	75
95th Queue (ft)	113
Link Distance (ft)	39
Upstream Blk Time (%)	26
Queuing Penalty (veh)	92
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 16: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	54
95th Queue (ft)	67
Link Distance (ft)	-1
Upstream Blk Time (%)	4
Queuing Penalty (veh)	13
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SE	SE	SE	SE	SE	NW	NW	NE	NE	B5	B5	SW
Directions Served	L	L	L	T	TR	L	R	T	TR	T	T	L
Maximum Queue (ft)	158	163	149	164	163	384	409	326	328	183	189	103
Average Queue (ft)	96	124	81	137	139	236	369	299	308	132	145	48
95th Queue (ft)	147	166	134	185	186	425	454	365	350	238	243	89
Link Distance (ft)	104	104	104	104	104	375	375	245	245	160	160	
Upstream Blk Time (%)	4	14	3	26	30	0	16	30	52	17	41	
Queuing Penalty (veh)	12	40	7	72	84	1	68	0	0	0	0	
Storage Bay Dist (ft)												400
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SW	SW	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	439	811	809	132
Average Queue (ft)	133	478	490	77
95th Queue (ft)	396	796	803	170
Link Distance (ft)		900	900	
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		7	4	
Storage Bay Dist (ft)	400			100
Storage Blk Time (%)		13	39	0
Queuing Penalty (veh)		24	125	1

Intersection: 123: NB On-Ramp & Commercial

Movement	SE	NW	NW	NW
Directions Served	R	T	T	T
Maximum Queue (ft)	14	137	497	141
Average Queue (ft)	1	101	253	12
95th Queue (ft)	7	160	521	73
Link Distance (ft)	86		507	507
Upstream Blk Time (%)			4	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		11	23	
Queuing Penalty (veh)		36	75	

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Intersection: 160: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	317
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 170: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	85
Average Queue (ft)	42
95th Queue (ft)	68
Link Distance (ft)	51
Upstream Blk Time (%)	2
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 172: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	37
95th Queue (ft)	74
Link Distance (ft)	7
Upstream Blk Time (%)	8
Queuing Penalty (veh)	17
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	



Intersection: 188: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	69
Average Queue (ft)	56
95th Queue (ft)	70
Link Distance (ft)	-6
Upstream Blk Time (%)	2
Queuing Penalty (veh)	15
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 190: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	152
Average Queue (ft)	129
95th Queue (ft)	175
Link Distance (ft)	88
Upstream Blk Time (%)	24
Queuing Penalty (veh)	162
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 309: NB On-Ramp &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	20	98
Average Queue (ft)	1	15
95th Queue (ft)	19	60
Link Distance (ft)	157	157
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 311: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	50
95th Queue (ft)	64
Link Distance (ft)	-14
Upstream Blk Time (%)	7
Queuing Penalty (veh)	38
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 313: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	105
Average Queue (ft)	78
95th Queue (ft)	114
Link Distance (ft)	37
Upstream Blk Time (%)	45
Queuing Penalty (veh)	248
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 2283

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	6146	5960	5942	6179	6053	5910	6057	6043
Vehs Exited	6108	5907	5966	6158	6040	5877	6078	6017
Starting Vehs	201	185	250	221	237	169	222	211
Ending Vehs	239	238	226	242	250	202	201	237
Denied Entry Before	74	107	39	80	27	103	35	91
Denied Entry After	1476	1507	1495	1279	1443	1563	1372	1534
Travel Distance (mi)	2243	2154	2177	2257	2208	2149	2229	2194
Travel Time (hr)	995.6	967.3	959.9	903.5	953.6	997.6	890.1	1048.0
Total Delay (hr)	906.0	881.3	872.6	813.2	865.4	911.6	801.1	960.3
Total Stops	10655	10557	10604	12115	11136	10311	10743	10552
Fuel Used (gal)	741.5	724.5	719.6	690.1	723.3	743.1	693.7	781.4

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	6146	5960	5942	6179	6053	5910	6057	6043
Vehs Exited	6108	5907	5966	6158	6040	5877	6078	6017
Starting Vehs	201	185	250	221	237	169	222	211
Ending Vehs	239	238	226	242	250	202	201	237
Denied Entry Before	74	107	39	80	27	103	35	91
Denied Entry After	1476	1507	1495	1279	1443	1563	1372	1534
Travel Distance (mi)	2243	2154	2177	2257	2208	2149	2229	2194
Travel Time (hr)	995.6	967.3	959.9	903.5	953.6	997.6	890.1	1048.0
Total Delay (hr)	906.0	881.3	872.6	813.2	865.4	911.6	801.1	960.3
Total Stops	10655	10557	10604	12115	11136	10311	10743	10552
Fuel Used (gal)	741.5	724.5	719.6	690.1	723.3	743.1	693.7	781.4

2: Soquel Ave. & Performance by approach

Approach	EB	NW	All
Total Delay (hr)	5.3	0.0	5.3
Delay / Veh (s)	15.3	0.3	11.7
Travel Dist (mi)	53.3	10.4	63.7
Travel Time (hr)	8.0	0.7	8.7
Vehicles Entered	1242	387	1629
Vehicles Exited	1238	387	1625
Hourly Exit Rate	1238	387	1625

8: NB On & Soquel Dr. Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	3.2	6.1	10.8	188.9	209.0
Delay / Veh (s)	42.5	19.2	22.1	472.2	162.8
Travel Dist (mi)	19.4	29.6	343.2	156.5	548.7
Travel Time (hr)	4.0	7.7	24.0	194.9	230.6
Vehicles Entered	269	1147	1770	1443	4629
Vehicles Exited	268	1143	1766	1437	4614
Hourly Exit Rate	268	1143	1766	1437	4614

9: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	4.5	4.5
Travel Dist (mi)	46.6	46.6
Travel Time (hr)	2.5	2.5
Vehicles Entered	691	691
Vehicles Exited	690	690
Hourly Exit Rate	690	690

10: SB On-Ramp & Soquel Ave. Performance by approach

Approach	NE	SW	All
Total Delay (hr)	4.0	4.8	8.7
Delay / Veh (s)	10.8	22.1	15.0
Travel Dist (mi)	131.4	67.6	198.9
Travel Time (hr)	9.7	7.3	16.9
Vehicles Entered	1325	776	2101
Vehicles Exited	1328	779	2107
Hourly Exit Rate	1328	779	2107

12: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.8	1.8
Travel Dist (mi)	17.6	17.6
Travel Time (hr)	1.2	1.2
Vehicles Entered	510	510
Vehicles Exited	512	512
Hourly Exit Rate	512	512

14: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	6.7	6.7
Travel Dist (mi)	6.8	6.8
Travel Time (hr)	0.9	0.9
Vehicles Entered	377	377
Vehicles Exited	377	377
Hourly Exit Rate	377	377

16: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	3.0	3.0
Travel Dist (mi)	2.5	2.5
Travel Time (hr)	0.4	0.4
Vehicles Entered	377	377
Vehicles Exited	377	377
Hourly Exit Rate	377	377

40: Soquel Ave. & Soquel Dr. Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	13.5	7.9	18.2	14.4	54.0
Delay / Veh (s)	39.5	45.6	56.9	32.4	42.2
Travel Dist (mi)	35.5	54.9	64.9	313.3	468.6
Travel Time (hr)	16.1	10.2	20.6	26.3	73.1
Vehicles Entered	1236	625	1144	1604	4609
Vehicles Exited	1229	619	1152	1602	4602
Hourly Exit Rate	1229	619	1152	1602	4602

123: NB On-Ramp & Commercial Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	2.0	2.2
Delay / Veh (s)	0.8	6.6	4.7
Travel Dist (mi)	13.3	107.9	121.2
Travel Time (hr)	1.2	5.8	7.0
Vehicles Entered	546	1111	1657
Vehicles Exited	546	1110	1656
Hourly Exit Rate	546	1110	1656

160: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.0	2.0
Travel Dist (mi)	25.3	25.3
Travel Time (hr)	1.1	1.1
Vehicles Entered	390	390
Vehicles Exited	390	390
Hourly Exit Rate	390	390

170: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	5.3	5.3
Travel Dist (mi)	5.1	5.1
Travel Time (hr)	0.6	0.6
Vehicles Entered	288	288
Vehicles Exited	288	288
Hourly Exit Rate	288	288

172: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	3.8	3.8
Travel Dist (mi)	2.5	2.5
Travel Time (hr)	0.4	0.4
Vehicles Entered	288	288
Vehicles Exited	288	288
Hourly Exit Rate	288	288

188: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	3.4	3.4
Travel Dist (mi)	3.5	3.5
Travel Time (hr)	0.6	0.6
Vehicles Entered	530	530
Vehicles Exited	529	529
Hourly Exit Rate	529	529

190: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	1.7	1.7
Delay / Veh (s)	11.7	11.7
Travel Dist (mi)	13.3	13.3
Travel Time (hr)	2.2	2.2
Vehicles Entered	529	529
Vehicles Exited	529	529
Hourly Exit Rate	529	529

309: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	4.7	4.7
Travel Dist (mi)	24.0	24.0
Travel Time (hr)	2.1	2.1
Vehicles Entered	546	546
Vehicles Exited	547	547
Hourly Exit Rate	547	547

311: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	4.6	4.6
Travel Dist (mi)	2.3	2.3
Travel Time (hr)	0.6	0.6
Vehicles Entered	403	403
Vehicles Exited	403	403
Hourly Exit Rate	403	403

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313: NB On-Ramp & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.1	1.1
Delay / Veh (s)	10.0	10.0
Travel Dist (mi)	6.3	6.3
Travel Time (hr)	1.3	1.3
Vehicles Entered	404	404
Vehicles Exited	403	403
Hourly Exit Rate	403	403

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Total Network Performance

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Total Delay (hr)	885.6
Delay / Veh (s)	528.9
Travel Dist (mi)	2200.7
Travel Time (hr)	973.6
Vehicles Entered	6038
Vehicles Exited	6019
Hourly Exit Rate	6019



Intersection: 2: Soquel Ave. &

Movement	EB	EB	EB	EB	EB	B18	B81	B81
Directions Served	R	R	R	R	R	T	T	T
Maximum Queue (ft)	108	78	46	241	236	236	14	168
Average Queue (ft)	21	11	3	148	131	75	0	39
95th Queue (ft)	72	48	21	277	240	254	14	176
Link Distance (ft)	168	168	168	168	168	191	215	215
Upstream Blk Time (%)	0			18	10	9		5
Queuing Penalty (veh)	0			0	0	0		0
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 8: NB On & Soquel Dr.

Movement	SE	SE	NW	NW	NW	NW	NE	NE	NE	NE	SW	SW
Directions Served	L	R>	<	<	TR	R	L	T	T	R	T	T
Maximum Queue (ft)	107	252	149	151	154	83	228	484	554	406	553	585
Average Queue (ft)	74	118	126	130	100	62	41	274	271	71	352	493
95th Queue (ft)	112	216	165	161	162	105	133	434	451	255	551	673
Link Distance (ft)		378	90	90	90			912	912	912	562	562
Upstream Blk Time (%)			25	31	12	1			0		0	6
Queuing Penalty (veh)			92	114	43	0			0		0	0
Storage Bay Dist (ft)	65					197	400					
Storage Blk Time (%)	19	26			12	1		1				16
Queuing Penalty (veh)	29	30			19	2		1				128

Intersection: 8: NB On & Soquel Dr.

Movement	SW	SW
Directions Served	R	R>
Maximum Queue (ft)	148	132
Average Queue (ft)	136	117
95th Queue (ft)	144	141
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	100
Storage Blk Time (%)	43	17
Queuing Penalty (veh)	206	81

Intersection: 9: NB On &

Movement	WB	B3	B3
Directions Served	T	T	T
Maximum Queue (ft)	139	30	2
Average Queue (ft)	38	1	0
95th Queue (ft)	106	29	2
Link Distance (ft)	303	184	184
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: SB On-Ramp & Soquel Ave.

Movement	NE	NE	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	406	459	474	158
Average Queue (ft)	164	121	244	56
95th Queue (ft)	330	370	447	137
Link Distance (ft)	404	404	458	
Upstream Blk Time (%)	0	1	3	
Queuing Penalty (veh)	3	6	0	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			16	0
Queuing Penalty (veh)			24	0

Intersection: 12: SB On-Ramp &

Movement	EB
Directions Served	T
Maximum Queue (ft)	80
Average Queue (ft)	9
95th Queue (ft)	43
Link Distance (ft)	127
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 14: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	111
Average Queue (ft)	75
95th Queue (ft)	111
Link Distance (ft)	39
Upstream Blk Time (%)	28
Queuing Penalty (veh)	127
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 16: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	55
95th Queue (ft)	69
Link Distance (ft)	-1
Upstream Blk Time (%)	2
Queuing Penalty (veh)	9
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SE	SE	SE	SE	SE	NW	NW	NE	NE	B5	B5	SW
Directions Served	L	L	L	T	TR	L	R	T	TR	T	T	L
Maximum Queue (ft)	164	163	161	163	163	363	380	319	326	182	190	297
Average Queue (ft)	133	127	90	158	157	194	184	302	313	127	174	183
95th Queue (ft)	186	177	155	173	173	343	334	352	336	219	189	277
Link Distance (ft)	104	104	104	104	104	404	404	245	245	160	160	
Upstream Blk Time (%)	22	20	7	58	58	2	0	46	60	16	62	
Queuing Penalty (veh)	56	49	18	145	144	5	1	0	0	0	0	
Storage Bay Dist (ft)												400
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SW	SW	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	349	447	505	132
Average Queue (ft)	196	197	216	80
95th Queue (ft)	301	358	412	152
Link Distance (ft)		912	912	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	400			100
Storage Blk Time (%)		0	17	0
Queuing Penalty (veh)		2	74	2

Intersection: 123: NB On-Ramp & Commercial

Movement	SE	NW	NW	NW
Directions Served	R	T	T	T
Maximum Queue (ft)	13	120	170	156
Average Queue (ft)	3	33	45	20
95th Queue (ft)	35	97	120	95
Link Distance (ft)	90		512	512
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	7			
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		1	1	
Queuing Penalty (veh)		2	5	

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Intersection: 160: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	15
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	305
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 170: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	85
Average Queue (ft)	46
95th Queue (ft)	71
Link Distance (ft)	51
Upstream Blk Time (%)	3
Queuing Penalty (veh)	10
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 172: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	50
95th Queue (ft)	70
Link Distance (ft)	7
Upstream Blk Time (%)	9
Queuing Penalty (veh)	30
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 188: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	57
95th Queue (ft)	71
Link Distance (ft)	-6
Upstream Blk Time (%)	7
Queuing Penalty (veh)	42
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 190: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	149
Average Queue (ft)	132
95th Queue (ft)	173
Link Distance (ft)	88
Upstream Blk Time (%)	26
Queuing Penalty (veh)	165
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 309: NB On-Ramp &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	57	160
Average Queue (ft)	6	32
95th Queue (ft)	61	127
Link Distance (ft)	190	190
Upstream Blk Time (%)	0	2
Queuing Penalty (veh)	0	8
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 311: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	49
95th Queue (ft)	63
Link Distance (ft)	-14
Upstream Blk Time (%)	16
Queuing Penalty (veh)	90
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 313: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	98
Average Queue (ft)	72
95th Queue (ft)	113
Link Distance (ft)	37
Upstream Blk Time (%)	47
Queuing Penalty (veh)	266
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 2035

1: SB On & SB Ramps Performance by approach

Approach	EB	All
Total Delay (hr)	2.1	2.1
Delay / Veh (s)	4.9	4.9
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	0.4	0.4
Travel Dist (mi)	405.3	405.3
Travel Time (hr)	17.7	17.7
Avg Speed (mph)	23	23
Vehicles Entered	1590	1590
Vehicles Exited	1589	1589
Hourly Exit Rate	1589	1589

3: NB Ramps & NB Off Performance by approach

Approach	WB	SW	All
Total Delay (hr)	1.7	1.1	2.8
Delay / Veh (s)	5.4	4.1	4.8
Stop Delay (hr)	0.0	0.2	0.2
St Del/Veh (s)	0.0	0.8	0.4
Travel Dist (mi)	177.9	55.6	233.6
Travel Time (hr)	7.8	3.7	11.5
Avg Speed (mph)	23	16	21
Vehicles Entered	1153	943	2096
Vehicles Exited	1154	945	2099
Hourly Exit Rate	1154	945	2099

4: NB Ramps & NB Off Performance by approach

Approach	WB	All
Total Delay (hr)	2.1	2.1
Delay / Veh (s)	4.9	4.9
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	1.7	1.7
Travel Dist (mi)	71.2	71.2
Travel Time (hr)	5.1	5.1
Avg Speed (mph)	16	16
Vehicles Entered	1521	1521
Vehicles Exited	1520	1520
Hourly Exit Rate	1520	1520



6: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	5.6	5.6
Stop Delay (hr)	0.4	0.4
St Del/Veh (s)	3.7	3.7
Travel Dist (mi)	5.4	5.4
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	7	7
Vehicles Entered	354	354
Vehicles Exited	353	353
Hourly Exit Rate	353	353

8: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	3.4	3.4
Stop Delay (hr)	0.4	0.4
St Del/Veh (s)	1.6	1.6
Travel Dist (mi)	28.4	28.4
Travel Time (hr)	2.4	2.4
Avg Speed (mph)	12	12
Vehicles Entered	848	848
Vehicles Exited	848	848
Hourly Exit Rate	848	848

10: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.9	1.9
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.7	1.7
Travel Dist (mi)	2.0	2.0
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	7	7
Vehicles Entered	353	353
Vehicles Exited	353	353
Hourly Exit Rate	353	353

12: Int Performance by approach

Approach	WB	All
Total Delay (hr)	1.7	1.7
Delay / Veh (s)	12.6	12.6
Stop Delay (hr)	1.3	1.3
St Del/Veh (s)	9.7	9.7
Travel Dist (mi)	26.9	26.9
Travel Time (hr)	3.1	3.1
Avg Speed (mph)	9	9
Vehicles Entered	484	484
Vehicles Exited	485	485
Hourly Exit Rate	485	485

13: SB Off & 41st Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	5.5	9.7	8.2	23.4
Delay / Veh (s)	16.7	18.1	18.7	18.0
Stop Delay (hr)	4.4	7.6	6.1	18.1
St Del/Veh (s)	13.4	14.1	13.9	13.9
Travel Dist (mi)	123.6	149.8	161.5	434.8
Travel Time (hr)	10.3	15.8	14.4	40.5
Avg Speed (mph)	12	10	11	11
Vehicles Entered	1177	1929	1583	4689
Vehicles Exited	1181	1926	1583	4690
Hourly Exit Rate	1181	1926	1583	4690

14: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	3.2	3.2
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	36.8	36.8
Travel Time (hr)	2.1	2.1
Avg Speed (mph)	18	18
Vehicles Entered	460	460
Vehicles Exited	459	459
Hourly Exit Rate	459	459

16: Main & Porter/Bay Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.1	63.7	1.6	7.8	73.2
Delay / Veh (s)	41.4	419.1	7.2	41.5	128.8
Stop Delay (hr)	0.1	60.8	1.1	6.8	68.8
St Del/Veh (s)	40.6	400.3	5.1	35.7	121.0
Travel Dist (mi)	0.3	91.2	30.6	85.6	207.6
Travel Time (hr)	0.1	67.1	2.9	10.9	81.0
Avg Speed (mph)	2	2	10	8	4
Vehicles Entered	9	558	812	685	2064
Vehicles Exited	9	537	808	678	2032
Hourly Exit Rate	9	537	808	678	2032

17: NB Ramps & Porter/Bay Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	2.2	9.4	4.3	15.8
Delay / Veh (s)	20.1	31.6	14.8	22.8
Stop Delay (hr)	1.8	8.1	3.4	13.4
St Del/Veh (s)	17.1	27.5	11.7	19.3
Travel Dist (mi)	105.2	60.6	41.7	207.5
Travel Time (hr)	6.0	11.8	6.4	24.2
Avg Speed (mph)	18	5	7	9
Vehicles Entered	384	1071	1040	2495
Vehicles Exited	386	1064	1037	2487
Hourly Exit Rate	386	1064	1037	2487

18: SB Ramps & Porter/Bay Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	2.9	46.4	3.1	52.4
Delay / Veh (s)	16.1	182.8	15.0	82.0
Stop Delay (hr)	2.4	44.0	2.4	48.8
St Del/Veh (s)	13.5	173.4	11.7	76.5
Travel Dist (mi)	39.5	106.4	41.7	187.6
Travel Time (hr)	4.6	50.3	4.8	59.7
Avg Speed (mph)	9	4	9	6
Vehicles Entered	641	925	744	2310
Vehicles Exited	641	903	744	2288
Hourly Exit Rate	641	903	744	2288

19: NB Ramps & Performance by approach

Approach	WB	All
Total Delay (hr)	2.4	2.4
Delay / Veh (s)	7.5	7.5
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	2.1	2.1
Travel Dist (mi)	113.4	113.4
Travel Time (hr)	6.6	6.6
Avg Speed (mph)	17	17
Vehicles Entered	1142	1142
Vehicles Exited	1142	1142
Hourly Exit Rate	1142	1142

21: NB Ramps & Performance by approach

Approach	WB	All
Total Delay (hr)	3.3	3.3
Delay / Veh (s)	13.5	13.5
Stop Delay (hr)	3.2	3.2
St Del/Veh (s)	12.9	12.9
Travel Dist (mi)	15.2	15.2
Travel Time (hr)	3.8	3.8
Avg Speed (mph)	4	4
Vehicles Entered	881	881
Vehicles Exited	881	881
Hourly Exit Rate	881	881

23: NB Ramps & Performance by approach

Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	2.5	2.5
Stop Delay (hr)	0.6	0.6
St Del/Veh (s)	2.5	2.5
Travel Dist (mi)	4.9	4.9
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	5	5
Vehicles Entered	882	882
Vehicles Exited	882	882
Hourly Exit Rate	882	882

26: SB Off & Performance by approach

Approach	EB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	4.7	4.7
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	3.6	3.6
Travel Dist (mi)	6.9	6.9
Travel Time (hr)	1.1	1.1
Avg Speed (mph)	6	6
Vehicles Entered	678	678
Vehicles Exited	679	679
Hourly Exit Rate	679	679

28: SB Off & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.6	1.6
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.2	1.2
Travel Dist (mi)	4.0	4.0
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	680	680
Vehicles Exited	679	679
Hourly Exit Rate	679	679

30: Gross Rd. & 41st Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.5	0.1	4.6	5.3	11.6
Delay / Veh (s)	34.8	29.9	9.8	9.0	10.4
Stop Delay (hr)	1.4	0.1	3.2	3.5	8.3
St Del/Veh (s)	33.6	29.5	6.7	5.9	7.4
Travel Dist (mi)	5.8	0.6	203.1	160.0	369.5
Travel Time (hr)	1.8	0.2	11.7	11.6	25.3
Avg Speed (mph)	3	3	18	14	15
Vehicles Entered	153	18	1697	2136	4004
Vehicles Exited	154	18	1705	2140	4017
Hourly Exit Rate	154	18	1705	2140	4017

33: NB Ramps & 41st Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	6.9	3.0	5.2	15.1
Delay / Veh (s)	11.9	10.0	18.9	13.1
Stop Delay (hr)	5.1	1.7	3.7	10.5
St Del/Veh (s)	8.8	5.8	13.5	9.1
Travel Dist (mi)	90.7	112.0	156.6	359.2
Travel Time (hr)	10.6	7.4	10.8	28.7
Avg Speed (mph)	9	15	15	13
Vehicles Entered	2100	1084	981	4165
Vehicles Exited	2099	1081	979	4159
Hourly Exit Rate	2099	1081	979	4159

34: NB Ramps & Performance by approach

Approach	EB	WB	All
Total Delay (hr)	0.1	0.9	1.1
Delay / Veh (s)	0.8	1.6	1.5
Stop Delay (hr)	0.0	0.0	0.1
St Del/Veh (s)	0.3	0.0	0.1
Travel Dist (mi)	21.1	129.7	150.8
Travel Time (hr)	1.6	5.4	6.9
Avg Speed (mph)	14	24	22
Vehicles Entered	502	2055	2557
Vehicles Exited	503	2053	2556
Hourly Exit Rate	503	2053	2556

39: Int Performance by approach

Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	5.7	5.7
Stop Delay (hr)	0.5	0.5
St Del/Veh (s)	4.8	4.8
Travel Dist (mi)	2.3	2.3
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	3	3
Vehicles Entered	379	379
Vehicles Exited	380	380
Hourly Exit Rate	380	380

40: Int Performance by approach

Approach	WB	All
Total Delay (hr)	1.5	1.5
Delay / Veh (s)	14.6	14.6
Stop Delay (hr)	1.5	1.5
St Del/Veh (s)	14.1	14.1
Travel Dist (mi)	5.2	5.2
Travel Time (hr)	1.7	1.7
Avg Speed (mph)	3	3
Vehicles Entered	380	380
Vehicles Exited	380	380
Hourly Exit Rate	380	380

Total Network Performance

Total Delay (hr)	220.8
Delay / Veh (s)	94.7
Stop Delay (hr)	179.1
St Del/Veh (s)	76.8
Travel Dist (mi)	4674.9
Travel Time (hr)	399.0
Avg Speed (mph)	14
Vehicles Entered	8428
Vehicles Exited	8370
Hourly Exit Rate	8370

Intersection: 1: SB On & SB Ramps

Movement	EB
Directions Served	L
Maximum Queue (ft)	37
Average Queue (ft)	2
95th Queue (ft)	23
Link Distance (ft)	1355
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: NB Ramps & NB Off

Movement	WB	SW
Directions Served	T	R
Maximum Queue (ft)	6	30
Average Queue (ft)	0	1
95th Queue (ft)	4	15
Link Distance (ft)	760	269
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: NB Ramps & NB Off

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)



Intersection: 6: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	96
Average Queue (ft)	66
95th Queue (ft)	93
Link Distance (ft)	36
Upstream Blk Time (%)	27
Queuing Penalty (veh)	103
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	173
Average Queue (ft)	70
95th Queue (ft)	142
Link Distance (ft)	86
Upstream Blk Time (%)	6
Queuing Penalty (veh)	25
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: SB On &

Movement	EB
Directions Served	L
Maximum Queue (ft)	64
Average Queue (ft)	49
95th Queue (ft)	63
Link Distance (ft)	-4
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Int

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	186	265
Average Queue (ft)	14	93
95th Queue (ft)	121	229
Link Distance (ft)	252	252
Upstream Blk Time (%)	0	1
Queuing Penalty (veh)	1	4
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: SB Off & 41st

Movement	EB	EB	EB	EB	EB	B53	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	T	R	R	T	T	T	R	R	L	T
Maximum Queue (ft)	130	180	168	170	160	2	313	352	346	258	305	288
Average Queue (ft)	60	104	88	92	79	0	185	227	152	108	142	93
95th Queue (ft)	110	161	152	141	127	2	301	350	285	210	259	240
Link Distance (ft)		496	496			817	328	328	328	328	454	454
Upstream Blk Time (%)							0	2	0	0	0	0
Queuing Penalty (veh)							1	9	0	0	0	0
Storage Bay Dist (ft)	250			250	250							
Storage Blk Time (%)		0	0									
Queuing Penalty (veh)		0	0									

Intersection: 13: SB Off & 41st

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	310	309
Average Queue (ft)	201	188
95th Queue (ft)	291	284
Link Distance (ft)	454	454
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	46
Average Queue (ft)	5
95th Queue (ft)	26
Link Distance (ft)	360
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Main & Porter/Bay

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	41	540	912	58	138	140	148	291	402
Average Queue (ft)	9	404	810	12	44	69	71	148	215
95th Queue (ft)	32	642	1113	41	109	130	125	245	340
Link Distance (ft)	166		878		134	134		658	658
Upstream Blk Time (%)			48		0	1			
Queuing Penalty (veh)			0		1	4			
Storage Bay Dist (ft)		500		75			300		
Storage Blk Time (%)		1	57	0	3			0	
Queuing Penalty (veh)		4	153	0	1			0	

Intersection: 17: NB Ramps & Porter/Bay

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	119	133	119	254	248	251	179	233	104
Average Queue (ft)	54	72	47	238	131	142	140	146	84
95th Queue (ft)	100	116	89	265	233	239	174	223	106
Link Distance (ft)		1442		220	220	220	134	134	
Upstream Blk Time (%)				38	1	1	17	9	
Queuing Penalty (veh)				140	4	4	96	48	
Storage Bay Dist (ft)	200		400						60
Storage Blk Time (%)								10	22
Queuing Penalty (veh)								58	60

Intersection: 18: SB Ramps & Porter/Bay

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	R	T	T	R	L	T	T
Maximum Queue (ft)	130	166	123	634	633	240	261	236	106
Average Queue (ft)	69	94	48	464	439	76	176	65	39
95th Queue (ft)	114	143	89	780	812	198	268	177	87
Link Distance (ft)		274		608	608		220	220	220
Upstream Blk Time (%)		0		21	19		6	0	
Queuing Penalty (veh)		0		0	0		15	0	
Storage Bay Dist (ft)	210		210			210			
Storage Blk Time (%)	0	0			4	0			
Queuing Penalty (veh)	0	0			8	0			

Intersection: 19: NB Ramps &

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	71	157	143
Average Queue (ft)	5	52	41
95th Queue (ft)	56	131	116
Link Distance (ft)	406	406	406
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	108	108
Average Queue (ft)	103	98
95th Queue (ft)	118	119
Link Distance (ft)	50	50
Upstream Blk Time (%)	59	55
Queuing Penalty (veh)	269	253
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 23: NB Ramps &

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Movement	WB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	55
95th Queue (ft)	70
Link Distance (ft)	-7
Upstream Blk Time (%)	21
Queuing Penalty (veh)	190
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 26: SB Off &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	72
Average Queue (ft)	65
95th Queue (ft)	76
Link Distance (ft)	11
Upstream Blk Time (%)	43
Queuing Penalty (veh)	289
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 28: SB Off &

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Movement	EB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	53
95th Queue (ft)	68
Link Distance (ft)	-7
Upstream Blk Time (%)	2
Queuing Penalty (veh)	12
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 Year 2015 Buildout - AM Peak (Modified)

4/19/2010

Intersection: 30: Gross Rd. & 41st

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	LT	R	L	T	T	TR	L	T	T
Maximum Queue (ft)	126	78	56	45	36	82	200	286	309	101	311	317
Average Queue (ft)	61	26	22	8	8	24	71	123	127	16	138	135
95th Queue (ft)	107	62	51	30	29	58	162	247	267	62	277	271
Link Distance (ft)	195	195		183	183		608	608	608	328	328	328
Upstream Blk Time (%)	0	0									0	0
Queuing Penalty (veh)	0	0									0	1
Storage Bay Dist (ft)			120			110						
Storage Blk Time (%)						0	2					
Queuing Penalty (veh)						0	1					

Intersection: 30: Gross Rd. & 41st

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	319	127
Average Queue (ft)	115	24
95th Queue (ft)	256	94
Link Distance (ft)	328	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	7	0
Queuing Penalty (veh)	11	0

Intersection: 33: NB Ramps & 41st

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	T	R	T	T	T	R	T	TR
Maximum Queue (ft)	234	244	230	142	175	157	107	228	279	363
Average Queue (ft)	155	190	151	67	86	66	40	91	123	187
95th Queue (ft)	219	254	212	116	149	128	92	167	220	319
Link Distance (ft)	180	180	180	180	454	454	454	454	825	825
Upstream Blk Time (%)	2	7	2	0						
Queuing Penalty (veh)	12	38	10	0						
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 34: NB Ramps &

Movement	EB	EB	WB	WB	WB	B42	B42
Directions Served	R	R	T	T	T	T	T
Maximum Queue (ft)	44	49	39	95	73	103	161
Average Queue (ft)	3	6	1	10	3	3	5
95th Queue (ft)	25	30	17	47	29	73	93
Link Distance (ft)	180	180	274	274	274	430	430
Upstream Blk Time (%)						0	0
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 39: Int

Movement	WB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	52
95th Queue (ft)	66
Link Distance (ft)	-2
Upstream Blk Time (%)	35
Queuing Penalty (veh)	131
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Int

Movement	WB
Directions Served	T
Maximum Queue (ft)	88
Average Queue (ft)	81
95th Queue (ft)	103
Link Distance (ft)	32
Upstream Blk Time (%)	71
Queuing Penalty (veh)	267
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 2229

1: SB On & SB Ramps Performance by approach

Approach	EB	All
Total Delay (hr)	2.8	2.8
Delay / Veh (s)	5.5	5.5
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	0.5	0.5
Travel Dist (mi)	457.7	457.7
Travel Time (hr)	20.4	20.4
Avg Speed (mph)	23	23
Vehicles Entered	1811	1811
Vehicles Exited	1805	1805
Hourly Exit Rate	1805	1805

3: NB Ramps & NB Off Performance by approach

Approach	WB	SW	All
Total Delay (hr)	1.9	0.9	2.8
Delay / Veh (s)	5.7	3.9	5.0
Stop Delay (hr)	0.0	0.2	0.2
St Del/Veh (s)	0.0	0.7	0.3
Travel Dist (mi)	193.3	48.3	241.6
Travel Time (hr)	8.6	3.1	11.7
Avg Speed (mph)	23	17	21
Vehicles Entered	1229	789	2018
Vehicles Exited	1228	789	2017
Hourly Exit Rate	1228	789	2017

4: NB Ramps & NB Off Performance by approach

Approach	WB	All
Total Delay (hr)	2.6	2.6
Delay / Veh (s)	5.3	5.3
Stop Delay (hr)	1.1	1.1
St Del/Veh (s)	2.2	2.2
Travel Dist (mi)	82.1	82.1
Travel Time (hr)	6.0	6.0
Avg Speed (mph)	17	17
Vehicles Entered	1752	1752
Vehicles Exited	1752	1752
Hourly Exit Rate	1752	1752



6: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	5.6	5.6
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	3.6	3.6
Travel Dist (mi)	5.0	5.0
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	7	7
Vehicles Entered	326	326
Vehicles Exited	327	327
Hourly Exit Rate	327	327

8: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	1.3	1.3
Delay / Veh (s)	4.9	4.9
Stop Delay (hr)	0.9	0.9
St Del/Veh (s)	3.6	3.6
Travel Dist (mi)	31.3	31.3
Travel Time (hr)	3.0	3.0
Avg Speed (mph)	10	10
Vehicles Entered	937	937
Vehicles Exited	937	937
Hourly Exit Rate	937	937

10: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.9	1.9
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.7	1.7
Travel Dist (mi)	1.8	1.8
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	7	7
Vehicles Entered	327	327
Vehicles Exited	327	327
Hourly Exit Rate	327	327

12: Int Performance by approach

Approach	WB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	5.8	5.8
Stop Delay (hr)	0.4	0.4
St Del/Veh (s)	2.7	2.7
Travel Dist (mi)	34.2	34.2
Travel Time (hr)	2.7	2.7
Avg Speed (mph)	13	13
Vehicles Entered	578	578
Vehicles Exited	581	581
Hourly Exit Rate	581	581

13: SB Off & 41st Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	7.7	18.6	10.6	36.9
Delay / Veh (s)	24.6	27.0	20.9	24.4
Stop Delay (hr)	6.5	14.6	8.2	29.4
St Del/Veh (s)	20.9	21.2	16.2	19.4
Travel Dist (mi)	117.7	192.5	178.3	488.5
Travel Time (hr)	12.2	26.3	17.5	56.1
Avg Speed (mph)	10	8	10	9
Vehicles Entered	1122	2485	1835	5442
Vehicles Exited	1129	2480	1832	5441
Hourly Exit Rate	1129	2480	1832	5441

14: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	3.2	3.2
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	36.7	36.7
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	18	18
Vehicles Entered	459	459
Vehicles Exited	454	454
Hourly Exit Rate	454	454

16: Main & Porter/Bay Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	0.7	62.0	2.0	17.6	82.3
Delay / Veh (s)	66.7	777.5	9.8	56.2	136.2
Stop Delay (hr)	0.7	60.7	1.6	15.0	78.1
St Del/Veh (s)	66.1	761.4	8.1	48.0	129.3
Travel Dist (mi)	1.2	48.1	26.2	141.5	217.1
Travel Time (hr)	0.8	63.8	3.3	22.7	90.5
Avg Speed (mph)	2	1	8	6	3
Vehicles Entered	39	309	720	1127	2195
Vehicles Exited	39	266	721	1127	2153
Hourly Exit Rate	39	266	721	1127	2153

17: NB Ramps & Porter/Bay Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	4.4	8.9	5.4	18.7
Delay / Veh (s)	29.3	41.3	16.5	27.0
Stop Delay (hr)	3.8	8.1	4.2	16.1
St Del/Veh (s)	25.2	37.7	12.8	23.2
Travel Dist (mi)	150.5	43.8	46.4	240.7
Travel Time (hr)	9.9	10.7	7.5	28.1
Avg Speed (mph)	15	4	6	9
Vehicles Entered	545	773	1179	2497
Vehicles Exited	549	776	1175	2500
Hourly Exit Rate	549	776	1175	2500

18: SB Ramps & Porter/Bay Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	3.1	180.2	4.6	188.0
Delay / Veh (s)	15.2	1036.5	16.5	284.4
Stop Delay (hr)	2.6	178.4	3.5	184.4
St Del/Veh (s)	12.6	1025.8	12.3	279.0
Travel Dist (mi)	45.9	73.2	56.5	175.6
Travel Time (hr)	5.2	182.9	6.9	195.0
Avg Speed (mph)	9	2	8	4
Vehicles Entered	743	636	1010	2389
Vehicles Exited	743	617	1012	2372
Hourly Exit Rate	743	617	1012	2372

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19: NB Ramps & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.7	1.7
Delay / Veh (s)	5.4	5.4
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	0.6	0.6
Travel Dist (mi)	109.9	109.9
Travel Time (hr)	5.8	5.8
Avg Speed (mph)	19	19
Vehicles Entered	1113	1113
Vehicles Exited	1112	1112
Hourly Exit Rate	1112	1112

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21: NB Ramps & Performance by approach

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Approach	WB	All
Total Delay (hr)	2.4	2.4
Delay / Veh (s)	10.8	10.8
Stop Delay (hr)	2.2	2.2
St Del/Veh (s)	9.6	9.6
Travel Dist (mi)	13.2	13.2
Travel Time (hr)	2.9	2.9
Avg Speed (mph)	5	5
Vehicles Entered	807	807
Vehicles Exited	807	807
Hourly Exit Rate	807	807

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23: NB Ramps & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.4	2.4
Stop Delay (hr)	0.5	0.5
St Del/Veh (s)	2.4	2.4
Travel Dist (mi)	4.5	4.5
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	6	6
Vehicles Entered	807	807
Vehicles Exited	807	807
Hourly Exit Rate	807	807

26: SB Off & Performance by approach

Approach	EB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	4.9	4.9
Stop Delay (hr)	0.8	0.8
St Del/Veh (s)	3.9	3.9
Travel Dist (mi)	7.3	7.3
Travel Time (hr)	1.2	1.2
Avg Speed (mph)	6	6
Vehicles Entered	716	716
Vehicles Exited	716	716
Hourly Exit Rate	716	716

28: SB Off & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.6	1.6
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.2	1.2
Travel Dist (mi)	4.3	4.3
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	7	7
Vehicles Entered	717	717
Vehicles Exited	716	716
Hourly Exit Rate	716	716

30: Gross Rd. & 41st Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.5	0.4	173.7	9.7	186.3
Delay / Veh (s)	41.0	33.5	294.5	16.0	146.7
Stop Delay (hr)	2.4	0.4	166.3	7.1	176.2
St Del/Veh (s)	39.5	33.2	282.0	11.7	138.7
Travel Dist (mi)	8.3	1.5	253.7	164.2	427.8
Travel Time (hr)	3.0	0.5	182.8	16.0	202.2
Avg Speed (mph)	3	3	5	11	6
Vehicles Entered	223	44	2134	2179	4580
Vehicles Exited	221	44	2113	2188	4566
Hourly Exit Rate	221	44	2113	2188	4566

33: NB Ramps & 41st Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	6.4	4.7	13.2	24.3
Delay / Veh (s)	11.5	10.8	43.7	18.8
Stop Delay (hr)	4.5	2.7	10.4	17.6
St Del/Veh (s)	8.2	6.2	34.4	13.7
Travel Dist (mi)	88.0	153.4	174.7	416.1
Travel Time (hr)	9.9	10.5	19.5	40.0
Avg Speed (mph)	9	15	9	11
Vehicles Entered	1989	1568	1096	4653
Vehicles Exited	1990	1557	1085	4632
Hourly Exit Rate	1990	1557	1085	4632

34: NB Ramps & Performance by approach

Approach	EB	WB	All
Total Delay (hr)	0.2	0.9	1.1
Delay / Veh (s)	1.1	1.6	1.5
Stop Delay (hr)	0.1	0.0	0.1
St Del/Veh (s)	0.3	0.0	0.1
Travel Dist (mi)	24.3	123.8	148.1
Travel Time (hr)	1.9	5.1	6.9
Avg Speed (mph)	13	24	21
Vehicles Entered	579	1987	2566
Vehicles Exited	580	1988	2568
Hourly Exit Rate	580	1988	2568

39: Int Performance by approach

Approach	WB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	6.6	6.6
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	5.6	5.6
Travel Dist (mi)	3.1	3.1
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	3	3
Vehicles Entered	460	460
Vehicles Exited	461	461
Hourly Exit Rate	461	461

40: Int Performance by approach

Approach	WB	All
Total Delay (hr)	1.8	1.8
Delay / Veh (s)	14.3	14.3
Stop Delay (hr)	1.7	1.7
St Del/Veh (s)	13.2	13.2
Travel Dist (mi)	6.2	6.2
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	3	3
Vehicles Entered	461	461
Vehicles Exited	461	461
Hourly Exit Rate	461	461

Total Network Performance

Total Delay (hr)	566.6
Delay / Veh (s)	218.3
Stop Delay (hr)	512.0
St Del/Veh (s)	197.3
Travel Dist (mi)	5059.5
Travel Time (hr)	758.8
Avg Speed (mph)	11
Vehicles Entered	9392
Vehicles Exited	9298
Hourly Exit Rate	9298

Intersection: 1: SB On & SB Ramps

Movement	EB	EB
Directions Served	L	L
Maximum Queue (ft)	152	179
Average Queue (ft)	5	17
95th Queue (ft)	149	93
Link Distance (ft)	1355	1355
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: NB Ramps & NB Off

Movement	SW
Directions Served	R
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	283
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: NB Ramps & NB Off

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)



Intersection: 6: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	96
Average Queue (ft)	64
95th Queue (ft)	91
Link Distance (ft)	36
Upstream Blk Time (%)	25
Queuing Penalty (veh)	101
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: SB On &

Movement	EB	EB
Directions Served	L	T
Maximum Queue (ft)	15	193
Average Queue (ft)	1	101
95th Queue (ft)	11	199
Link Distance (ft)	86	86
Upstream Blk Time (%)	0	17
Queuing Penalty (veh)	0	86
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: SB On &

Movement	EB
Directions Served	L
Maximum Queue (ft)	64
Average Queue (ft)	48
95th Queue (ft)	60
Link Distance (ft)	-4
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Int

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	52	228
Average Queue (ft)	2	73
95th Queue (ft)	37	186
Link Distance (ft)		268
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	2
Storage Bay Dist (ft)	500	
Storage Blk Time (%)	0	0
Queuing Penalty (veh)	0	0

Intersection: 13: SB Off & 41st

Movement	EB	EB	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	T	R	R	T	T	R	R	L	T	T
Maximum Queue (ft)	213	246	245	187	157	424	415	434	445	386	353	355
Average Queue (ft)	86	142	130	90	78	378	359	255	180	211	108	218
95th Queue (ft)	159	215	204	145	129	423	392	435	361	362	280	325
Link Distance (ft)		496	496			328	328	328	328	449	449	449
Upstream Blk Time (%)						29	30	1	0	0	0	
Queuing Penalty (veh)						187	190	6	1	0	0	
Storage Bay Dist (ft)	250			250	250							
Storage Blk Time (%)	0	0	0	0	0							
Queuing Penalty (veh)	0	0	1	0	0							

Intersection: 13: SB Off & 41st

Movement	SB
Directions Served	T
Maximum Queue (ft)	348
Average Queue (ft)	208
95th Queue (ft)	319
Link Distance (ft)	449
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	53
Average Queue (ft)	5
95th Queue (ft)	28
Link Distance (ft)	366
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Main & Porter/Bay

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	124	539	906	33	132	142	329	648	655
Average Queue (ft)	42	422	702	5	61	97	198	366	403
95th Queue (ft)	93	627	1128	23	127	154	331	565	591
Link Distance (ft)	166		878		134	134		658	658
Upstream Blk Time (%)	0		46		0	4		0	0
Queuing Penalty (veh)	0		0		1	18		0	0
Storage Bay Dist (ft)		500		75			300		
Storage Blk Time (%)		11	59		5		0	14	
Queuing Penalty (veh)		24	89		0		1	26	

Intersection: 17: NB Ramps & Porter/Bay

Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	186	200	184	248	206	227	172	206	103
Average Queue (ft)	90	108	73	238	89	111	142	142	65
95th Queue (ft)	157	172	140	251	173	196	164	193	114
Link Distance (ft)		1432		220	220	220	134	134	
Upstream Blk Time (%)				51	0	0	25	15	
Queuing Penalty (veh)				176	0	1	154	95	
Storage Bay Dist (ft)	200		400						60
Storage Blk Time (%)	0	0						21	11
Queuing Penalty (veh)	0	2						93	44

Intersection: 18: SB Ramps & Porter/Bay

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	R	T	T	R	L	T	T
Maximum Queue (ft)	128	164	147	646	638	331	293	272	226
Average Queue (ft)	62	105	69	614	572	98	202	171	115
95th Queue (ft)	107	150	120	709	805	281	299	288	219
Link Distance (ft)		274		614	614		220	220	220
Upstream Blk Time (%)				59	29		7	3	0
Queuing Penalty (veh)				0	0		25	10	1
Storage Bay Dist (ft)	210		210			300			
Storage Blk Time (%)		0			7	0			
Queuing Penalty (veh)		0			17	0			

Intersection: 19: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	101	89
Average Queue (ft)	25	16
95th Queue (ft)	76	59
Link Distance (ft)	405	405
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	105	101
Average Queue (ft)	92	85
95th Queue (ft)	118	113
Link Distance (ft)	50	50
Upstream Blk Time (%)	42	37
Queuing Penalty (veh)	179	159
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 23: NB Ramps &

Movement	WB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	54
95th Queue (ft)	69
Link Distance (ft)	-7
Upstream Blk Time (%)	17
Queuing Penalty (veh)	143
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: SB Off &

Movement	EB
Directions Served	T
Maximum Queue (ft)	73
Average Queue (ft)	67
95th Queue (ft)	76
Link Distance (ft)	11
Upstream Blk Time (%)	46
Queuing Penalty (veh)	364
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 28: SB Off &

Movement	EB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	54
95th Queue (ft)	70
Link Distance (ft)	-7
Upstream Blk Time (%)	2
Queuing Penalty (veh)	15
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report  
 Year 2015 Buildout - PM Peak (Modified)

4/19/2010

Intersection: 30: Gross Rd. & 41st

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	LT	R	L	T	T	TR	L	T	T
Maximum Queue (ft)	186	133	60	58	56	133	633	627	639	84	353	353
Average Queue (ft)	96	41	24	15	19	32	575	603	607	8	255	247
95th Queue (ft)	158	91	54	43	47	97	704	708	706	49	365	367
Link Distance (ft)	195	195		183	183		608	608	608	328	328	328
Upstream Blk Time (%)	0	0					12	28	33		2	1
Queuing Penalty (veh)	0	0					0	0	0		9	8
Storage Bay Dist (ft)			120			110						
Storage Blk Time (%)		0				0	56					
Queuing Penalty (veh)		0				0	21					

Intersection: 30: Gross Rd. & 41st

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	343	129
Average Queue (ft)	229	38
95th Queue (ft)	363	122
Link Distance (ft)	328	
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	7	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	18	0
Queuing Penalty (veh)	23	0

Intersection: 33: NB Ramps & 41st

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	T	R	T	T	T	R	T	TR
Maximum Queue (ft)	240	250	218	133	205	192	155	256	678	745
Average Queue (ft)	154	183	135	56	120	97	71	111	270	391
95th Queue (ft)	224	258	206	99	184	166	132	193	670	763
Link Distance (ft)	182	182	182	182	449	449	449	449	833	833
Upstream Blk Time (%)	3	6	1	0				0	1	5
Queuing Penalty (veh)	14	33	5	0				0	0	0
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 34: NB Ramps &

Movement	EB	EB	WB	WB	WB	B42	B42
Directions Served	R	R	T	T	T	T	T
Maximum Queue (ft)	49	54	34	90	41	101	150
Average Queue (ft)	14	12	1	8	2	3	5
95th Queue (ft)	40	39	16	43	21	70	87
Link Distance (ft)	182	182	273	273	273	430	430
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 39: Int

Movement	WB
Directions Served	T
Maximum Queue (ft)	71
Average Queue (ft)	58
95th Queue (ft)	72
Link Distance (ft)	-2
Upstream Blk Time (%)	33
Queuing Penalty (veh)	166
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Int

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	85	86
Average Queue (ft)	70	71
95th Queue (ft)	90	90
Link Distance (ft)	29	29
Upstream Blk Time (%)	53	42
Queuing Penalty (veh)	135	107
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2749

21: NB Off & Park Ave Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	7.5	21.4	3.5	10.4	1.5	0.8	45.1
Delay / Veh (s)	98.0	221.0	48.2	28.2	13.3	4.9	51.0
Vehicles Entered	280	366	262	1335	415	552	3210
Vehicles Exited	269	331	262	1331	414	552	3159
Hourly Exit Rate	269	331	262	1331	414	552	3159

22: SB Off & Park Ave Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	20.0	1.3	4.8	0.4	3.0	3.4	33.0
Delay / Veh (s)	58.7	18.4	45.8	4.6	49.9	26.6	41.9
Vehicles Entered	1238	250	378	291	220	464	2841
Vehicles Exited	1219	249	379	291	219	464	2821
Hourly Exit Rate	1219	249	379	291	219	464	2821

24: Kennedy & Park Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	2.6	0.4	0.0	5.1	3.1	4.6	0.5	40.2	14.4	1.8	2.7	1.0
Delay / Veh (s)	40.2	43.0	22.3	98.0	100.8	91.7	926.9	537.5	538.5	38.7	26.4	19.4
Vehicles Entered	234	32	4	186	111	182	3	284	102	169	364	180
Vehicles Exited	234	32	4	186	111	182	2	254	91	170	364	181
Hourly Exit Rate	234	32	4	186	111	182	2	254	91	170	364	181

24: Kennedy & Park Ave Performance by movement

Movement	All
Total Delay (hr)	76.3
Delay / Veh (s)	150.0
Vehicles Entered	1851
Vehicles Exited	1811
Hourly Exit Rate	1811

116: NB Off & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	2.7	16.5	19.2
Delay / Veh (s)	106.0	82.2	84.9
Vehicles Entered	93	722	815
Vehicles Exited	93	722	815
Hourly Exit Rate	93	722	815



194: NB Off & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.6	2.6
Vehicles Entered	690	690
Vehicles Exited	689	689
Hourly Exit Rate	689	689

197: NB Off & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	4.4	4.4
Vehicles Entered	690	690
Vehicles Exited	690	690
Hourly Exit Rate	690	690

200: SB Off & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.3	0.4
Delay / Veh (s)	2.1	2.5	2.5
Vehicles Entered	85	449	534
Vehicles Exited	85	449	534
Hourly Exit Rate	85	449	534

202: SB Off & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	4.5	4.5
Vehicles Entered	430	430
Vehicles Exited	429	429
Hourly Exit Rate	429	429

209: SB Off & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.6	2.6
Vehicles Entered	429	429
Vehicles Exited	429	429
Hourly Exit Rate	429	429

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Total Network Performance

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Total Delay (hr)	380.7
Delay / Veh (s)	326.0
Vehicles Entered	4263
Vehicles Exited	4145
Hourly Exit Rate	4145

Intersection: 1: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	564	571
Average Queue (ft)	494	490
95th Queue (ft)	631	665
Link Distance (ft)	467	467
Upstream Blk Time (%)	24	12
Queuing Penalty (veh)	210	102
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bend

Movement	NE
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	315
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: NB Off & Park Ave

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	L	R	R	L	T	T	T	T	R	R
Maximum Queue (ft)	309	915	915	340	345	377	423	181	139	111	91
Average Queue (ft)	102	368	442	201	195	288	277	82	54	59	39
95th Queue (ft)	233	1103	1110	395	310	419	433	147	107	97	72
Link Distance (ft)		1385	1385		334	334	334	467	467		
Upstream Blk Time (%)		5	5		0	7	4				
Queuing Penalty (veh)		0	0		2	38	22				
Storage Bay Dist (ft)	300			300						400	400
Storage Blk Time (%)	0	3	31	6							
Queuing Penalty (veh)	0	5	56	12							

Intersection: 22: SB Off & Park Ave

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	T	T
Maximum Queue (ft)	601	955	693	243	250	230	230	283	287	310
Average Queue (ft)	363	466	190	51	150	95	56	163	90	140
95th Queue (ft)	620	1039	829	158	233	199	162	261	205	269
Link Distance (ft)		1528	1528		303	303	303	334	334	334
Upstream Blk Time (%)		3	1		0	0	0	0	0	1
Queuing Penalty (veh)		0	0		0	0	0	1	0	2
Storage Bay Dist (ft)	615			400						
Storage Blk Time (%)	2	5	0	0						
Queuing Penalty (veh)	15	28	0	0						

Intersection: 24: Kennedy & Park Ave

Movement	EB	EB	WB	B3	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	LTR	L	L	TR
Maximum Queue (ft)	163	154	396	407	1371	138	351	379
Average Queue (ft)	91	85	386	391	1031	64	52	263
95th Queue (ft)	149	139	392	402	1654	122	226	395
Link Distance (ft)		1421	315	373	1354		303	303
Upstream Blk Time (%)			73	74	33		0	7
Queuing Penalty (veh)			0	0	0		1	24
Storage Bay Dist (ft)	300					200		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 116: NB Off &

Movement	WB	WB	B2	B2
Directions Served	T	T	T	T
Maximum Queue (ft)	37	38	3	2
Average Queue (ft)	4	3	0	0
95th Queue (ft)	21	20	3	2
Link Distance (ft)	-6	-6	281	281
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 194: NB Off &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	65	65
Average Queue (ft)	50	48
95th Queue (ft)	63	62
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	2	1
Queuing Penalty (veh)	8	5
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 197: NB Off &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	73	69
Average Queue (ft)	53	48
95th Queue (ft)	72	68
Link Distance (ft)	17	17
Upstream Blk Time (%)	28	21
Queuing Penalty (veh)	113	83
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 200: SB Off &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	17	9
Average Queue (ft)	1	0
95th Queue (ft)	10	7
Link Distance (ft)	259	259
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 202: SB Off &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	74	74
Average Queue (ft)	48	46
95th Queue (ft)	70	67
Link Distance (ft)	20	20
Upstream Blk Time (%)	12	18
Queuing Penalty (veh)	31	44
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 209: SB Off &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	67	66
Average Queue (ft)	48	49
95th Queue (ft)	64	63
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	2	2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 806

21: NB Off & Park Ave Performance by approach

Approach	WB	NB	SB	All
Total Delay (hr)	3.6	3.0	4.6	11.2
Delay / Veh (s)	17.4	11.5	13.0	13.6
Vehicles Entered	753	928	1270	2951
Vehicles Exited	750	941	1272	2963
Hourly Exit Rate	750	941	1272	2963

22: SB Off & Park Ave Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	9.9	2.4	8.1	20.5
Delay / Veh (s)	33.6	12.2	28.7	26.4
Vehicles Entered	1068	719	1013	2800
Vehicles Exited	1060	715	1022	2797
Hourly Exit Rate	1060	715	1022	2797

24: Kennedy & Park Ave Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.6	13.1	136.1	12.1	164.0
Delay / Veh (s)	45.3	116.1	924.7	47.5	286.1
Vehicles Entered	208	407	545	926	2086
Vehicles Exited	209	407	516	911	2043
Hourly Exit Rate	209	407	516	911	2043

116: NB Off & Performance by approach

Approach	WB	All
Total Delay (hr)	26.7	26.7
Delay / Veh (s)	108.0	108.0
Vehicles Entered	891	891
Vehicles Exited	891	891
Hourly Exit Rate	891	891

194: NB Off & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.2	2.2
Vehicles Entered	712	712
Vehicles Exited	713	713
Hourly Exit Rate	713	713

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197: NB Off & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	4.2	4.2
Vehicles Entered	713	713
Vehicles Exited	713	713
Hourly Exit Rate	713	713

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200: SB Off & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	2.8	2.8
Vehicles Entered	982	982
Vehicles Exited	980	980
Hourly Exit Rate	980	980

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202: SB Off & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	4.6	4.6
Vehicles Entered	761	761
Vehicles Exited	761	761
Hourly Exit Rate	761	761

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209: SB Off & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.2	2.2
Vehicles Entered	761	761
Vehicles Exited	761	761
Hourly Exit Rate	761	761

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Total Network Performance

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Total Delay (hr)	296.8
Delay / Veh (s)	249.4
Vehicles Entered	4305
Vehicles Exited	4265
Hourly Exit Rate	4265



Intersection: 1: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	471	460
Average Queue (ft)	230	151
95th Queue (ft)	509	432
Link Distance (ft)	467	467
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bend

Movement	NE	NE
Directions Served	T	
Maximum Queue (ft)	170	57
Average Queue (ft)	8	2
95th Queue (ft)	82	43
Link Distance (ft)	315	315
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: NB Off & Park Ave

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB	B1
Directions Served	L	L	R	R	L	T	T	T	T	R	R	T
Maximum Queue (ft)	175	165	107	89	261	107	99	406	344	184	121	104
Average Queue (ft)	97	90	55	42	138	30	11	188	91	61	34	17
95th Queue (ft)	151	141	89	75	228	76	65	368	271	147	87	175
Link Distance (ft)		1385	1385		334	334	334	467	467			586
Upstream Blk Time (%)					0	0	0	1	0			1
Queuing Penalty (veh)					0	0	0	0	0			0
Storage Bay Dist (ft)	300			300						400	400	
Storage Blk Time (%)									0	0	0	
Queuing Penalty (veh)									1	0	0	

Intersection: 22: SB Off & Park Ave

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	T	T
Maximum Queue (ft)	345	462	106	127	170	162	244	375	239	251
Average Queue (ft)	215	232	44	51	70	16	90	279	98	116
95th Queue (ft)	321	378	89	97	141	83	197	419	193	204
Link Distance (ft)		1528	1528		303	303	303	334	334	334
Upstream Blk Time (%)					0		0	12	0	0
Queuing Penalty (veh)					0		0	42	0	0
Storage Bay Dist (ft)	330			400						
Storage Blk Time (%)	1	1								
Queuing Penalty (veh)	2	4								

Intersection: 24: Kennedy & Park Ave

Movement	EB	EB	WB	B3	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	LTR	L	L	TR
Maximum Queue (ft)	116	188	393	407	1386	228	366	346
Average Queue (ft)	50	97	385	384	1326	174	149	214
95th Queue (ft)	100	158	392	452	1576	248	325	362
Link Distance (ft)		1421	315	373	1354		303	303
Upstream Blk Time (%)			79	73	62		6	2
Queuing Penalty (veh)			0	0	0		25	11
Storage Bay Dist (ft)	300					200		
Storage Blk Time (%)						19	9	
Queuing Penalty (veh)						33	16	

Intersection: 116: NB Off &

Movement	WB	WB	B2
Directions Served	T	T	T
Maximum Queue (ft)	34	35	1
Average Queue (ft)	3	2	0
95th Queue (ft)	19	15	1
Link Distance (ft)	-6	-6	281
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 194: NB Off &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	65	65
Average Queue (ft)	50	49
95th Queue (ft)	64	62
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	3	2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 197: NB Off &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	72	68
Average Queue (ft)	49	46
95th Queue (ft)	68	66
Link Distance (ft)	17	17
Upstream Blk Time (%)	28	20
Queuing Penalty (veh)	120	88
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 200: SB Off &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	45	31
Average Queue (ft)	4	2
95th Queue (ft)	23	16
Link Distance (ft)	259	259
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 202: SB Off &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	78	78
Average Queue (ft)	57	55
95th Queue (ft)	78	75
Link Distance (ft)	20	20
Upstream Blk Time (%)	24	29
Queuing Penalty (veh)	108	131
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 209: SB Off &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	67	66
Average Queue (ft)	50	51
95th Queue (ft)	63	65
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	4	4
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 599

4: Sea Ridge & McGregor Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	10.7	0.1	24.4	35.1
Delay / Veh (s)	396.3	0.6	2193.0	215.7
Total Stops	120	1	33	154
Stop/Veh	1.24	0.00	0.82	0.26
Travel Dist (mi)	21.5	9.8	4.2	35.5
Travel Time (hr)	11.4	0.9	24.5	36.8
Avg Speed (mph)	2	12	0	1
Vehicles Entered	107	449	48	604
Vehicles Exited	88	448	32	568
Hourly Exit Rate	88	448	32	568

6: NB ON Ramp & NB Off Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	0.3	0.3
Delay / Veh (s)	0.9	0.9	0.9
Total Stops	3	1	4
Stop/Veh	0.01	0.00	0.00
Travel Dist (mi)	33.5	133.6	167.2
Travel Time (hr)	1.7	4.9	6.6
Avg Speed (mph)	20	28	26
Vehicles Entered	302	1059	1361
Vehicles Exited	301	1060	1361
Hourly Exit Rate	301	1060	1361

25: NB Off & State Park Performance by approach

Approach	NW	NE	SW	All
Total Delay (hr)	6.1	3.3	7.6	16.9
Delay / Veh (s)	19.8	14.1	21.4	19.0
Total Stops	810	343	661	1814
Stop/Veh	0.73	0.41	0.52	0.56
Travel Dist (mi)	122.9	18.5	38.9	180.3
Travel Time (hr)	11.0	4.1	8.9	24.0
Avg Speed (mph)	11	5	5	8
Vehicles Entered	1102	834	1275	3211
Vehicles Exited	1105	836	1274	3215
Hourly Exit Rate	1105	836	1274	3215

27: SB Ramps & State Park Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	4.2	1.6	2.3	8.1
Delay / Veh (s)	16.9	8.5	16.4	14.1
Total Stops	540	172	216	928
Stop/Veh	0.60	0.26	0.43	0.45
Travel Dist (mi)	285.6	28.7	43.3	357.6
Travel Time (hr)	14.6	2.8	3.8	21.2
Avg Speed (mph)	20	10	12	17
Vehicles Entered	902	667	500	2069
Vehicles Exited	902	667	500	2069
Hourly Exit Rate	902	667	500	2069

28: Sea Ridge & State Park Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	12.6	0.0	1.2	0.4	14.2
Delay / Veh (s)	383.9	6.6	6.1	1.4	28.6
Total Stops	118	2	170	29	319
Stop/Veh	1.00	1.00	0.23	0.03	0.18
Travel Dist (mi)	3.3	0.1	180.3	42.9	226.6
Travel Time (hr)	12.8	0.0	7.5	2.4	22.7
Avg Speed (mph)	1	10	24	18	17
Vehicles Entered	119	2	738	932	1791
Vehicles Exited	118	2	737	932	1789
Hourly Exit Rate	118	2	737	932	1789

29: Soquel & State Park Performance by approach

Approach	SB	NW	NE	SW	All
Total Delay (hr)	4.4	10.9	4.6	12.9	32.8
Delay / Veh (s)	24.1	32.6	12.7	204.7	34.9
Total Stops	434	867	478	332	2111
Stop/Veh	0.65	0.72	0.37	1.46	0.62
Travel Dist (mi)	131.9	209.6	33.1	53.9	428.4
Travel Time (hr)	9.5	18.9	6.2	14.8	49.5
Avg Speed (mph)	16	12	5	4	9
Vehicles Entered	663	1198	1299	233	3393
Vehicles Exited	664	1199	1299	221	3383
Hourly Exit Rate	664	1199	1299	221	3383

132: SB On & State Park Performance by approach

Approach	NB	SB	All
Total Delay (hr)	0.3	0.9	1.2
Delay / Veh (s)	1.3	3.3	2.4
Total Stops	11	9	20
Stop/Veh	0.01	0.01	0.01
Travel Dist (mi)	77.7	116.3	193.9
Travel Time (hr)	3.4	5.3	8.7
Avg Speed (mph)	23	22	22
Vehicles Entered	832	1006	1838
Vehicles Exited	833	1006	1839
Hourly Exit Rate	833	1006	1839

133: NB On & State Park Performance by approach

Approach	NE	SW	All
Total Delay (hr)	1.5	0.5	2.0
Delay / Veh (s)	6.3	1.2	2.9
Total Stops	160	0	160
Stop/Veh	0.19	0.00	0.07
Travel Dist (mi)	25.8	31.8	57.7
Travel Time (hr)	2.4	2.1	4.5
Avg Speed (mph)	11	15	13
Vehicles Entered	852	1591	2443
Vehicles Exited	852	1591	2443
Hourly Exit Rate	852	1591	2443

212: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	0.8	0.8
Total Stops	0	0
Stop/Veh	0.00	0.00
Travel Dist (mi)	28.6	28.6
Travel Time (hr)	1.9	1.9
Avg Speed (mph)	15	15
Vehicles Entered	328	328
Vehicles Exited	330	330
Hourly Exit Rate	330	330

218: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	6.7	6.7
Total Stops	262	262
Stop/Veh	1.00	1.00
Travel Dist (mi)	11.7	11.7
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	13	13
Vehicles Entered	262	262
Vehicles Exited	262	262
Hourly Exit Rate	262	262

221: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.6	2.6
Total Stops	0	0
Stop/Veh	0.00	0.00
Travel Dist (mi)	1.5	1.5
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	6	6
Vehicles Entered	262	262
Vehicles Exited	262	262
Hourly Exit Rate	262	262

226: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	3.2	3.2
Total Stops	36	36
Stop/Veh	0.06	0.06
Travel Dist (mi)	48.3	48.3
Travel Time (hr)	3.3	3.3
Avg Speed (mph)	15	15
Vehicles Entered	627	627
Vehicles Exited	628	628
Hourly Exit Rate	628	628



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229: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	4.4	4.4
Total Stops	0	0
Stop/Veh	0.00	0.00
Travel Dist (mi)	2.9	2.9
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	4	4
Vehicles Entered	523	523
Vehicles Exited	522	522
Hourly Exit Rate	522	522

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233: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	3.2	3.2
Delay / Veh (s)	22.0	22.0
Total Stops	487	487
Stop/Veh	0.93	0.93
Travel Dist (mi)	24.8	24.8
Travel Time (hr)	4.0	4.0
Avg Speed (mph)	6	6
Vehicles Entered	521	521
Vehicles Exited	522	522
Hourly Exit Rate	522	522

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235: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.6	2.6
Total Stops	16	16
Stop/Veh	0.06	0.06
Travel Dist (mi)	34.9	34.9
Travel Time (hr)	1.7	1.7
Avg Speed (mph)	21	21
Vehicles Entered	290	290
Vehicles Exited	290	290
Hourly Exit Rate	290	290

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238: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	3.4	3.4
Total Stops	0	0
Stop/Veh	0.00	0.00
Travel Dist (mi)	1.1	1.1
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	4	4
Vehicles Entered	257	257
Vehicles Exited	257	257
Hourly Exit Rate	257	257

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240: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	6.7	6.7
Total Stops	257	257
Stop/Veh	1.00	1.00
Travel Dist (mi)	5.5	5.5
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	8	8
Vehicles Entered	257	257
Vehicles Exited	257	257
Hourly Exit Rate	257	257

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245: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.2	2.2
Total Stops	12	12
Stop/Veh	0.02	0.02
Travel Dist (mi)	31.1	31.1
Travel Time (hr)	1.4	1.4
Avg Speed (mph)	22	22
Vehicles Entered	512	512
Vehicles Exited	512	512
Hourly Exit Rate	512	512

248: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	3.8	3.8
Total Stops	0	0
Stop/Veh	0.00	0.00
Travel Dist (mi)	1.7	1.7
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	4	4
Vehicles Entered	385	385
Vehicles Exited	385	385
Hourly Exit Rate	385	385

250: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	1.1	1.1
Delay / Veh (s)	9.9	9.9
Total Stops	374	374
Stop/Veh	0.97	0.97
Travel Dist (mi)	9.6	9.6
Travel Time (hr)	1.4	1.4
Avg Speed (mph)	7	7
Vehicles Entered	385	385
Vehicles Exited	385	385
Hourly Exit Rate	385	385

Total Network Performance

Total Delay (hr)	200.9
Delay / Veh (s)	137.1
Total Stops	7408
Stop/Veh	1.40
Travel Dist (mi)	2838.2
Travel Time (hr)	312.2
Avg Speed (mph)	11
Vehicles Entered	5311
Vehicles Exited	5243
Hourly Exit Rate	5243

Intersection: 4: Sea Ridge & McGregor

Movement	EB	WB	SB	B8
Directions Served	LT	TR	LR	T
Maximum Queue (ft)	587	18	578	654
Average Queue (ft)	286	1	544	543
95th Queue (ft)	710	8	650	886
Link Distance (ft)	1138	75	507	637
Upstream Blk Time (%)	2		92	75
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NB ON Ramp & NB Off

Movement	SE	NW	NW
Directions Served	R	T	T
Maximum Queue (ft)	28	5	11
Average Queue (ft)	1	0	0
95th Queue (ft)	12	4	6
Link Distance (ft)	566	664	664
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: NB Off & State Park

Movement	NW	NW	NW	NE	NE	SW	SW	SW	B3	B3
Directions Served	L	LR	R	T	TR	T	T	T	T	T
Maximum Queue (ft)	334	416	398	134	137	188	184	191	107	133
Average Queue (ft)	109	226	171	94	122	181	118	175	77	90
95th Queue (ft)	254	376	356	153	160	210	168	212	133	135
Link Distance (ft)	566	566		16	16	117	117	117	82	82
Upstream Blk Time (%)				36	52	28	11	28	9	15
Queuing Penalty (veh)				169	243	108	40	106	53	86
Storage Bay Dist (ft)			600							
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 27: SB Ramps & State Park

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	<	<	R	R	T	T	T	T
Maximum Queue (ft)	154	328	193	74	147	141	306	212
Average Queue (ft)	86	126	81	37	54	39	92	18
95th Queue (ft)	161	241	153	66	117	102	218	111
Link Distance (ft)		1663	1663		150	150	350	350
Upstream Blk Time (%)					0	0	0	0
Queuing Penalty (veh)					1	0	1	0
Storage Bay Dist (ft)	120			300				
Storage Blk Time (%)	3	7						
Queuing Penalty (veh)	6	15						

Intersection: 28: Sea Ridge & State Park

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LR	LR	LT	TR	LT	R
Maximum Queue (ft)	120	18	174	87	108	48
Average Queue (ft)	92	2	80	8	15	7
95th Queue (ft)	108	11	146	53	67	28
Link Distance (ft)	75	238	1285	1285	150	150
Upstream Blk Time (%)	88				0	
Queuing Penalty (veh)	277				1	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report  
 Year 2015 Buildout - AM Peak (Modified)

4/19/2010

Intersection: 29: Soquel & State Park

Movement	SB	SB	SB	SB	NW	NW	NW	NW	NE	NE	NE	B3
Directions Served	L	L	R	R	L	L	R	R>	L	LT	R	T
Maximum Queue (ft)	97	70	148	151	206	256	303	297	154	154	125	127
Average Queue (ft)	46	26	66	67	105	146	178	180	133	142	47	43
95th Queue (ft)	83	59	125	129	175	223	266	270	166	160	94	118
Link Distance (ft)	1031	1031					916	916	82	82	82	117
Upstream Blk Time (%)									29	38	1	0
Queuing Penalty (veh)									130	172	4	2
Storage Bay Dist (ft)			200	200	550	550						
Storage Blk Time (%)			0	0								
Queuing Penalty (veh)			0	0								

Intersection: 29: Soquel & State Park

Movement	B3	B3	SW	SW	SW
Directions Served	T	T	L	T	TR
Maximum Queue (ft)	134	57	200	452	454
Average Queue (ft)	71	2	43	182	226
95th Queue (ft)	144	25	141	448	475
Link Distance (ft)	117	117		1229	1229
Upstream Blk Time (%)	3	0			
Queuing Penalty (veh)	14	0			
Storage Bay Dist (ft)			200		
Storage Blk Time (%)				17	
Queuing Penalty (veh)				5	

Intersection: 132: SB On & State Park

Movement	NB	SB	B26	B26
Directions Served	T	T	T	T
Maximum Queue (ft)	2	9	7	23
Average Queue (ft)	0	0	0	1
95th Queue (ft)	2	7	4	9
Link Distance (ft)	350	569	107	107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 133: NB On & State Park

Movement	NE	NE	B26	B26	SW
Directions Served	T	T	T	T	R
Maximum Queue (ft)	133	183	110	243	6
Average Queue (ft)	24	104	7	38	0
95th Queue (ft)	91	215	70	164	3
Link Distance (ft)	107	107	569	569	16
Upstream Blk Time (%)	1	11			0
Queuing Penalty (veh)	4	50			0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 212: SB Ramps &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 218: SB Ramps &

Movement	EB
Directions Served	T
Maximum Queue (ft)	82
Average Queue (ft)	44
95th Queue (ft)	69
Link Distance (ft)	182
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 221: SB Ramps &

Movement	EB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	47
95th Queue (ft)	60
Link Distance (ft)	-3
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 226: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	32	104
Average Queue (ft)	2	17
95th Queue (ft)	44	116
Link Distance (ft)	323	323
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 229: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	51
95th Queue (ft)	65
Link Distance (ft)	-5
Upstream Blk Time (%)	22
Queuing Penalty (veh)	113
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	



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Intersection: 233: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	265
Average Queue (ft)	167
95th Queue (ft)	263
Link Distance (ft)	209
Upstream Blk Time (%)	9
Queuing Penalty (veh)	47
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 235: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	68
Average Queue (ft)	9
95th Queue (ft)	41
Link Distance (ft)	598
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 238: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	42
95th Queue (ft)	53
Link Distance (ft)	-9
Upstream Blk Time (%)	4
Queuing Penalty (veh)	10
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 240: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	76
Average Queue (ft)	52
95th Queue (ft)	77
Link Distance (ft)	70
Upstream Blk Time (%)	2
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 245: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	93
Average Queue (ft)	6
95th Queue (ft)	43
Link Distance (ft)	285
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 248: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	42
95th Queue (ft)	54
Link Distance (ft)	-9
Upstream Blk Time (%)	9
Queuing Penalty (veh)	36
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 250: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	148
Average Queue (ft)	83
95th Queue (ft)	141
Link Distance (ft)	80
Upstream Blk Time (%)	11
Queuing Penalty (veh)	46
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

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Network wide Queuing Penalty: 1745

4: Sea Ridge & McGregor Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	0.2	0.2	22.2	22.5
Delay / Veh (s)	25.6	0.8	472.6	92.0
Stop Delay (hr)	0.1	0.0	22.2	22.3
St Del/Veh (s)	22.8	0.2	471.9	91.3
Travel Dist (mi)	5.1	14.1	17.9	37.1
Travel Time (hr)	0.3	1.3	22.9	24.5
Avg Speed (mph)	15	11	1	2
Vehicles Entered	23	689	178	890
Vehicles Exited	23	689	160	872
Hourly Exit Rate	23	689	160	872

6: NB ON Ramp & NB Off Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	0.2	0.2
Delay / Veh (s)	0.8	0.6	0.7
Stop Delay (hr)	0.0	0.0	0.0
St Del/Veh (s)	0.1	0.2	0.1
Travel Dist (mi)	34.1	111.2	145.3
Travel Time (hr)	1.7	4.0	5.7
Avg Speed (mph)	20	28	26
Vehicles Entered	306	881	1187
Vehicles Exited	307	882	1189
Hourly Exit Rate	307	882	1189

25: NB Off & State Park Performance by approach

Approach	NW	NE	SW	All
Total Delay (hr)	5.3	2.9	5.6	13.7
Delay / Veh (s)	20.7	10.5	13.4	14.5
Stop Delay (hr)	4.4	2.3	4.6	11.3
St Del/Veh (s)	17.4	8.3	11.0	11.9
Travel Dist (mi)	101.7	21.9	49.2	172.7
Travel Time (hr)	9.3	3.8	7.3	20.4
Avg Speed (mph)	11	6	7	9
Vehicles Entered	917	992	1509	3418
Vehicles Exited	914	989	1507	3410
Hourly Exit Rate	914	989	1507	3410

27: SB Ramps & State Park Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	5.6	2.4	5.1	13.0
Delay / Veh (s)	17.9	11.0	26.4	18.1
Stop Delay (hr)	4.0	1.9	4.1	10.1
St Del/Veh (s)	12.8	9.0	21.4	14.0
Travel Dist (mi)	354.7	33.6	60.9	449.3
Travel Time (hr)	18.4	3.9	7.2	29.5
Avg Speed (mph)	20	9	9	15
Vehicles Entered	1122	778	695	2595
Vehicles Exited	1120	781	694	2595
Hourly Exit Rate	1120	781	694	2595

28: Sea Ridge & State Park Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	5.8	0.0	0.8	0.8	7.4
Delay / Veh (s)	111.2	9.1	4.3	2.2	12.5
Stop Delay (hr)	5.8	0.0	0.4	0.1	6.4
St Del/Veh (s)	111.5	9.2	2.3	0.4	10.8
Travel Dist (mi)	5.0	0.4	166.6	57.1	229.1
Travel Time (hr)	6.1	0.0	6.5	3.7	16.3
Avg Speed (mph)	2	9	26	16	17
Vehicles Entered	188	8	682	1253	2131
Vehicles Exited	187	8	682	1253	2130
Hourly Exit Rate	187	8	682	1253	2130

29: Soquel & State Park Performance by approach

Approach	SB	NW	NE	SW	All
Total Delay (hr)	5.9	13.5	6.1	2.5	28.1
Delay / Veh (s)	28.4	40.6	19.4	35.2	30.2
Stop Delay (hr)	5.4	12.3	5.7	2.2	25.5
St Del/Veh (s)	25.6	36.8	18.0	31.9	27.5
Travel Dist (mi)	149.8	210.2	28.1	58.7	446.8
Travel Time (hr)	11.8	21.5	7.5	4.5	45.4
Avg Speed (mph)	16	12	4	13	11
Vehicles Entered	752	1201	1137	252	3342
Vehicles Exited	753	1199	1139	251	3342
Hourly Exit Rate	753	1199	1139	251	3342

132: SB On & State Park Performance by approach

Approach	NB	SB	All
Total Delay (hr)	0.4	1.3	1.8
Delay / Veh (s)	1.6	3.5	2.7
Stop Delay (hr)	0.0	0.1	0.1
St Del/Veh (s)	0.1	0.2	0.2
Travel Dist (mi)	92.0	156.4	248.4
Travel Time (hr)	4.1	7.1	11.3
Avg Speed (mph)	22	22	22
Vehicles Entered	985	1356	2341
Vehicles Exited	985	1356	2341
Hourly Exit Rate	985	1356	2341

133: NB On & State Park Performance by approach

Approach	NE	SW	All
Total Delay (hr)	1.6	0.4	2.1
Delay / Veh (s)	5.8	0.8	2.5
Stop Delay (hr)	0.9	0.0	1.0
St Del/Veh (s)	3.4	0.1	1.2
Travel Dist (mi)	30.7	38.7	69.3
Travel Time (hr)	2.7	2.3	5.0
Avg Speed (mph)	12	17	14
Vehicles Entered	1010	1939	2949
Vehicles Exited	1010	1939	2949
Hourly Exit Rate	1010	1939	2949

212: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	0.9	0.9
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.0	0.0
Travel Dist (mi)	33.6	33.6
Travel Time (hr)	2.2	2.2
Avg Speed (mph)	15	15
Vehicles Entered	385	385
Vehicles Exited	385	385
Hourly Exit Rate	385	385

218: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	6.9	6.9
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	3.0	3.0
Travel Dist (mi)	12.5	12.5
Travel Time (hr)	1.0	1.0
Avg Speed (mph)	13	13
Vehicles Entered	280	280
Vehicles Exited	280	280
Hourly Exit Rate	280	280

221: SB Ramps & Performance by approach

Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.6	2.6
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	1.8	1.8
Travel Dist (mi)	1.6	1.6
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	6	6
Vehicles Entered	280	280
Vehicles Exited	280	280
Hourly Exit Rate	280	280

226: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.5	1.5
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.1	0.1
Travel Dist (mi)	48.3	48.3
Travel Time (hr)	3.1	3.1
Avg Speed (mph)	16	16
Vehicles Entered	626	626
Vehicles Exited	625	625
Hourly Exit Rate	625	625

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229: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	3.9	3.9
Stop Delay (hr)	0.5	0.5
St Del/Veh (s)	3.6	3.6
Travel Dist (mi)	2.7	2.7
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	4	4
Vehicles Entered	478	478
Vehicles Exited	478	478
Hourly Exit Rate	478	478

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233: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	2.0	2.0
Delay / Veh (s)	14.7	14.7
Stop Delay (hr)	1.5	1.5
St Del/Veh (s)	11.2	11.2
Travel Dist (mi)	22.7	22.7
Travel Time (hr)	2.7	2.7
Avg Speed (mph)	8	8
Vehicles Entered	478	478
Vehicles Exited	478	478
Hourly Exit Rate	478	478

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235: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.1	2.1
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.1	0.1
Travel Dist (mi)	35.5	35.5
Travel Time (hr)	1.7	1.7
Avg Speed (mph)	21	21
Vehicles Entered	295	295
Vehicles Exited	294	294
Hourly Exit Rate	294	294



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238: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	3.0	3.0
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	2.9	2.9
Travel Dist (mi)	1.0	1.0
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	4	4
Vehicles Entered	230	230
Vehicles Exited	230	230
Hourly Exit Rate	230	230

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240: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	6.0	6.0
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	3.2	3.2
Travel Dist (mi)	4.9	4.9
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	9	9
Vehicles Entered	229	229
Vehicles Exited	229	229
Hourly Exit Rate	229	229

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245: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	2.3	2.3
Delay / Veh (s)	12.3	12.3
Stop Delay (hr)	1.7	1.7
St Del/Veh (s)	9.2	9.2
Travel Dist (mi)	41.4	41.4
Travel Time (hr)	3.8	3.8
Avg Speed (mph)	12	12
Vehicles Entered	673	673
Vehicles Exited	671	671
Hourly Exit Rate	671	671

248: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	4.5	4.5
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	4.7	4.7
Travel Dist (mi)	2.4	2.4
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	3	3
Vehicles Entered	544	544
Vehicles Exited	544	544
Hourly Exit Rate	544	544

250: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	2.7	2.7
Delay / Veh (s)	18.1	18.1
Stop Delay (hr)	2.7	2.7
St Del/Veh (s)	17.9	17.9
Travel Dist (mi)	13.6	13.6
Travel Time (hr)	3.2	3.2
Avg Speed (mph)	4	4
Vehicles Entered	546	546
Vehicles Exited	544	544
Hourly Exit Rate	544	544

Total Network Performance

Total Delay (hr)	163.8
Delay / Veh (s)	110.4
Stop Delay (hr)	144.9
St Del/Veh (s)	97.7
Travel Dist (mi)	3017.5
Travel Time (hr)	281.7
Avg Speed (mph)	13
Vehicles Entered	5368
Vehicles Exited	5310
Hourly Exit Rate	5310

Intersection: 4: Sea Ridge & McGregor

Movement	EB	WB	SB	B8
Directions Served	LT	TR	LR	T
Maximum Queue (ft)	61	34	579	669
Average Queue (ft)	15	2	544	509
95th Queue (ft)	47	19	695	915
Link Distance (ft)	1138	75	507	637
Upstream Blk Time (%)		0	84	65
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NB ON Ramp & NB Off

Movement	SE
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	2
95th Queue (ft)	12
Link Distance (ft)	566
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 25: NB Off & State Park

Movement	NW	NW	NW	NE	NE	SW	SW	SW	B3	B3
Directions Served	L	LR	R	T	TR	T	T	T	T	T
Maximum Queue (ft)	302	304	267	136	137	188	188	190	106	127
Average Queue (ft)	155	169	102	100	125	171	128	149	51	60
95th Queue (ft)	267	278	233	156	156	219	190	216	118	131
Link Distance (ft)	566	566		16	16	117	117	117	82	82
Upstream Blk Time (%)				29	41	22	10	20	4	7
Queuing Penalty (veh)				152	211	109	52	99	33	53
Storage Bay Dist (ft)			600							
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 27: SB Ramps & State Park

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	<	<	R	R	T	T	T	T
Maximum Queue (ft)	151	654	341	158	157	159	353	339
Average Queue (ft)	93	150	96	70	79	65	164	100
95th Queue (ft)	167	394	264	126	150	137	301	253
Link Distance (ft)		1663	1663		150	150	351	351
Upstream Blk Time (%)		0			1	1	0	0
Queuing Penalty (veh)		0			4	2	1	0
Storage Bay Dist (ft)	120			300				
Storage Blk Time (%)	3	7						
Queuing Penalty (veh)	8	21						

Intersection: 28: Sea Ridge & State Park

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LR	LR	LT	TR	LT	R
Maximum Queue (ft)	109	42	124	75	134	117
Average Queue (ft)	90	8	48	5	19	17
95th Queue (ft)	102	29	105	39	81	68
Link Distance (ft)	75	238	1285	1285	150	150
Upstream Blk Time (%)	72				0	0
Queuing Penalty (veh)	227				1	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 29: Soquel & State Park

Movement	SB	SB	SB	SB	NW	NW	NW	NW	NE	NE	NE	B3
Directions Served	L	L	R	R	L	L	R	R>	L	LT	R	T
Maximum Queue (ft)	53	194	205	200	251	273	239	258	156	154	122	118
Average Queue (ft)	14	13	97	93	155	187	134	150	130	139	48	43
95th Queue (ft)	40	99	168	171	227	260	214	229	174	170	97	115
Link Distance (ft)	1031	1031					916	916	82	82	82	117
Upstream Blk Time (%)									41	52	1	0
Queuing Penalty (veh)									163	204	4	2
Storage Bay Dist (ft)			200	200	550	550						
Storage Blk Time (%)			1	1								
Queuing Penalty (veh)			0	0								

Intersection: 29: Soquel & State Park

Movement	B3	B3	SW	SW	SW
Directions Served	T	T	L	T	TR
Maximum Queue (ft)	136	67	118	111	120
Average Queue (ft)	63	5	45	50	60
95th Queue (ft)	140	37	94	96	107
Link Distance (ft)	117	117		1229	1229
Upstream Blk Time (%)	4	0			
Queuing Penalty (veh)	14	0			
Storage Bay Dist (ft)			200		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 132: SB On & State Park

Movement	NB	SB	SB	B26	B26
Directions Served	T	T	TR	T	T
Maximum Queue (ft)	4	57	70	24	35
Average Queue (ft)	0	3	5	1	2
95th Queue (ft)	4	44	56	11	15
Link Distance (ft)	351	566	566	107	107
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 133: NB On & State Park

Movement	NE	NE	B26	B26	SW
Directions Served	T	T	T	T	R
Maximum Queue (ft)	124	184	170	263	2
Average Queue (ft)	32	124	8	52	0
95th Queue (ft)	102	228	69	173	2
Link Distance (ft)	107	107	566	566	16
Upstream Blk Time (%)	0	13			
Queuing Penalty (veh)	3	67			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 212: SB Ramps &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 218: SB Ramps &

Movement	EB
Directions Served	T
Maximum Queue (ft)	90
Average Queue (ft)	46
95th Queue (ft)	72
Link Distance (ft)	182
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 221: SB Ramps &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	48
95th Queue (ft)	61
Link Distance (ft)	-3
Upstream Blk Time (%)	1
Queuing Penalty (veh)	4
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 226: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	38
Average Queue (ft)	3
95th Queue (ft)	32
Link Distance (ft)	323
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 229: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	51
95th Queue (ft)	65
Link Distance (ft)	-5
Upstream Blk Time (%)	14
Queuing Penalty (veh)	70
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 233: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	234
Average Queue (ft)	110
95th Queue (ft)	205
Link Distance (ft)	209
Upstream Blk Time (%)	3
Queuing Penalty (veh)	14
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 235: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	6	53
Average Queue (ft)	0	3
95th Queue (ft)	5	25
Link Distance (ft)	598	598
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 238: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	42
95th Queue (ft)	54
Link Distance (ft)	-9
Upstream Blk Time (%)	2
Queuing Penalty (veh)	5
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	



Intersection: 240: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	73
Average Queue (ft)	47
95th Queue (ft)	69
Link Distance (ft)	70
Upstream Blk Time (%)	1
Queuing Penalty (veh)	2
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 245: SB On &

Movement	EB	EB	B2	B2
Directions Served	L	T	T	T
Maximum Queue (ft)	185	327	18	55
Average Queue (ft)	13	91	1	5
95th Queue (ft)	109	279	12	44
Link Distance (ft)	287	287	68	68
Upstream Blk Time (%)	0	4	0	1
Queuing Penalty (veh)	0	11	0	4
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 248: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	45
95th Queue (ft)	59
Link Distance (ft)	-9
Upstream Blk Time (%)	22
Queuing Penalty (veh)	121
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 250: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	148
Average Queue (ft)	122
95th Queue (ft)	179
Link Distance (ft)	80
Upstream Blk Time (%)	54
Queuing Penalty (veh)	296
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 1956

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	3789	3735	3796	3827	3727	3808	3826	3810
Vehs Exited	3742	3676	3753	3772	3659	3773	3778	3782
Starting Vehs	143	144	140	141	124	139	140	141
Ending Vehs	190	203	183	196	192	174	188	169
Denied Entry Before	4	0	1	4	1	3	3	1
Denied Entry After	42	54	38	9	3	1	21	23
Travel Distance (mi)	1867	1822	1854	1852	1821	1862	1894	1868
Travel Time (hr)	218.7	181.0	195.1	166.7	152.2	179.3	173.6	184.0
Total Delay (hr)	148.3	112.6	124.9	96.9	83.5	109.0	102.6	113.6
Total Stops	8824	7015	7963	7090	6616	7331	6911	7280
Fuel Used (gal)	287.1	254.4	262.3	245.6	233.7	251.8	256.4	256.4

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	3789	3735	3796	3827	3727	3808	3826	3810
Vehs Exited	3742	3676	3753	3772	3659	3773	3778	3782
Starting Vehs	143	144	140	141	124	139	140	141
Ending Vehs	190	203	183	196	192	174	188	169
Denied Entry Before	4	0	1	4	1	3	3	1
Denied Entry After	42	54	38	9	3	1	21	23
Travel Distance (mi)	1867	1822	1854	1852	1821	1862	1894	1868
Travel Time (hr)	218.7	181.0	195.1	166.7	152.2	179.3	173.6	184.0
Total Delay (hr)	148.3	112.6	124.9	96.9	83.5	109.0	102.6	113.6
Total Stops	8824	7015	7963	7090	6616	7331	6911	7280
Fuel Used (gal)	287.1	254.4	262.3	245.6	233.7	251.8	256.4	256.4

30: Rio Del Mar & NB On Performance by approach

Approach	NB	SB	NW	All
Total Delay (hr)	11.9	7.0	10.0	29.0
Delay / Veh (s)	41.8	43.6	44.9	43.3
Travel Time (hr)	16.3	8.8	17.1	42.2
Avg Speed (mph)	8	5	11	9
Vehicles Entered	1023	581	813	2417
Vehicles Exited	1023	579	800	2402
Hourly Exit Rate	1023	579	800	2402

31: SB On & Rio Del Mar Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	4.3	5.7	6.4	16.3
Delay / Veh (s)	26.6	19.1	28.8	24.0
Travel Time (hr)	8.3	7.3	9.8	25.4
Avg Speed (mph)	14	5	9	9
Vehicles Entered	578	1071	788	2437
Vehicles Exited	578	1072	800	2450
Hourly Exit Rate	578	1072	800	2450

32: Soquel & Rio Del Mar Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	3.1	32.7	7.9	1.7	45.4
Delay / Veh (s)	24.5	211.0	29.5	42.9	77.1
Travel Time (hr)	4.9	36.2	11.3	2.0	54.3
Avg Speed (mph)	9	4	6	4	5
Vehicles Entered	455	571	968	138	2132
Vehicles Exited	451	545	972	139	2107
Hourly Exit Rate	451	545	972	139	2107

119: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	2.6	2.6
Delay / Veh (s)	14.1	14.1
Travel Time (hr)	4.1	4.1
Avg Speed (mph)	7	7
Vehicles Entered	672	672
Vehicles Exited	671	671
Hourly Exit Rate	671	671

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120: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	4.1	4.1
Travel Time (hr)	1.2	1.2
Avg Speed (mph)	9	9
Vehicles Entered	753	753
Vehicles Exited	752	752
Hourly Exit Rate	752	752

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254: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	7.5	7.5
Travel Time (hr)	1.4	1.4
Avg Speed (mph)	5	5
Vehicles Entered	566	566
Vehicles Exited	565	565
Hourly Exit Rate	565	565

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256: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.9	2.9
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	6	6
Vehicles Entered	565	565
Vehicles Exited	564	564
Hourly Exit Rate	564	564

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264: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	4.6	4.6
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	3	3
Vehicles Entered	571	571
Vehicles Exited	570	570
Hourly Exit Rate	570	570

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266: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	2.5	2.5
Delay / Veh (s)	15.6	15.6
Travel Time (hr)	2.8	2.8
Avg Speed (mph)	3	3
Vehicles Entered	573	573
Vehicles Exited	571	571
Hourly Exit Rate	571	571

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Total Network Performance

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Total Delay (hr)	109.9
Delay / Veh (s)	105.4
Travel Time (hr)	179.5
Avg Speed (mph)	11
Vehicles Entered	3775
Vehicles Exited	3734
Hourly Exit Rate	3734

Intersection: 30: Rio Del Mar & NB On

Movement	NB	NB	NB	SB	SB	SB	NW	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R	R
Maximum Queue (ft)	546	378	217	297	299	141	215	403	656	349
Average Queue (ft)	403	110	70	186	155	82	110	116	235	96
95th Queue (ft)	624	258	163	272	268	148	181	306	592	297
Link Distance (ft)	504	504	504	316	316			1230	1230	
Upstream Blk Time (%)	12	0		0	0					
Queuing Penalty (veh)	39	0		0	0					
Storage Bay Dist (ft)						100	240			344
Storage Blk Time (%)					26	2	0	0	12	0
Queuing Penalty (veh)					39	5	0	0	30	0

Intersection: 31: SB On & Rio Del Mar

Movement	EB	EB	EB	EB	NE	NE	NE	B4	B4	B4	B5	B5
Directions Served	L	L	R	R	T	T	R	T	T	T	T	T
Maximum Queue (ft)	179	183	104	69	174	165	164	150	93	76	504	438
Average Queue (ft)	76	80	41	30	154	79	67	105	8	6	172	117
95th Queue (ft)	147	151	77	57	203	161	150	196	47	45	617	577
Link Distance (ft)		937			96	96	96	78	78	78	1323	1323
Upstream Blk Time (%)					45	7	4	29	1	0		
Queuing Penalty (veh)					0	0	0	0	0	0		
Storage Bay Dist (ft)	500		200	200								
Storage Blk Time (%)		0										
Queuing Penalty (veh)		1										

Intersection: 31: SB On & Rio Del Mar

Movement	SW	SW	SW
Directions Served	L	T	T
Maximum Queue (ft)	337	490	396
Average Queue (ft)	226	107	71
95th Queue (ft)	363	361	238
Link Distance (ft)		504	504
Upstream Blk Time (%)		1	0
Queuing Penalty (veh)		4	0
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	9	0	
Queuing Penalty (veh)	22	0	

Intersection: 32: Soquel & Rio Del Mar

Movement	EB	EB	B6	WB	NB	NB	NB	SB
Directions Served	LT	R	T	LTR	L	T	R	LTR
Maximum Queue (ft)	431	185	100	930	359	350	149	217
Average Queue (ft)	142	37	7	792	297	120	57	97
95th Queue (ft)	333	154	77	1131	394	294	108	178
Link Distance (ft)	472		474	900	316	316	316	265
Upstream Blk Time (%)	2			36	17	3		0
Queuing Penalty (veh)	0			0	55	9		0
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	10	0						
Queuing Penalty (veh)	28	0						

Intersection: 119: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	115	169
Average Queue (ft)	5	149
95th Queue (ft)	50	196
Link Distance (ft)	151	151
Upstream Blk Time (%)	0	9
Queuing Penalty (veh)	0	31
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 120: SB On &

Movement	EB	EB	B3
Directions Served	L	T	T
Maximum Queue (ft)	22	92	182
Average Queue (ft)	1	61	28
95th Queue (ft)	11	109	108
Link Distance (ft)	18	18	313
Upstream Blk Time (%)	0	22	0
Queuing Penalty (veh)	0	78	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



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Intersection: 254: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	89
Average Queue (ft)	85
95th Queue (ft)	103
Link Distance (ft)	31
Upstream Blk Time (%)	58
Queuing Penalty (veh)	328
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 256: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	53
95th Queue (ft)	67
Link Distance (ft)	-3
Upstream Blk Time (%)	7
Queuing Penalty (veh)	41
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 264: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	55
Average Queue (ft)	41
95th Queue (ft)	55
Link Distance (ft)	-13
Upstream Blk Time (%)	17
Queuing Penalty (veh)	102
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 266: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	105
Average Queue (ft)	105
95th Queue (ft)	108
Link Distance (ft)	46
Upstream Blk Time (%)	85
Queuing Penalty (veh)	511
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 1324

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	4350	4282	4390	4370	4283	3499	4321	4351
Vehs Exited	4316	4293	4343	4311	4203	3442	4294	4324
Starting Vehs	153	184	148	167	150	169	166	169
Ending Vehs	187	173	195	226	230	226	193	196
Denied Entry Before	4	8	4	4	2	1	1	6
Denied Entry After	148	202	134	136	110	885	159	145
Travel Distance (mi)	2226	2206	2241	2230	2167	1768	2210	2237
Travel Time (hr)	281.6	296.0	273.7	262.8	212.9	498.6	234.6	274.2
Total Delay (hr)	198.1	213.4	189.6	179.1	131.7	432.1	151.8	190.2
Total Stops	8689	7959	8310	8088	7588	5486	7397	7880
Fuel Used (gal)	350.7	366.3	340.4	329.3	299.2	432.1	314.4	329.8

Interval #0 Information Seeding

Start Time	4:55
End Time	5:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	4350	4282	4390	4370	4283	3499	4321	4351
Vehs Exited	4316	4293	4343	4311	4203	3442	4294	4324
Starting Vehs	153	184	148	167	150	169	166	169
Ending Vehs	187	173	195	226	230	226	193	196
Denied Entry Before	4	8	4	4	2	1	1	6
Denied Entry After	148	202	134	136	110	885	159	145
Travel Distance (mi)	2226	2206	2241	2230	2167	1768	2210	2237
Travel Time (hr)	281.6	296.0	273.7	262.8	212.9	498.6	234.6	274.2
Total Delay (hr)	198.1	213.4	189.6	179.1	131.7	432.1	151.8	190.2
Total Stops	8689	7959	8310	8088	7588	5486	7397	7880
Fuel Used (gal)	350.7	366.3	340.4	329.3	299.2	432.1	314.4	329.8

30: Rio Del Mar & NB On Performance by approach

Approach	NB	SB	NW	All
Total Delay (hr)	8.8	7.6	11.3	27.8
Delay / Veh (s)	28.0	32.7	46.6	35.1
Travel Time (hr)	13.6	10.2	18.9	42.7
Avg Speed (mph)	9	6	11	9
Vehicles Entered	1129	845	881	2855
Vehicles Exited	1142	839	868	2849
Hourly Exit Rate	1142	839	868	2849

31: SB On & Rio Del Mar Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	6.3	5.5	8.6	20.4
Delay / Veh (s)	27.9	17.7	30.7	25.0
Travel Time (hr)	11.9	7.0	12.9	31.9
Avg Speed (mph)	15	5	9	10
Vehicles Entered	815	1112	1002	2929
Vehicles Exited	817	1111	1010	2938
Hourly Exit Rate	817	1111	1010	2938

32: Soquel & Rio Del Mar Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	6.9	110.1	7.6	4.2	128.9
Delay / Veh (s)	30.8	1652.2	23.9	102.1	198.2
Travel Time (hr)	10.2	111.6	11.4	4.5	137.8
Avg Speed (mph)	8	1	7	2	4
Vehicles Entered	813	251	1145	150	2359
Vehicles Exited	803	230	1143	148	2324
Hourly Exit Rate	803	230	1143	148	2324

119: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	1.7	1.7
Delay / Veh (s)	8.3	8.3
Travel Time (hr)	3.4	3.4
Avg Speed (mph)	9	9
Vehicles Entered	742	742
Vehicles Exited	737	737
Hourly Exit Rate	737	737

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120: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	5.0	5.0
Travel Time (hr)	1.2	1.2
Avg Speed (mph)	8	8
Vehicles Entered	642	642
Vehicles Exited	642	642
Hourly Exit Rate	642	642

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254: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	7.8	7.8
Travel Time (hr)	1.5	1.5
Avg Speed (mph)	5	5
Vehicles Entered	573	573
Vehicles Exited	574	574
Hourly Exit Rate	574	574

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256: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.9	2.9
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	6	6
Vehicles Entered	574	574
Vehicles Exited	574	574
Hourly Exit Rate	574	574

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264: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	4.5	4.5
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	3	3
Vehicles Entered	509	509
Vehicles Exited	508	508
Hourly Exit Rate	508	508

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266: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	2.0	2.0
Delay / Veh (s)	14.0	14.0
Travel Time (hr)	2.3	2.3
Avg Speed (mph)	4	4
Vehicles Entered	510	510
Vehicles Exited	509	509
Hourly Exit Rate	509	509

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Total Network Performance

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Total Delay (hr)	223.2
Delay / Veh (s)	193.1
Travel Time (hr)	303.4
Avg Speed (mph)	11
Vehicles Entered	4183
Vehicles Exited	4140
Hourly Exit Rate	4140

Intersection: 30: Rio Del Mar & NB On

Movement	NB	NB	NB	SB	SB	SB	NW	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R	R
Maximum Queue (ft)	552	408	212	363	368	140	246	515	612	259
Average Queue (ft)	368	93	68	244	249	81	134	158	225	85
95th Queue (ft)	557	240	161	382	411	160	231	416	576	265
Link Distance (ft)	504	504	504	316	316			1230	1230	
Upstream Blk Time (%)	3	0		11	16			0	1	
Queuing Penalty (veh)	12	0		60	83			0	0	
Storage Bay Dist (ft)						100	240			344
Storage Blk Time (%)					27	4	3	1	9	0
Queuing Penalty (veh)					77	14	5	3	22	0

Intersection: 31: SB On & Rio Del Mar

Movement	EB	EB	EB	EB	NE	NE	NE	B4	B4	B4	B5	B5
Directions Served	L	L	R	R	T	T	R	T	T	T	T	T
Maximum Queue (ft)	140	138	143	139	169	167	128	150	132	10	243	154
Average Queue (ft)	58	63	77	60	152	118	39	81	23	0	36	8
95th Queue (ft)	114	120	124	109	197	190	97	175	89	9	155	68
Link Distance (ft)		937			96	96	96	78	78	78	1323	1323
Upstream Blk Time (%)					36	15	1	14	2	0		
Queuing Penalty (veh)					0	0	0	0	0	0		
Storage Bay Dist (ft)	500		200	200								
Storage Blk Time (%)				0								
Queuing Penalty (veh)				0								

Intersection: 31: SB On & Rio Del Mar

Movement	SW	SW	SW
Directions Served	L	T	T
Maximum Queue (ft)	335	500	449
Average Queue (ft)	240	180	130
95th Queue (ft)	392	512	400
Link Distance (ft)		504	504
Upstream Blk Time (%)		4	0
Queuing Penalty (veh)		22	1
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	17	0	
Queuing Penalty (veh)	65	1	

Intersection: 32: Soquel & Rio Del Mar

Movement	EB	EB	B6	WB	NB	NB	NB	SB	B1
Directions Served	LT	R	T	LTR	L	T	R	LTR	T
Maximum Queue (ft)	539	192	333	933	353	355	172	289	207
Average Queue (ft)	256	92	79	887	295	173	73	160	78
95th Queue (ft)	545	226	352	1055	381	330	138	298	478
Link Distance (ft)	472		474	900	316	316	316	265	913
Upstream Blk Time (%)	14		11	77	11	2		13	6
Queuing Penalty (veh)	0		0	0	41	7		0	0
Storage Bay Dist (ft)		150							
Storage Blk Time (%)	16	7							
Queuing Penalty (veh)	102	17							

Intersection: 119: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	58	168
Average Queue (ft)	7	110
95th Queue (ft)	58	198
Link Distance (ft)	151	151
Upstream Blk Time (%)	0	4
Queuing Penalty (veh)	0	15
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 120: SB On &

Movement	EB	B3
Directions Served	T	T
Maximum Queue (ft)	91	164
Average Queue (ft)	67	38
95th Queue (ft)	114	120
Link Distance (ft)	18	313
Upstream Blk Time (%)	25	
Queuing Penalty (veh)	78	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 254: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	89
Average Queue (ft)	85
95th Queue (ft)	102
Link Distance (ft)	31
Upstream Blk Time (%)	60
Queuing Penalty (veh)	362
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 256: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	54
95th Queue (ft)	69
Link Distance (ft)	-3
Upstream Blk Time (%)	8
Queuing Penalty (veh)	47
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 264: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	55
Average Queue (ft)	41
95th Queue (ft)	56
Link Distance (ft)	-13
Upstream Blk Time (%)	13
Queuing Penalty (veh)	73
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 266: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	105
Average Queue (ft)	102
95th Queue (ft)	119
Link Distance (ft)	46
Upstream Blk Time (%)	68
Queuing Penalty (veh)	376
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

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Network wide Queuing Penalty: 1483

33: NB on & Freedom Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	1.6	1.0	2.7	5.2
Delay / Veh (s)	14.4	5.5	8.3	8.6
Vehicles Entered	393	642	1168	2203
Vehicles Exited	392	642	1165	2199
Hourly Exit Rate	392	642	1165	2199

34: SB Off & Freedom Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	6.2	0.7	3.9	10.8
Delay / Veh (s)	28.2	15.9	33.8	28.6
Vehicles Entered	784	152	421	1357
Vehicles Exited	790	151	419	1360
Hourly Exit Rate	790	151	419	1360

35: Bonita & Freedom Performance by approach

Approach	EB	WB	SW	All
Total Delay (hr)	0.3	0.8	0.3	1.4
Delay / Veh (s)	48.5	14.4	2.8	8.5
Vehicles Entered	25	200	377	602
Vehicles Exited	24	198	377	599
Hourly Exit Rate	24	198	377	599

36: Soquel & Freedom Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	1.2	0.1	2.6	5.4	9.3
Delay / Veh (s)	22.5	28.9	9.7	15.0	13.6
Vehicles Entered	195	14	956	1290	2455
Vehicles Exited	195	14	952	1292	2453
Hourly Exit Rate	195	14	952	1292	2453

124: NB on & Performance by approach

Approach	WB	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	2.6	2.6
Vehicles Entered	845	845
Vehicles Exited	845	845
Hourly Exit Rate	845	845

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268: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.8	1.8
Vehicles Entered	357	357
Vehicles Exited	356	356
Hourly Exit Rate	356	356

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270: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.4	1.4
Delay / Veh (s)	16.4	16.4
Vehicles Entered	304	304
Vehicles Exited	304	304
Hourly Exit Rate	304	304

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272: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	4.2	4.2
Vehicles Entered	305	305
Vehicles Exited	305	305
Hourly Exit Rate	305	305

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275: NB on & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	3.3	3.3
Vehicles Entered	722	722
Vehicles Exited	722	722
Hourly Exit Rate	722	722

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277: NB on & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.1	1.1
Delay / Veh (s)	5.6	5.6
Vehicles Entered	722	722
Vehicles Exited	722	722
Hourly Exit Rate	722	722

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Total Network Performance

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Total Delay (hr)	32.7
Delay / Veh (s)	40.0
Vehicles Entered	2952
Vehicles Exited	2943
Hourly Exit Rate	2943

Intersection: 33: NB on & Freedom

Movement	WB	WB	NE	NE	NE	SW	SW	SW
Directions Served	LTR	R	L	T	T	T	R	R
Maximum Queue (ft)	163	118	102	111	138	319	108	76
Average Queue (ft)	83	52	28	18	24	93	41	27
95th Queue (ft)	137	92	70	72	87	240	86	64
Link Distance (ft)	542	542		380	380	642	642	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			150				200	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 34: SB Off & Freedom

Movement	EB	EB	EB	NE	NE	SW	SW
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	238	227	90	59	78	383	110
Average Queue (ft)	131	134	42	14	45	207	34
95th Queue (ft)	208	205	69	45	81	343	86
Link Distance (ft)		892		60	60	380	380
Upstream Blk Time (%)				0	9	1	
Queuing Penalty (veh)				0	7	1	
Storage Bay Dist (ft)	300		350				
Storage Blk Time (%)	0						
Queuing Penalty (veh)	0						

Intersection: 35: Bonita & Freedom

Movement	EB	WB	WB	SW	SW	SW
Directions Served	LT	T	R	L	L	R
Maximum Queue (ft)	74	110	94	84	68	56
Average Queue (ft)	25	47	15	31	13	17
95th Queue (ft)	63	92	58	72	48	42
Link Distance (ft)	296	366		60	60	60
Upstream Blk Time (%)				3	1	0
Queuing Penalty (veh)				3	1	0
Storage Bay Dist (ft)			300			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 36: Soquel & Freedom

Movement	SE	SE	B182	NW	NE	NE	NE	SW	SW	SW	SW
Directions Served	LT	R	T	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	102	54	123	51	164	209	231	58	356	335	200
Average Queue (ft)	71	13	19	14	69	75	87	7	183	164	41
95th Queue (ft)	106	38	76	41	130	159	187	34	304	282	118
Link Distance (ft)	43	43	1338	27		642	642		1017	1017	
Upstream Blk Time (%)	33	1		10							
Queuing Penalty (veh)	0	0		0							
Storage Bay Dist (ft)					200			125			300
Storage Blk Time (%)					0	0			13	0	
Queuing Penalty (veh)					1	0			1	1	

Intersection: 124: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	55	51
Average Queue (ft)	6	4
95th Queue (ft)	32	26
Link Distance (ft)	242	242
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 268: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	91
Average Queue (ft)	6
95th Queue (ft)	45
Link Distance (ft)	176
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 270: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	230
Average Queue (ft)	123
95th Queue (ft)	215
Link Distance (ft)	174
Upstream Blk Time (%)	4
Queuing Penalty (veh)	12
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 272: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	56
Average Queue (ft)	42
95th Queue (ft)	55
Link Distance (ft)	-8
Upstream Blk Time (%)	10
Queuing Penalty (veh)	30
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 275: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	66	64
Average Queue (ft)	51	49
95th Queue (ft)	65	62
Link Distance (ft)	-5	-5
Upstream Blk Time (%)	5	4
Queuing Penalty (veh)	20	15
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 277: NB on &

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Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	86	86
Average Queue (ft)	59	56
95th Queue (ft)	85	81
Link Distance (ft)	25	25
Upstream Blk Time (%)	34	27
Queuing Penalty (veh)	125	98
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 315

33: NB on & Freedom Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	0.8	2.1	2.1	5.1
Delay / Veh (s)	12.3	8.4	6.8	8.0
Stop Delay (hr)	0.8	1.4	0.6	2.7
St Del/Veh (s)	11.6	5.5	1.9	4.4
Travel Dist (mi)	25.3	83.6	151.8	260.7
Travel Time (hr)	1.9	5.6	7.9	15.5
Avg Speed (mph)	13	15	19	17
Vehicles Entered	245	903	1118	2266
Vehicles Exited	245	899	1115	2259
Hourly Exit Rate	245	899	1115	2259

34: SB Off & Freedom Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	8.6	1.1	4.2	13.9
Delay / Veh (s)	31.8	19.1	33.7	30.6
Stop Delay (hr)	7.3	1.1	3.7	12.0
St Del/Veh (s)	27.1	18.6	29.6	26.6
Travel Dist (mi)	163.3	4.6	38.8	206.7
Travel Time (hr)	14.6	1.5	5.6	21.7
Avg Speed (mph)	13	3	7	10
Vehicles Entered	966	213	447	1626
Vehicles Exited	974	212	443	1629
Hourly Exit Rate	974	212	443	1629

35: Bonita & Freedom Performance by approach

Approach	EB	WB	SW	All
Total Delay (hr)	0.5	0.4	0.6	1.5
Delay / Veh (s)	51.5	7.7	4.7	8.1
Stop Delay (hr)	0.5	0.4	0.5	1.4
St Del/Veh (s)	49.7	6.9	4.1	7.4
Travel Dist (mi)	2.1	15.4	10.4	28.0
Travel Time (hr)	0.6	1.1	1.3	3.0
Avg Speed (mph)	3	14	8	9
Vehicles Entered	39	188	459	686
Vehicles Exited	38	188	460	686
Hourly Exit Rate	38	188	460	686

36: Soquel & Freedom Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	0.9	0.3	3.3	4.6	9.1
Delay / Veh (s)	18.9	30.4	11.1	14.3	13.4
Stop Delay (hr)	0.9	0.3	2.1	3.0	6.3
St Del/Veh (s)	18.4	29.7	7.2	9.5	9.4
Travel Dist (mi)	3.1	0.4	144.7	223.0	371.2
Travel Time (hr)	1.1	0.3	8.5	12.4	22.3
Avg Speed (mph)	3	2	17	19	17
Vehicles Entered	178	31	1065	1152	2426
Vehicles Exited	178	31	1060	1157	2426
Hourly Exit Rate	178	31	1060	1157	2426

124: NB on & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.3	2.3
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.1	0.1
Travel Dist (mi)	41.3	41.3
Travel Time (hr)	2.7	2.7
Avg Speed (mph)	15	15
Vehicles Entered	764	764
Vehicles Exited	763	763
Hourly Exit Rate	763	763

268: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.3	1.3
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	12.9	12.9
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	17	17
Vehicles Entered	277	277
Vehicles Exited	277	277
Hourly Exit Rate	277	277

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270: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	16.3	16.3
Stop Delay (hr)	0.8	0.8
St Del/Veh (s)	13.0	13.0
Travel Dist (mi)	9.3	9.3
Travel Time (hr)	1.3	1.3
Avg Speed (mph)	7	7
Vehicles Entered	227	227
Vehicles Exited	228	228
Hourly Exit Rate	228	228

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272: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	5.0	5.0
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	5.1	5.1
Travel Dist (mi)	1.0	1.0
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	3	3
Vehicles Entered	228	228
Vehicles Exited	228	228
Hourly Exit Rate	228	228

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275: NB on & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.2	2.2
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	1.3	1.3
Travel Dist (mi)	3.7	3.7
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	631	631
Vehicles Exited	631	631
Hourly Exit Rate	631	631

277: NB on & Performance by approach

Approach	WB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	4.7	4.7
Stop Delay (hr)	0.5	0.5
St Del/Veh (s)	2.7	2.7
Travel Dist (mi)	8.5	8.5
Travel Time (hr)	1.1	1.1
Avg Speed (mph)	8	8
Vehicles Entered	632	632
Vehicles Exited	631	631
Hourly Exit Rate	631	631

Total Network Performance

Total Delay (hr)	34.2
Delay / Veh (s)	43.4
Stop Delay (hr)	24.6
St Del/Veh (s)	31.1
Travel Dist (mi)	1356.1
Travel Time (hr)	85.7
Avg Speed (mph)	16
Vehicles Entered	2844
Vehicles Exited	2839
Hourly Exit Rate	2839

Intersection: 33: NB on & Freedom

Movement	WB	WB	NE	NE	NE	SW	SW	SW
Directions Served	LR	R	L	T	T	T	R	R
Maximum Queue (ft)	114	76	134	271	286	282	88	74
Average Queue (ft)	53	33	40	71	81	81	35	20
95th Queue (ft)	92	63	91	202	218	222	71	56
Link Distance (ft)	542	542		380	380	642	642	
Upstream Blk Time (%)				0	0			
Queuing Penalty (veh)				0	0			
Storage Bay Dist (ft)			150					200
Storage Blk Time (%)				2				
Queuing Penalty (veh)				1				

Intersection: 34: SB Off & Freedom

Movement	EB	EB	EB	NE	NE	SW	SW
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	311	574	216	66	83	349	194
Average Queue (ft)	188	212	55	21	47	167	68
95th Queue (ft)	286	408	135	56	77	295	154
Link Distance (ft)		888		43	43	380	380
Upstream Blk Time (%)		0		5	20	0	
Queuing Penalty (veh)		0		6	22	0	
Storage Bay Dist (ft)	300		350				
Storage Blk Time (%)	1	2	0				
Queuing Penalty (veh)	6	9	0				

Intersection: 35: Bonita & Freedom

Movement	EB	WB	WB	SW	SW	SW
Directions Served	LT	T	R	L	L	R
Maximum Queue (ft)	103	42	164	86	65	41
Average Queue (ft)	37	7	37	42	24	5
95th Queue (ft)	82	29	109	82	66	22
Link Distance (ft)	297	378		43	43	43
Upstream Blk Time (%)				8	5	0
Queuing Penalty (veh)				12	7	0
Storage Bay Dist (ft)			300			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 36: Soquel & Freedom

Movement	SE	SE	B182	NW	B185	NE	NE	NE	SW	SW	SW	SW
Directions Served	LT	R	T	LTR	T	L	T	TR	L	T	T	R
Maximum Queue (ft)	97	62	99	69	5	185	277	294	74	308	288	61
Average Queue (ft)	57	22	9	26	0	79	90	102	8	171	149	29
95th Queue (ft)	97	47	48	62	5	149	212	236	40	276	257	56
Link Distance (ft)	43	43	1338	27	656		642	642		1017	1017	
Upstream Blk Time (%)	23	2		21								
Queuing Penalty (veh)	0	0		0								
Storage Bay Dist (ft)						200			125			300
Storage Blk Time (%)						0	1			12	0	
Queuing Penalty (veh)						1	1			1	0	

Intersection: 124: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	13	5
Average Queue (ft)	1	0
95th Queue (ft)	9	5
Link Distance (ft)	242	242
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 268: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	22
Average Queue (ft)	1
95th Queue (ft)	14
Link Distance (ft)	175
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 270: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	217
Average Queue (ft)	103
95th Queue (ft)	191
Link Distance (ft)	174
Upstream Blk Time (%)	2
Queuing Penalty (veh)	4
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 272: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	42
95th Queue (ft)	55
Link Distance (ft)	-8
Upstream Blk Time (%)	10
Queuing Penalty (veh)	23
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 275: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	66	64
Average Queue (ft)	51	48
95th Queue (ft)	65	61
Link Distance (ft)	-5	-5
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	2	2
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 277: NB on &

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Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	69	69
Average Queue (ft)	48	46
95th Queue (ft)	67	66
Link Distance (ft)	25	25
Upstream Blk Time (%)	24	19
Queuing Penalty (veh)	78	59
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 233

**YEAR 2035 HOV BUILD CONDITIONS**

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1: Rooney St & Pacheco Ave Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	261.5	159.4	5.9	11.5	438.3
Delay / Veh (s)	4058.0	2441.9	33.0	466.5	1319.4
Stop Delay (hr)	261.3	158.8	5.5	11.4	436.9
St Del/Veh (s)	4053.9	2432.3	30.8	460.1	1315.0
Travel Dist (mi)	13.4	17.8	27.2	8.8	67.3
Travel Time (hr)	262.1	160.1	7.4	11.9	441.5
Avg Speed (mph)	1	1	4	1	1
Vehicles Entered	232	235	638	95	1200
Vehicles Exited	232	235	642	83	1192
Hourly Exit Rate	232	235	642	83	1192

3: Fairmount & Morrissey Performance by approach

Approach	EB	WB	NE	SW	All
Total Delay (hr)	4.9	4.5	218.3	7.1	234.8
Delay / Veh (s)	25.1	32.1	660.9	17.0	216.2
Stop Delay (hr)	3.5	4.1	213.6	5.5	226.7
St Del/Veh (s)	17.9	29.3	646.9	13.1	208.8
Travel Dist (mi)	88.9	65.5	122.7	83.4	360.5
Travel Time (hr)	8.6	7.2	222.6	10.8	249.2
Avg Speed (mph)	11	9	7	8	8
Vehicles Entered	706	502	1188	1514	3910
Vehicles Exited	704	504	1189	1511	3908
Hourly Exit Rate	704	504	1189	1511	3908

5: NB On-Ramp & Morrissey Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	13.0	8.8	3.5	25.3
Delay / Veh (s)	39.1	52.8	31.0	41.3
Stop Delay (hr)	11.4	8.0	3.2	22.7
St Del/Veh (s)	34.4	48.2	29.0	37.2
Travel Dist (mi)	110.2	40.4	17.4	168.0
Travel Time (hr)	17.4	10.3	4.4	32.2
Avg Speed (mph)	6	4	4	5
Vehicles Entered	1197	604	404	2205
Vehicles Exited	1199	596	402	2197
Hourly Exit Rate	1199	596	402	2197

9: SB Off-Ramp & Morrissey Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	4.1	4.0	5.9	14.0
Delay / Veh (s)	36.7	9.4	16.4	15.6
Stop Delay (hr)	3.9	2.9	4.6	11.4
St Del/Veh (s)	35.2	6.7	12.9	12.8
Travel Dist (mi)	28.1	82.9	88.6	199.6
Travel Time (hr)	5.4	8.5	9.7	23.6
Avg Speed (mph)	5	10	9	8
Vehicles Entered	406	1530	1282	3218
Vehicles Exited	399	1537	1289	3225
Hourly Exit Rate	399	1537	1289	3225

46: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	5.9	5.9
Stop Delay (hr)	0.2	0.2
St Del/Veh (s)	3.7	3.7
Travel Dist (mi)	3.8	3.8
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	8	8
Vehicles Entered	217	217
Vehicles Exited	218	218
Hourly Exit Rate	218	218

139: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	1.6	1.6
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.1	0.1
Travel Dist (mi)	74.7	74.7
Travel Time (hr)	4.4	4.4
Avg Speed (mph)	17	17
Vehicles Entered	1109	1109
Vehicles Exited	1109	1109
Hourly Exit Rate	1109	1109

142: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.2	2.2
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	1.5	1.5
Travel Dist (mi)	3.9	3.9
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	6	6
Vehicles Entered	833	833
Vehicles Exited	832	832
Hourly Exit Rate	832	832

144: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	1.6	1.6
Delay / Veh (s)	6.9	6.9
Stop Delay (hr)	0.7	0.7
St Del/Veh (s)	3.2	3.2
Travel Dist (mi)	26.3	26.3
Travel Time (hr)	2.5	2.5
Avg Speed (mph)	10	10
Vehicles Entered	833	833
Vehicles Exited	833	833
Hourly Exit Rate	833	833

149: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.3	1.3
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	1.0	1.0
Travel Dist (mi)	1.3	1.3
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	8	8
Vehicles Entered	218	218
Vehicles Exited	218	218
Hourly Exit Rate	218	218

151: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.7	2.7
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	18.8	18.8
Travel Time (hr)	1.1	1.1
Avg Speed (mph)	17	17
Vehicles Entered	276	276
Vehicles Exited	277	277
Hourly Exit Rate	277	277

Total Network Performance

Total Delay (hr)	717.8
Delay / Veh (s)	567.1
Stop Delay (hr)	699.5
St Del/Veh (s)	552.6
Travel Dist (mi)	1485.4
Travel Time (hr)	779.1
Avg Speed (mph)	8
Vehicles Entered	4563
Vehicles Exited	4551
Hourly Exit Rate	4551

Intersection: 1: Rooney St & Pacheo Ave

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	83	331	418	193	147	149	437
Average Queue (ft)	28	313	409	56	134	99	262
95th Queue (ft)	85	321	418	189	149	169	547
Link Distance (ft)		297	396		121	121	511
Upstream Blk Time (%)		89	86		42	13	15
Queuing Penalty (veh)		0	0		154	48	0
Storage Bay Dist (ft)	50			164			
Storage Blk Time (%)	3	91	86	0			
Queuing Penalty (veh)	19	76	73	1			

Intersection: 3: Fairmount & Morrissey

Movement	EB	WB	WB	NE	NE	SW	SW	SW
Directions Served	R	R	R	T	TR	T	T	R
Maximum Queue (ft)	579	208	355	546	561	227	253	139
Average Queue (ft)	284	76	168	269	545	189	177	84
95th Queue (ft)	523	158	298	642	554	241	254	164
Link Distance (ft)	665	683	683	529	529	176	176	
Upstream Blk Time (%)	1			2	45	20	11	
Queuing Penalty (veh)	0			0	0	187	104	
Storage Bay Dist (ft)								100
Storage Blk Time (%)							18	0
Queuing Penalty (veh)							97	2

Intersection: 5: NB On-Ramp & Morrissey

Movement	WB	WB	WB	B4	B4	NE	NE	NE	SW	SW
Directions Served	L	L	TR	T	T	L	T	T	T	R
Maximum Queue (ft)	481	479	325	114	173	274	268	237	156	76
Average Queue (ft)	297	299	143	8	11	157	151	111	143	32
95th Queue (ft)	466	461	300	61	83	262	260	211	166	85
Link Distance (ft)	417	417	417	552	552	257	257	257	121	
Upstream Blk Time (%)	2	2	1			3	3	0	46	
Queuing Penalty (veh)	0	0	0			7	7	1	433	
Storage Bay Dist (ft)										50
Storage Blk Time (%)									48	0
Queuing Penalty (veh)									117	2

Intersection: 9: SB Off-Ramp & Morrissey

Movement	EB	EB	EB	NE	NE	NE	SW	SW	SW
Directions Served	L	TR	R	T	T	R	L	T	T
Maximum Queue (ft)	136	207	199	205	206	197	168	277	278
Average Queue (ft)	44	80	86	46	103	128	82	129	131
95th Queue (ft)	104	159	159	133	205	222	148	275	280
Link Distance (ft)		299		176	176	176	257	257	257
Upstream Blk Time (%)		0		1	3	3		3	3
Queuing Penalty (veh)		0		4	19	18		15	16
Storage Bay Dist (ft)	200		200						
Storage Blk Time (%)		0	0						
Queuing Penalty (veh)		0	1						

Intersection: 46: NB On-Ramp &

Movement	WB
Directions Served	T
Maximum Queue (ft)	104
Average Queue (ft)	61
95th Queue (ft)	98
Link Distance (ft)	48
Upstream Blk Time (%)	8
Queuing Penalty (veh)	26
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 139: SB On-Ramp &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)



Intersection: 142: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	58	59
Average Queue (ft)	42	45
95th Queue (ft)	53	59
Link Distance (ft)	-12	-12
Upstream Blk Time (%)	2	6
Queuing Penalty (veh)	12	29
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 144: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	84	98
Average Queue (ft)	49	59
95th Queue (ft)	72	82
Link Distance (ft)	125	125
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 149: NB On-Ramp &

Movement	WB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	47
95th Queue (ft)	60
Link Distance (ft)	-5
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 151: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	48
Average Queue (ft)	3
95th Queue (ft)	26
Link Distance (ft)	286
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 1470

1: Rooney St & Pacheco Ave Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	4.4	24.4	3.6	40.8	73.3
Delay / Veh (s)	79.1	396.4	13.2	1441.4	175.9
Stop Delay (hr)	4.3	24.0	2.9	40.6	71.8
St Del/Veh (s)	76.1	388.5	10.7	1434.7	172.2
Travel Dist (mi)	12.2	16.9	41.7	9.8	80.7
Travel Time (hr)	5.0	25.1	6.0	41.2	77.4
Avg Speed (mph)	2	1	7	0	2
Vehicles Entered	204	228	974	111	1517
Vehicles Exited	200	216	973	94	1483
Hourly Exit Rate	200	216	973	94	1483

3: Fairmount & Morrissey Performance by approach

Approach	EB	WB	NE	SW	All
Total Delay (hr)	2.6	6.5	341.7	6.5	357.3
Delay / Veh (s)	16.3	30.1	1082.8	12.9	299.1
Stop Delay (hr)	2.0	5.6	337.3	4.6	349.5
St Del/Veh (s)	12.4	26.0	1069.0	9.1	292.6
Travel Dist (mi)	71.2	103.1	116.9	101.0	392.2
Travel Time (hr)	5.5	10.8	345.9	10.8	373.0
Avg Speed (mph)	13	10	6	9	8
Vehicles Entered	572	785	1137	1810	4304
Vehicles Exited	571	782	1136	1808	4297
Hourly Exit Rate	571	782	1136	1808	4297

5: NB On-Ramp & Morrissey Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	15.8	11.4	4.2	31.3
Delay / Veh (s)	30.8	48.9	47.8	37.7
Stop Delay (hr)	12.9	10.2	4.0	27.1
St Del/Veh (s)	25.3	43.8	45.2	32.5
Travel Dist (mi)	167.8	56.5	13.9	238.2
Travel Time (hr)	22.5	13.5	5.0	41.0
Avg Speed (mph)	7	4	3	6
Vehicles Entered	1841	836	316	2993
Vehicles Exited	1841	837	315	2993
Hourly Exit Rate	1841	837	315	2993

9: SB Off-Ramp & Morrissey Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	5.6	3.9	5.8	15.3
Delay / Veh (s)	59.9	8.1	12.9	15.0
Stop Delay (hr)	5.4	2.6	4.1	12.2
St Del/Veh (s)	58.4	5.4	9.2	11.9
Travel Dist (mi)	23.2	93.3	114.3	230.9
Travel Time (hr)	6.7	8.9	10.8	26.4
Avg Speed (mph)	3	10	11	9
Vehicles Entered	335	1721	1619	3675
Vehicles Exited	336	1720	1617	3673
Hourly Exit Rate	336	1720	1617	3673

46: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	6.4	6.4
Stop Delay (hr)	0.4	0.4
St Del/Veh (s)	4.5	4.5
Travel Dist (mi)	5.0	5.0
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	7	7
Vehicles Entered	292	292
Vehicles Exited	293	293
Hourly Exit Rate	293	293

139: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	1.6	1.6
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.1	0.1
Travel Dist (mi)	69.3	69.3
Travel Time (hr)	4.1	4.1
Avg Speed (mph)	17	17
Vehicles Entered	1030	1030
Vehicles Exited	1029	1029
Hourly Exit Rate	1029	1029

142: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.3	2.3
Stop Delay (hr)	0.3	0.3
St Del/Veh (s)	1.6	1.6
Travel Dist (mi)	3.3	3.3
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	6	6
Vehicles Entered	693	693
Vehicles Exited	693	693
Hourly Exit Rate	693	693

144: SB On-Ramp & Performance by approach

Approach	EB	All
Total Delay (hr)	1.3	1.3
Delay / Veh (s)	6.7	6.7
Stop Delay (hr)	0.6	0.6
St Del/Veh (s)	3.1	3.1
Travel Dist (mi)	21.9	21.9
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	11	11
Vehicles Entered	693	693
Vehicles Exited	693	693
Hourly Exit Rate	693	693

149: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.4	1.4
Stop Delay (hr)	0.1	0.1
St Del/Veh (s)	1.1	1.1
Travel Dist (mi)	1.7	1.7
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	8	8
Vehicles Entered	293	293
Vehicles Exited	292	292
Hourly Exit Rate	292	292

151: NB On-Ramp & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	3.2	3.2
Stop Delay (hr)	0.0	0.0
St Del/Veh (s)	0.2	0.2
Travel Dist (mi)	27.5	27.5
Travel Time (hr)	1.6	1.6
Avg Speed (mph)	17	17
Vehicles Entered	402	402
Vehicles Exited	402	402
Hourly Exit Rate	402	402

Total Network Performance

Total Delay (hr)	485.7
Delay / Veh (s)	336.4
Stop Delay (hr)	464.3
St Del/Veh (s)	321.5
Travel Dist (mi)	1750.9
Travel Time (hr)	558.4
Avg Speed (mph)	9
Vehicles Entered	5221
Vehicles Exited	5178
Hourly Exit Rate	5178

Arterial Level of Service: NE Morrissey

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Fairmount	1081.3	1094.1	0.1	6
SB On-Ramp	12.9	19.9	0.1	11
NB Off-Ramp	47.2	55.5	0.1	4
Morrissey	10.0	19.4	0.1	9
Total	1151.5	1188.9	0.3	6

Arterial Level of Service: SW Morrissey

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pacheco Ave	432.7	444.3	0.1	1
NB On-Ramp	64.8	73.0	0.1	2
SB Off-Ramp	4.2	12.5	0.1	17
Fairmount	15.6	22.5	0.1	10
Total	517.3	552.3	0.3	2

Intersection: 1: Rooney St & Pacheo Ave

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	L	TR	LTR
Maximum Queue (ft)	76	308	422	198	166	164	528
Average Queue (ft)	20	170	347	91	112	106	458
95th Queue (ft)	67	317	526	219	180	188	647
Link Distance (ft)		314	401		134	134	508
Upstream Blk Time (%)		4	52		9	11	67
Queuing Penalty (veh)		0	0		48	61	0
Storage Bay Dist (ft)	50			164			
Storage Blk Time (%)	1	65	70	0			
Queuing Penalty (veh)	1	16	56	0			

Intersection: 3: Fairmount & Morrissey

Movement	EB	WB	WB	NE	NE	SW	SW	SW
Directions Served	R	R	R	T	TR	T	T	R
Maximum Queue (ft)	356	436	458	536	550	224	272	132
Average Queue (ft)	181	170	210	291	535	204	186	100
95th Queue (ft)	306	356	401	616	544	244	277	164
Link Distance (ft)	656	690	690	518	518	186	186	
Upstream Blk Time (%)		0	0	3	50	17	9	
Queuing Penalty (veh)		0	0	0	0	161	82	
Storage Bay Dist (ft)								100
Storage Blk Time (%)						13	2	
Queuing Penalty (veh)						85	9	

Intersection: 5: NB On-Ramp & Morrissey

Movement	WB	WB	WB	B4	B4	NE	NE	NE	SW	SW
Directions Served	L	L	TR	T	T	L	T	T	T	R
Maximum Queue (ft)	480	479	412	445	524	303	277	277	162	81
Average Queue (ft)	379	388	193	68	96	214	129	193	141	48
95th Queue (ft)	535	516	357	290	363	321	244	301	161	103
Link Distance (ft)	408	408	408	552	552	261	261	261	134	
Upstream Blk Time (%)	8	9	0	0	1	11	1	8	44	
Queuing Penalty (veh)	0	0	0	0	0	37	5	28	169	
Storage Bay Dist (ft)										50
Storage Blk Time (%)									60	0
Queuing Penalty (veh)									76	1



Intersection: 9: SB Off-Ramp & Morrissey

Movement	EB	EB	EB	B8	NE	NE	NE	SW	SW	SW
Directions Served	L	TR	R	T	T	T	R	L	T	T
Maximum Queue (ft)	208	268	172	42	219	217	218	82	281	298
Average Queue (ft)	77	71	74	2	81	123	93	28	170	170
95th Queue (ft)	171	177	137	33	188	228	197	65	312	311
Link Distance (ft)		299		616	186	186	186	261	261	261
Upstream Blk Time (%)		1			1	3	1		3	3
Queuing Penalty (veh)		0			6	22	6		14	15
Storage Bay Dist (ft)	200		200							
Storage Blk Time (%)	4	0	0							
Queuing Penalty (veh)	11	1	1							

Intersection: 46: NB On-Ramp &

Movement	WB
Directions Served	T
Maximum Queue (ft)	106
Average Queue (ft)	82
95th Queue (ft)	116
Link Distance (ft)	48
Upstream Blk Time (%)	13
Queuing Penalty (veh)	48
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 139: SB On-Ramp &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 142: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	58	59
Average Queue (ft)	40	46
95th Queue (ft)	53	60
Link Distance (ft)	-12	-12
Upstream Blk Time (%)	2	5
Queuing Penalty (veh)	8	21
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 144: SB On-Ramp &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	68	87
Average Queue (ft)	41	53
95th Queue (ft)	60	76
Link Distance (ft)	125	125
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 149: NB On-Ramp &

Movement	WB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	49
95th Queue (ft)	60
Link Distance (ft)	-5
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 151: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	74
Average Queue (ft)	16
95th Queue (ft)	56
Link Distance (ft)	290
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 988

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	6679	6708	6712	6719	6659	6792	6703	6762
Vehs Exited	6630	6739	6695	6675	6614	6782	6648	6725
Starting Vehs	303	302	299	297	289	310	280	269
Ending Vehs	352	271	316	341	334	320	335	306
Denied Entry Before	239	224	236	243	170	206	214	336
Denied Entry After	4172	3958	4162	4073	4186	4035	4001	4215
Travel Distance (mi)	2521	2549	2554	2531	2516	2555	2535	2558
Travel Time (hr)	2489.8	2375.8	2511.1	2525.9	2490.1	2430.5	2414.4	2602.8
Total Delay (hr)	2391.9	2277.1	2411.9	2427.7	2392.4	2331.3	2316.1	2503.6
Total Stops	14387	13209	14511	15266	15058	13445	13550	13888
Fuel Used (gal)	1660.8	1601.6	1682.6	1680.7	1668.9	1631.3	1614.3	1740.7

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	6679	6708	6712	6719	6659	6792	6703	6762
Vehs Exited	6630	6739	6695	6675	6614	6782	6648	6725
Starting Vehs	303	302	299	297	289	310	280	269
Ending Vehs	352	271	316	341	334	320	335	306
Denied Entry Before	239	224	236	243	170	206	214	336
Denied Entry After	4172	3958	4162	4073	4186	4035	4001	4215
Travel Distance (mi)	2521	2549	2554	2531	2516	2555	2535	2558
Travel Time (hr)	2489.8	2375.8	2511.1	2525.9	2490.1	2430.5	2414.4	2602.8
Total Delay (hr)	2391.9	2277.1	2411.9	2427.7	2392.4	2331.3	2316.1	2503.6
Total Stops	14387	13209	14511	15266	15058	13445	13550	13888
Fuel Used (gal)	1660.8	1601.6	1682.6	1680.7	1668.9	1631.3	1614.3	1740.7

2: Soquel Ave. & Performance by movement

Movement	SET	NWR	All
Total Delay (hr)	10.8	0.0	10.8
Delay / Veh (s)	17.6	0.3	15.7
Travel Time (hr)	14.0	0.6	14.6
Avg Speed (mph)	7	12	7
Vehicles Entered	2198	273	2471
Vehicles Exited	2192	273	2465
Hourly Exit Rate	2192	273	2465

8: NB On & Soquel Dr. Performance by movement

Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Total Delay (hr)	29.5	37.2	23.7	11.9	1.3	4.3	3.7	33.2	2.1	436.4	319.5	12.4
Delay / Veh (s)	1363.0	1366.2	1378.4	46.5	35.1	42.4	128.7	74.6	11.4	2040.3	2053.9	2238.6
Travel Time (hr)	29.8	37.5	23.9	13.1	1.5	5.0	4.5	45.0	7.6	439.4	322.1	12.5
Avg Speed (mph)	1	1	1	3	3	3	5	7	17	6	5	5
Vehicles Entered	78	97	62	920	138	368	107	1609	658	770	559	21
Vehicles Exited	78	98	61	921	137	368	104	1599	656	768	561	20
Hourly Exit Rate	78	98	61	921	137	368	104	1599	656	768	561	20

8: NB On & Soquel Dr. Performance by movement

Movement	All
Total Delay (hr)	915.4
Delay / Veh (s)	612.6
Travel Time (hr)	941.8
Avg Speed (mph)	6
Vehicles Entered	5387
Vehicles Exited	5371
Hourly Exit Rate	5371

9: NB On & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.1	0.7	0.8
Delay / Veh (s)	2.3	5.4	4.7
Travel Time (hr)	0.5	1.9	2.3
Avg Speed (mph)	20	18	18
Vehicles Entered	141	481	622
Vehicles Exited	141	481	622
Hourly Exit Rate	141	481	622

10: SB On-Ramp & Soquel Ave. Performance by movement

Movement	NEL	NET	SWT	SWR	All
Total Delay (hr)	3.4	1.9	323.4	82.7	411.5
Delay / Veh (s)	52.0	10.0	1940.6	1959.7	885.5
Travel Time (hr)	4.4	4.6	325.3	83.3	417.6
Avg Speed (mph)	5	14	4	6	6
Vehicles Entered	235	686	598	152	1671
Vehicles Exited	235	688	600	151	1674
Hourly Exit Rate	235	688	600	151	1674

12: SB On-Ramp & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.0	0.2	0.2
Delay / Veh (s)	1.5	2.1	1.9
Travel Time (hr)	0.3	0.7	1.0
Avg Speed (mph)	14	14	14
Vehicles Entered	99	288	387
Vehicles Exited	99	289	388
Hourly Exit Rate	99	289	388

14: SB On-Ramp & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	6.8	6.8
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	7	7
Vehicles Entered	289	289
Vehicles Exited	288	288
Hourly Exit Rate	288	288

16: SB On-Ramp & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	3.1	3.1
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	6	6
Vehicles Entered	288	288
Vehicles Exited	288	288
Hourly Exit Rate	288	288

40: Soquel Ave. & Soquel Dr. Performance by movement

Movement	SEL	SET	SER	NWL	NWT	NWR	NET	NER	SWL	SWT	SWR	All
Total Delay (hr)	12.1	5.0	2.4	3.2	0.0	12.3	15.0	5.6	1.8	11.7	1.5	70.7
Delay / Veh (s)	30.8	36.3	30.7	80.3	2.6	97.2	107.4	77.0	38.4	31.3	19.9	47.6
Travel Time (hr)	14.1	5.5	2.9	3.7	0.0	14.0	16.1	6.1	3.1	21.5	3.7	90.7
Avg Speed (mph)	3	3	3	3	21	3	2	2	11	12	15	6
Vehicles Entered	1414	495	283	145	1	456	504	260	168	1349	274	5349
Vehicles Exited	1414	493	283	145	1	456	504	260	168	1349	274	5347
Hourly Exit Rate	1414	493	283	145	1	456	504	260	168	1349	274	5347

123: NB On-Ramp & Commercial Performance by movement

Movement	SER	NWT	All
Total Delay (hr)	0.3	571.8	572.1
Delay / Veh (s)	1.5	1517.0	1024.1
Travel Time (hr)	1.7	576.5	578.1
Avg Speed (mph)	10	6	6
Vehicles Entered	656	1357	2013
Vehicles Exited	654	1356	2010
Hourly Exit Rate	654	1356	2010

160: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.0	0.1	0.1
Delay / Veh (s)	2.0	1.5	1.6
Travel Time (hr)	0.3	0.7	1.0
Avg Speed (mph)	15	17	17
Vehicles Entered	80	194	274
Vehicles Exited	80	195	275
Hourly Exit Rate	80	195	275

170: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	5.3	5.3
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	9	9
Vehicles Entered	195	195
Vehicles Exited	195	195
Hourly Exit Rate	195	195

172: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	3.7	3.7
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	7	7
Vehicles Entered	195	195
Vehicles Exited	195	195
Hourly Exit Rate	195	195

188: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.3	2.3
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	8	8
Vehicles Entered	480	480
Vehicles Exited	480	480
Hourly Exit Rate	480	480

190: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.4	1.4
Delay / Veh (s)	10.6	10.6
Travel Time (hr)	1.8	1.8
Avg Speed (mph)	7	7
Vehicles Entered	481	481
Vehicles Exited	480	480
Hourly Exit Rate	480	480

309: NB On-Ramp & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.1	1.7	1.8
Delay / Veh (s)	1.9	11.2	9.8
Travel Time (hr)	0.3	2.9	3.3
Avg Speed (mph)	13	7	8
Vehicles Entered	98	556	654
Vehicles Exited	98	556	654
Hourly Exit Rate	98	556	654



311: NB On-Ramp & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	3.6	3.6
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	5	5
Vehicles Entered	557	557
Vehicles Exited	557	557
Hourly Exit Rate	557	557

313: NB On-Ramp & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.5	1.5
Delay / Veh (s)	10.0	10.0
Travel Time (hr)	1.8	1.8
Avg Speed (mph)	5	5
Vehicles Entered	556	556
Vehicles Exited	556	556
Hourly Exit Rate	556	556

Total Network Performance

Total Delay (hr)	2365.8
Delay / Veh (s)	1267.4
Travel Time (hr)	2464.6
Avg Speed (mph)	8
Vehicles Entered	6734
Vehicles Exited	6706
Hourly Exit Rate	6706

Intersection: 2: Soquel Ave. &

Movement	SE	SE	SE	SE	SE	B18	B18	B18	B81	B81	NW
Directions Served	T	T	T	T	T	T	T	T	T	T	R
Maximum Queue (ft)	137	247	244	238	233	261	258	225	213	230	5
Average Queue (ft)	116	220	182	113	118	160	119	31	87	78	0
95th Queue (ft)	155	293	302	233	224	343	293	149	258	251	4
Link Distance (ft)		174	174	174	174	196	196	196	215	215	108
Upstream Blk Time (%)		28	17	4	4	16	6	1	7	3	
Queuing Penalty (veh)		0	0	0	0	0	0	0	0	0	
Storage Bay Dist (ft)	100										
Storage Blk Time (%)	19	32									
Queuing Penalty (veh)	86	145									

Intersection: 8: NB On & Soquel Dr.

Movement	SE	SE	NW	NW	NW	NW	NE	NE	NE	NE	SW	SW
Directions Served	L	R>	<	<	TR	R	L	T	T	R	T	T
Maximum Queue (ft)	103	407	169	168	181	97	425	978	995	1061	584	582
Average Queue (ft)	72	390	163	165	164	81	141	825	852	582	458	570
95th Queue (ft)	118	402	173	173	188	123	311	1119	1139	1304	610	601
Link Distance (ft)		375	100	100	100			925	925	925	562	562
Upstream Blk Time (%)		83	58	62	47	1		8	9	5	2	17
Queuing Penalty (veh)		0	452	488	368	0		85	100	56	0	0
Storage Bay Dist (ft)	65					197	400					
Storage Blk Time (%)	39	71			47	1		40				23
Queuing Penalty (veh)	103	88			150	7		58				254

Intersection: 8: NB On & Soquel Dr.

Movement	SW	SW
Directions Served	R	R>
Maximum Queue (ft)	140	130
Average Queue (ft)	132	101
95th Queue (ft)	152	151
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	100
Storage Blk Time (%)	48	14
Queuing Penalty (veh)	358	107

Intersection: 9: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	131	125
Average Queue (ft)	44	33
95th Queue (ft)	106	89
Link Distance (ft)	304	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: SB On-Ramp & Soquel Ave.

Movement	NE	NE	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	413	472	504	166
Average Queue (ft)	180	147	488	86
95th Queue (ft)	331	401	495	202
Link Distance (ft)	396	396	472	
Upstream Blk Time (%)	1	1	53	
Queuing Penalty (veh)	4	9	0	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			57	0
Queuing Penalty (veh)			175	1

Intersection: 12: SB On-Ramp &

Movement	EB
Directions Served	T
Maximum Queue (ft)	71
Average Queue (ft)	9
95th Queue (ft)	40
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 14: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	110
Average Queue (ft)	75
95th Queue (ft)	113
Link Distance (ft)	39
Upstream Blk Time (%)	22
Queuing Penalty (veh)	101
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 16: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	54
95th Queue (ft)	67
Link Distance (ft)	-1
Upstream Blk Time (%)	2
Queuing Penalty (veh)	7
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SE	SE	SE	SE	SE	NW	NW	NE	NE	B5	B5	SW
Directions Served	L	L	L	T	TR	L	R	T	TR	T	T	L
Maximum Queue (ft)	173	176	176	176	179	270	421	321	322	177	189	118
Average Queue (ft)	169	172	169	169	172	123	408	294	315	93	175	47
95th Queue (ft)	181	179	191	192	193	229	422	355	328	206	183	99
Link Distance (ft)	108	108	108	108	108	396	396	246	246	160	160	
Upstream Blk Time (%)	51	62	49	44	48		46	52	75	9	74	
Queuing Penalty (veh)	229	279	221	196	214		268	0	0	0	0	
Storage Bay Dist (ft)												400
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SW	SW	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	403	834	860	133
Average Queue (ft)	83	459	457	74
95th Queue (ft)	266	753	763	152
Link Distance (ft)		925	925	
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		1	4	
Storage Bay Dist (ft)	400			100
Storage Blk Time (%)		7	30	0
Queuing Penalty (veh)		22	152	2

Intersection: 123: NB On-Ramp & Commercial

Movement	SE	SE	NW	NW	NW
Directions Served	R	R	T	T	T
Maximum Queue (ft)	93	122	142	547	540
Average Queue (ft)	13	21	117	533	243
95th Queue (ft)	61	85	148	544	501
Link Distance (ft)	100	100		520	520
Upstream Blk Time (%)	0	2		43	4
Queuing Penalty (veh)	1	8		0	0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			30	48	
Queuing Penalty (veh)			237	375	

Intersection: 160: SB On &

**Movement**

Directions Served  
 Maximum Queue (ft)  
 Average Queue (ft)  
 95th Queue (ft)  
 Link Distance (ft)  
 Upstream Blk Time (%)  
 Queuing Penalty (veh)  
 Storage Bay Dist (ft)  
 Storage Blk Time (%)  
 Queuing Penalty (veh)

Intersection: 170: SB On &

**Movement**

EB

Directions Served T  
 Maximum Queue (ft) 69  
 Average Queue (ft) 38  
 95th Queue (ft) 56  
 Link Distance (ft) 51  
 Upstream Blk Time (%) 1  
 Queuing Penalty (veh) 5  
 Storage Bay Dist (ft)  
 Storage Blk Time (%)  
 Queuing Penalty (veh)

Intersection: 172: SB On &

**Movement**

EB

Directions Served T  
 Maximum Queue (ft) 67  
 Average Queue (ft) 41  
 95th Queue (ft) 64  
 Link Distance (ft) 7  
 Upstream Blk Time (%) 6  
 Queuing Penalty (veh) 23  
 Storage Bay Dist (ft)  
 Storage Blk Time (%)  
 Queuing Penalty (veh)

Intersection: 188: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	57
95th Queue (ft)	71
Link Distance (ft)	-6
Upstream Blk Time (%)	1
Queuing Penalty (veh)	9
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 190: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	150
Average Queue (ft)	123
95th Queue (ft)	169
Link Distance (ft)	88
Upstream Blk Time (%)	22
Queuing Penalty (veh)	201
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 309: NB On-Ramp &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	220	218
Average Queue (ft)	48	110
95th Queue (ft)	190	240
Link Distance (ft)	162	162
Upstream Blk Time (%)	2	11
Queuing Penalty (veh)	8	52
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 311: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	50
95th Queue (ft)	65
Link Distance (ft)	-14
Upstream Blk Time (%)	16
Queuing Penalty (veh)	124
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 313: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	94
Average Queue (ft)	88
95th Queue (ft)	111
Link Distance (ft)	37
Upstream Blk Time (%)	67
Queuing Penalty (veh)	509
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 6341



Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	6482	6369	6205	6324	6364	6366	6481	6433
Vehs Exited	6435	6367	6200	6367	6354	6350	6431	6430
Starting Vehs	282	320	278	329	323	301	279	338
Ending Vehs	329	322	283	286	333	317	329	341
Denied Entry Before	332	288	367	316	270	316	365	283
Denied Entry After	5544	5663	5908	5631	5573	5563	5598	5489
Travel Distance (mi)	2392	2358	2313	2355	2356	2367	2386	2374
Travel Time (hr)	3279.9	3326.1	3431.6	3273.9	3215.6	3209.6	3291.5	3252.9
Total Delay (hr)	3180.3	3227.8	3334.7	3175.8	3117.1	3111.1	3191.7	3154.0
Total Stops	14983	15387	14418	14932	15533	15184	14915	15676
Fuel Used (gal)	2156.0	2184.1	2252.8	2152.4	2106.6	2114.8	2166.2	2140.9

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	6482	6369	6205	6324	6364	6366	6481	6433
Vehs Exited	6435	6367	6200	6367	6354	6350	6431	6430
Starting Vehs	282	320	278	329	323	301	279	338
Ending Vehs	329	322	283	286	333	317	329	341
Denied Entry Before	332	288	367	316	270	316	365	283
Denied Entry After	5544	5663	5908	5631	5573	5563	5598	5489
Travel Distance (mi)	2392	2358	2313	2355	2356	2367	2386	2374
Travel Time (hr)	3279.9	3326.1	3431.6	3273.9	3215.6	3209.6	3291.5	3252.9
Total Delay (hr)	3180.3	3227.8	3334.7	3175.8	3117.1	3111.1	3191.7	3154.0
Total Stops	14983	15387	14418	14932	15533	15184	14915	15676
Fuel Used (gal)	2156.0	2184.1	2252.8	2152.4	2106.6	2114.8	2166.2	2140.9

2: Soquel Ave. & Performance by movement

Movement	EBR	NWR	All
Total Delay (hr)	6.0	0.0	6.0
Delay / Veh (s)	12.2	0.4	10.0
Travel Time (hr)	9.8	0.9	10.8
Avg Speed (mph)	8	12	8
Vehicles Entered	1758	398	2156
Vehicles Exited	1756	399	2155
Hourly Exit Rate	1756	399	2155

8: NB On & Soquel Dr. Performance by movement

Movement	SEL	SER	SER2	NWL2	NWT	NWR	NEL	NET	NER	SWT	SWR	SWR2
Total Delay (hr)	50.3	21.6	29.2	3.6	0.5	3.9	4.4	32.9	2.1	484.8	329.7	19.0
Delay / Veh (s)	2746.0	2773.7	2625.6	16.7	23.3	16.0	440.4	96.5	9.7	2327.2	2373.6	2442.1
Travel Time (hr)	50.5	21.7	29.3	4.6	0.6	5.4	4.7	41.8	8.6	487.8	332.0	19.1
Avg Speed (mph)	0	1	1	5	3	5	1	6	18	4	4	4
Vehicles Entered	67	28	40	770	80	872	36	1233	772	751	500	29
Vehicles Exited	65	27	40	773	79	871	34	1219	772	749	499	28
Hourly Exit Rate	65	27	40	773	79	871	34	1219	772	749	499	28

8: NB On & Soquel Dr. Performance by movement

Movement	All
Total Delay (hr)	981.9
Delay / Veh (s)	684.1
Travel Time (hr)	1005.9
Avg Speed (mph)	5
Vehicles Entered	5178
Vehicles Exited	5156
Hourly Exit Rate	5156

9: NB On & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.0	0.6	0.7
Delay / Veh (s)	2.1	5.0	4.6
Travel Time (hr)	0.3	1.7	1.9
Avg Speed (mph)	20	18	18
Vehicles Entered	78	460	538
Vehicles Exited	78	461	539
Hourly Exit Rate	78	461	539

10: Soquel Ave. & SB On-Ramp Performance by movement

Movement	EBL2	EBL	SWR	SWR2	All
Total Delay (hr)	5.6	4.9	169.9	39.8	220.3
Delay / Veh (s)	57.3	20.8	1098.2	1069.7	418.7
Travel Time (hr)	7.1	8.6	172.0	40.3	228.1
Avg Speed (mph)	5	9	3	5	5
Vehicles Entered	354	853	557	133	1897
Vehicles Exited	352	850	556	134	1892
Hourly Exit Rate	352	850	556	134	1892

12: SB On-Ramp & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.4	0.4
Delay / Veh (s)	1.6	3.6	3.1
Travel Time (hr)	0.4	1.1	1.4
Avg Speed (mph)	14	13	13
Vehicles Entered	134	352	486
Vehicles Exited	134	352	486
Hourly Exit Rate	134	352	486

14: SB On-Ramp & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	7.4	7.4
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	6	6
Vehicles Entered	352	352
Vehicles Exited	352	352
Hourly Exit Rate	352	352

16: SB On-Ramp & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	3.1	3.1
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	6	6
Vehicles Entered	352	352
Vehicles Exited	352	352
Hourly Exit Rate	352	352

40: Soquel Ave. & Soquel Dr. Performance by movement

Movement	SEL	SET	SER	NWL	NWR	NET	NER	SWL	SWT	SWR	All
Total Delay (hr)	8.3	6.3	1.7	4.5	11.0	12.8	4.9	16.1	5.3	1.2	72.3
Delay / Veh (s)	27.6	46.9	33.5	127.5	93.1	88.0	67.6	125.3	27.4	11.2	55.9
Travel Time (hr)	10.8	7.2	2.2	5.1	13.2	13.9	5.5	19.6	10.3	4.4	92.1
Avg Speed (mph)	3	2	3	2	3	2	2	5	13	18	5
Vehicles Entered	1088	482	187	129	428	523	264	462	694	395	4652
Vehicles Exited	1088	482	188	128	427	524	263	462	694	398	4654
Hourly Exit Rate	1088	482	188	128	427	524	263	462	694	398	4654

123: NB On-Ramp & Commercial Performance by movement

Movement	SER	NWT	All
Total Delay (hr)	0.1	565.9	566.0
Delay / Veh (s)	0.6	1226.4	837.8
Travel Time (hr)	1.8	571.6	573.4
Avg Speed (mph)	11	9	9
Vehicles Entered	771	1662	2433
Vehicles Exited	771	1661	2432
Hourly Exit Rate	771	1661	2432

160: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.2	0.2
Delay / Veh (s)	2.1	2.1	2.1
Travel Time (hr)	0.5	1.1	1.5
Avg Speed (mph)	15	17	17
Vehicles Entered	111	288	399
Vehicles Exited	110	290	400
Hourly Exit Rate	110	290	400

170: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	5.4	5.4
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	8	8
Vehicles Entered	290	290
Vehicles Exited	290	290
Hourly Exit Rate	290	290

172: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	3.8	3.8
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	6	6
Vehicles Entered	290	290
Vehicles Exited	290	290
Hourly Exit Rate	290	290

188: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.3	2.3
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	8	8
Vehicles Entered	461	461
Vehicles Exited	461	461
Hourly Exit Rate	461	461

190: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.4	1.4
Delay / Veh (s)	10.7	10.7
Travel Time (hr)	1.8	1.8
Avg Speed (mph)	6	6
Vehicles Entered	461	461
Vehicles Exited	461	461
Hourly Exit Rate	461	461

309: NB On-Ramp & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.1	0.5	0.6
Delay / Veh (s)	1.7	3.3	2.9
Travel Time (hr)	0.6	1.9	2.5
Avg Speed (mph)	13	13	13
Vehicles Entered	197	575	772
Vehicles Exited	197	574	771
Hourly Exit Rate	197	574	771

311: NB On-Ramp & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	574	574
Vehicles Exited	574	574
Hourly Exit Rate	574	574

313: NB On-Ramp & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	6.0	6.0
Travel Time (hr)	1.3	1.3
Avg Speed (mph)	7	7
Vehicles Entered	575	575
Vehicles Exited	574	574
Hourly Exit Rate	574	574

Total Network Performance

Total Delay (hr)	3167.2
Delay / Veh (s)	1790.8
Travel Time (hr)	3265.7
Avg Speed (mph)	7
Vehicles Entered	6380
Vehicles Exited	6355
Hourly Exit Rate	6355

Intersection: 2: Soquel Ave. &

Movement	EB	EB	EB	EB	EB	B18	B18	B18	B81	B81	NW
Directions Served	R	R	R	R	R	T	T	T	T	T	R
Maximum Queue (ft)	129	241	233	244	222	105	53	243	48	125	8
Average Queue (ft)	71	111	94	132	117	8	3	47	2	17	0
95th Queue (ft)	148	219	204	258	220	63	32	195	32	109	4
Link Distance (ft)		174	174	174	174	196	196	196	215	215	109
Upstream Blk Time (%)		3	2	10	5	0		3		1	
Queuing Penalty (veh)		0	0	0	0	0		0		0	
Storage Bay Dist (ft)	100										
Storage Blk Time (%)	3	8									
Queuing Penalty (veh)	12	29									

Intersection: 8: NB On & Soquel Dr.

Movement	SE	SE	NW	NW	NW	NW	NE	NE	NE	NE	SW	SW
Directions Served	L	R>	<	<	TR	R	L	T	T	R	T	T
Maximum Queue (ft)	105	400	166	174	172	95	406	872	892	951	579	589
Average Queue (ft)	84	379	133	143	164	86	127	636	643	281	475	572
95th Queue (ft)	99	434	187	191	171	109	327	970	976	896	650	605
Link Distance (ft)		376	101	101	101			910	910	910	562	562
Upstream Blk Time (%)		87	18	23	46	1		3	2	2	3	22
Queuing Penalty (veh)		0	156	199	406	0		33	27	24	0	0
Storage Bay Dist (ft)	65					197	400					
Storage Blk Time (%)	87	11			46	1	1	38				33
Queuing Penalty (veh)	134	16			312	9	12	28				366

Intersection: 8: NB On & Soquel Dr.

Movement	SW	SW
Directions Served	R	R>
Maximum Queue (ft)	151	132
Average Queue (ft)	135	112
95th Queue (ft)	149	145
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	100
Storage Blk Time (%)	43	16
Queuing Penalty (veh)	342	123

Intersection: 9: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	102	96
Average Queue (ft)	46	32
95th Queue (ft)	93	74
Link Distance (ft)	300	300
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Soquel Ave. & SB On-Ramp

Movement	EB	EB	SW	SW
Directions Served	<	L	R	>
Maximum Queue (ft)	476	500	503	165
Average Queue (ft)	340	362	485	83
95th Queue (ft)	503	565	493	202
Link Distance (ft)	389	389	470	
Upstream Blk Time (%)	7	11	57	
Queuing Penalty (veh)	83	126	0	
Storage Bay Dist (ft)				130
Storage Blk Time (%)			61	0
Queuing Penalty (veh)			129	1

Intersection: 12: SB On-Ramp &

Movement	EB	EB
Directions Served	L	T
Maximum Queue (ft)	15	134
Average Queue (ft)	0	32
95th Queue (ft)	14	98
Link Distance (ft)	150	150
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 14: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	101
Average Queue (ft)	87
95th Queue (ft)	116
Link Distance (ft)	39
Upstream Blk Time (%)	30
Queuing Penalty (veh)	199
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 16: SB On-Ramp &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	70
Average Queue (ft)	55
95th Queue (ft)	69
Link Distance (ft)	-1
Upstream Blk Time (%)	2
Queuing Penalty (veh)	16
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SE	SE	SE	SE	SE	NW	NW	NE	NE	B5	B5	SW
Directions Served	L	L	L	T	TR	L	R	T	TR	T	T	L
Maximum Queue (ft)	172	173	175	176	176	395	423	323	323	180	188	396
Average Queue (ft)	162	166	165	169	170	177	396	262	315	74	175	269
95th Queue (ft)	187	183	192	187	188	359	432	392	326	191	182	424
Link Distance (ft)	109	109	109	109	109	389	389	246	246	160	160	
Upstream Blk Time (%)	31	42	37	54	52	1	30	33	73	6	73	
Queuing Penalty (veh)	110	148	131	191	185	4	124	0	0	0	0	
Storage Bay Dist (ft)												400
Storage Blk Time (%)												6
Queuing Penalty (veh)												40

Intersection: 40: Soquel Ave. & Soquel Dr.

Movement	SW	SW	SW	SW
Directions Served	L	T	T	R
Maximum Queue (ft)	409	597	629	132
Average Queue (ft)	278	284	283	71
95th Queue (ft)	441	646	600	167
Link Distance (ft)		910	910	
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		8	1	
Storage Bay Dist (ft)	400			100
Storage Blk Time (%)	9	0	20	0
Queuing Penalty (veh)	59	0	150	2

Intersection: 123: NB On-Ramp & Commercial

Movement	SE	SE	NW	NW	NW
Directions Served	R	R	T	T	T
Maximum Queue (ft)	11	32	131	547	556
Average Queue (ft)	0	3	29	359	521
95th Queue (ft)	6	18	98	729	613
Link Distance (ft)	101	101		522	522
Upstream Blk Time (%)				6	25
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			1	2	
Queuing Penalty (veh)			10	17	

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Intersection: 160: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	21
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	290
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 170: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	92
Average Queue (ft)	48
95th Queue (ft)	76
Link Distance (ft)	51
Upstream Blk Time (%)	4
Queuing Penalty (veh)	21
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 172: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	69
Average Queue (ft)	51
95th Queue (ft)	70
Link Distance (ft)	7
Upstream Blk Time (%)	10
Queuing Penalty (veh)	53
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 188: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	69
Average Queue (ft)	56
95th Queue (ft)	69
Link Distance (ft)	-6
Upstream Blk Time (%)	1
Queuing Penalty (veh)	9
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 190: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	147
Average Queue (ft)	129
95th Queue (ft)	170
Link Distance (ft)	88
Upstream Blk Time (%)	22
Queuing Penalty (veh)	216
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 309: NB On-Ramp &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	20	140
Average Queue (ft)	1	26
95th Queue (ft)	20	89
Link Distance (ft)	187	187
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 311: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	52
95th Queue (ft)	67
Link Distance (ft)	-14
Upstream Blk Time (%)	2
Queuing Penalty (veh)	18
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 313: NB On-Ramp &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	97
Average Queue (ft)	76
95th Queue (ft)	107
Link Distance (ft)	37
Upstream Blk Time (%)	44
Queuing Penalty (veh)	473
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 4756

1: SB On & SB Ramps Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	5.0	0.9	5.9
Delay / Veh (s)	15.6	4.6	11.4
Vehicles Entered	1165	711	1876
Vehicles Exited	1160	708	1868
Hourly Exit Rate	1160	708	1868

3: NB Ramps & NB Off Performance by movement

Movement	WBT	SWT	SWR	All
Total Delay (hr)	1.5	0.0	0.7	2.2
Delay / Veh (s)	4.7	1.8	3.7	4.3
Vehicles Entered	1129	28	702	1859
Vehicles Exited	1129	28	703	1860
Hourly Exit Rate	1129	28	703	1860

4: NB Ramps & NB Off Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	1.9	0.3	2.1
Delay / Veh (s)	5.9	1.6	4.4
Vehicles Entered	1128	610	1738
Vehicles Exited	1128	611	1739
Hourly Exit Rate	1128	611	1739

6: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	4.8	4.8
Vehicles Entered	377	377
Vehicles Exited	376	376
Hourly Exit Rate	376	376

8: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	2.9	3.0
Delay / Veh (s)	0.9	12.0	9.3
Vehicles Entered	283	877	1160
Vehicles Exited	283	875	1158
Hourly Exit Rate	283	875	1158

10: SB On & Performance by movement

Movement	EBL	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.9	1.9
Vehicles Entered	305	305
Vehicles Exited	304	304
Hourly Exit Rate	304	304

12: Int Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.1	0.5	0.6
Delay / Veh (s)	1.9	4.7	4.0
Vehicles Entered	118	407	525
Vehicles Exited	118	408	526
Hourly Exit Rate	118	408	526

13: SB Off & 41st Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	1.3	3.1	4.8	17.3	8.3	2.6	8.5	46.0
Delay / Veh (s)	22.9	26.2	22.8	53.3	24.1	44.5	16.5	28.2
Vehicles Entered	208	421	765	1172	1244	213	1860	5883
Vehicles Exited	208	420	764	1172	1244	212	1861	5881
Hourly Exit Rate	208	420	764	1172	1244	212	1861	5881

14: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.4	0.5
Delay / Veh (s)	2.6	3.4	3.2
Vehicles Entered	118	389	507
Vehicles Exited	118	386	504
Hourly Exit Rate	118	386	504

16: Main & Porter/Bay Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.0	0.1	0.0	193.0	2.3	27.7	0.1	1.1	0.3	1.8	6.7	0.2
Delay / Veh (s)	40.4	64.1	28.6	2612.1	2809.7	2770.3	22.4	6.3	4.4	69.5	41.0	39.1
Vehicles Entered	2	5	2	271	4	38	22	650	249	93	585	16
Vehicles Exited	2	5	2	262	3	35	23	650	248	92	585	16
Hourly Exit Rate	2	5	2	262	3	35	23	650	248	92	585	16

16: Main & Porter/Bay Performance by movement

Movement	All
Total Delay (hr)	233.4
Delay / Veh (s)	435.3
Vehicles Entered	1937
Vehicles Exited	1923
Hourly Exit Rate	1923

17: NB Ramps & Porter/Bay Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	5.1	0.0	0.5	6.3	4.1	3.0	1.6	20.6
Delay / Veh (s)	40.0	1.5	12.1	60.2	18.6	20.0	17.9	27.9
Vehicles Entered	463	23	149	378	796	534	315	2658
Vehicles Exited	463	23	148	377	796	534	317	2658
Hourly Exit Rate	463	23	148	377	796	534	317	2658

18: SB Ramps & Porter/Bay Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	2.7	0.0	1.0	84.4	16.9	2.5	1.3	108.8
Delay / Veh (s)	30.5	1.0	9.2	365.1	279.2	33.1	6.1	140.1
Vehicles Entered	315	14	390	846	219	272	747	2803
Vehicles Exited	324	14	390	819	218	279	746	2790
Hourly Exit Rate	324	14	390	819	218	279	746	2790

19: NB Ramps & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.3	1.9	2.2
Delay / Veh (s)	4.6	8.0	7.3
Vehicles Entered	237	841	1078
Vehicles Exited	238	842	1080
Hourly Exit Rate	238	842	1080



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21: NB Ramps & Performance by movement

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Movement	WBT	All
Total Delay (hr)	3.1	3.1
Delay / Veh (s)	13.4	13.4
Vehicles Entered	843	843
Vehicles Exited	844	844
Hourly Exit Rate	844	844

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23: NB Ramps & Performance by movement

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Movement	WBL	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	2.5	2.5
Vehicles Entered	844	844
Vehicles Exited	844	844
Hourly Exit Rate	844	844

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26: SB Off & Performance by movement

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Movement	EBT	All
Total Delay (hr)	1.3	1.3
Delay / Veh (s)	5.2	5.2
Vehicles Entered	876	876
Vehicles Exited	876	876
Hourly Exit Rate	876	876

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28: SB Off & Performance by movement

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Movement	EBL	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	1.6	1.6
Vehicles Entered	876	876
Vehicles Exited	875	875
Hourly Exit Rate	875	875

30: Gross Rd. & 41st Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	5.7	0.3	0.7	0.1	0.1	0.1	2.1	68.8	0.5	0.6	10.0	0.8
Delay / Veh (s)	138.8	124.8	58.6	55.8	65.3	22.4	162.1	113.0	122.7	84.2	14.5	13.9
Vehicles Entered	150	10	41	8	4	14	47	2211	13	24	2492	195
Vehicles Exited	147	10	41	8	4	14	46	2170	13	24	2485	193
Hourly Exit Rate	147	10	41	8	4	14	46	2170	13	24	2485	193

30: Gross Rd. & 41st Performance by movement

Movement	All
Total Delay (hr)	89.7
Delay / Veh (s)	62.3
Vehicles Entered	5209
Vehicles Exited	5155
Hourly Exit Rate	5155

33: NB Ramps & 41st Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBT	SBR	All
Total Delay (hr)	3.6	5.0	0.4	4.0	1.1	84.9	17.6	116.7
Delay / Veh (s)	20.5	21.6	3.8	16.6	7.5	237.5	261.4	88.2
Vehicles Entered	638	837	357	875	525	1292	246	4770
Vehicles Exited	639	838	357	874	524	1280	242	4754
Hourly Exit Rate	639	838	357	874	524	1280	242	4754

34: NB Ramps & Performance by movement

Movement	EBR	WBT	All
Total Delay (hr)	0.1	1.1	1.2
Delay / Veh (s)	0.7	2.1	1.8
Vehicles Entered	525	1831	2356
Vehicles Exited	525	1832	2357
Hourly Exit Rate	525	1832	2357

39: Int Performance by movement

Movement	WBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	4.6	4.6
Vehicles Entered	406	406
Vehicles Exited	405	405
Hourly Exit Rate	405	405

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40: Int Performance by movement

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Movement	WBT	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	8.3	8.3
Vehicles Entered	407	407
Vehicles Exited	406	406
Hourly Exit Rate	406	406

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Total Network Performance

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Total Delay (hr)	649.2
Delay / Veh (s)	235.9
Vehicles Entered	9960
Vehicles Exited	9854
Hourly Exit Rate	9854

Intersection: 1: SB On & SB Ramps

Movement	EB	EB	EB
Directions Served	L	L	T
Maximum Queue (ft)	303	536	241
Average Queue (ft)	44	145	33
95th Queue (ft)	285	465	240
Link Distance (ft)	1352	1352	1352
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: NB Ramps & NB Off

Movement	SW
Directions Served	R
Maximum Queue (ft)	53
Average Queue (ft)	2
95th Queue (ft)	26
Link Distance (ft)	278
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: NB Ramps & NB Off

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

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Intersection: 6: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	96
Average Queue (ft)	64
95th Queue (ft)	93
Link Distance (ft)	36
Upstream Blk Time (%)	23
Queuing Penalty (veh)	108
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 8: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	194
Average Queue (ft)	154
95th Queue (ft)	240
Link Distance (ft)	84
Upstream Blk Time (%)	56
Queuing Penalty (veh)	347
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 10: SB On &

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Movement	EB
Directions Served	L
Maximum Queue (ft)	64
Average Queue (ft)	48
95th Queue (ft)	60
Link Distance (ft)	-4
Upstream Blk Time (%)	1
Queuing Penalty (veh)	2
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Int

Movement	WB
Directions Served	T
Maximum Queue (ft)	142
Average Queue (ft)	30
95th Queue (ft)	100
Link Distance (ft)	232
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: SB Off & 41st

Movement	EB	EB	EB	EB	EB	B53	B53	NB	NB	NB	NB	SB
Directions Served	L	LT	T	R	R	T	T	T	T	R	R	L
Maximum Queue (ft)	136	279	415	291	280	83	83	404	411	424	397	422
Average Queue (ft)	74	123	123	153	140	6	7	343	346	319	228	158
95th Queue (ft)	129	206	279	249	238	116	122	437	420	435	377	326
Link Distance (ft)		496	496			817	817	332	332	332	332	445
Upstream Blk Time (%)		0	1			0	0	24	24	4	1	0
Queuing Penalty (veh)		0	0			0	0	150	145	24	4	1
Storage Bay Dist (ft)	250			250	250							
Storage Blk Time (%)		0	0	2	2							
Queuing Penalty (veh)		0	0	4	3							

Intersection: 13: SB Off & 41st

Movement	SB	SB	SB
Directions Served	T	T	T
Maximum Queue (ft)	411	434	424
Average Queue (ft)	151	261	242
95th Queue (ft)	352	411	391
Link Distance (ft)	445	445	445
Upstream Blk Time (%)	1	0	0
Queuing Penalty (veh)	3	3	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	53
Average Queue (ft)	6
95th Queue (ft)	30
Link Distance (ft)	372
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Main & Porter/Bay

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	48	542	912	74	126	135	201	321	412
Average Queue (ft)	10	440	885	21	32	55	79	154	218
95th Queue (ft)	34	669	961	55	84	107	154	260	348
Link Distance (ft)	166		878		132	132		658	658
Upstream Blk Time (%)			78		0	1			
Queuing Penalty (veh)			0		0	4			
Storage Bay Dist (ft)		500		75			300		
Storage Blk Time (%)		8	82	0	3		0	0	
Queuing Penalty (veh)		32	244	1	1		0	0	

Intersection: 17: NB Ramps & Porter/Bay

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	TR
Maximum Queue (ft)	225	322	160	260	252	267	206	194
Average Queue (ft)	140	160	57	243	155	163	123	144
95th Queue (ft)	214	246	114	253	261	273	201	178
Link Distance (ft)		1451		223	223	223	132	132
Upstream Blk Time (%)				48	3	4	15	23
Queuing Penalty (veh)				214	13	18	87	139
Storage Bay Dist (ft)	200		400					
Storage Blk Time (%)	1	3						
Queuing Penalty (veh)	4	10						

Intersection: 18: SB Ramps & Porter/Bay

Movement	EB	EB	EB	B46	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	R	T	T	T	R	L	T	T
Maximum Queue (ft)	202	198	130	2	647	651	335	254	260	232
Average Queue (ft)	92	104	61	0	552	562	150	197	105	79
95th Queue (ft)	150	164	106	2	779	808	361	272	232	189
Link Distance (ft)	276	276	276	357	623	623		223	223	223
Upstream Blk Time (%)	0	0			23	32		7	0	0
Queuing Penalty (veh)	0	0			0	0		28	1	1
Storage Bay Dist (ft)							300			
Storage Blk Time (%)						24	0			
Queuing Penalty (veh)						62	0			

Intersection: 19: NB Ramps &

Movement	WB	WB	WB
Directions Served	L	T	T
Maximum Queue (ft)	39	162	138
Average Queue (ft)	1	57	48
95th Queue (ft)	28	135	118
Link Distance (ft)	406	406	406
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	108	109
Average Queue (ft)	101	99
95th Queue (ft)	123	124
Link Distance (ft)	50	50
Upstream Blk Time (%)	53	54
Queuing Penalty (veh)	246	250
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Intersection: 23: NB Ramps &

Movement	WB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	56
95th Queue (ft)	71
Link Distance (ft)	-7
Upstream Blk Time (%)	22
Queuing Penalty (veh)	202
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 26: SB Off &

Movement	EB
Directions Served	T
Maximum Queue (ft)	72
Average Queue (ft)	69
95th Queue (ft)	73
Link Distance (ft)	11
Upstream Blk Time (%)	60
Queuing Penalty (veh)	557
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 28: SB Off &

Movement	EB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	55
95th Queue (ft)	70
Link Distance (ft)	-7
Upstream Blk Time (%)	3
Queuing Penalty (veh)	28
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: Gross Rd. & 41st

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	215	135	51	42	135	632	640	634	166	392	372	379
Average Queue (ft)	151	41	10	11	46	383	514	533	23	270	268	267
95th Queue (ft)	251	118	34	36	117	676	776	781	95	423	407	411
Link Distance (ft)	197		183	183		616	616	616	332	332	332	332
Upstream Blk Time (%)	27					1	11	23	0	4	3	4
Queuing Penalty (veh)	0					0	0	0	0	27	21	27
Storage Bay Dist (ft)		120			110							
Storage Blk Time (%)	38	0			1	33						
Queuing Penalty (veh)	17	0			10	16						

Intersection: 33: NB Ramps & 41st

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	T	R	T	T	T	R	T	TR
Maximum Queue (ft)	249	248	242	127	135	126	104	187	865	876
Average Queue (ft)	185	216	170	49	91	74	54	98	805	827
95th Queue (ft)	268	274	242	95	129	114	93	157	1016	986
Link Distance (ft)	194	194	194	194	445	445	445	445	844	844
Upstream Blk Time (%)	7	14	4						17	43
Queuing Penalty (veh)	35	71	19						0	0
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 34: NB Ramps &

Movement	EB	WB	WB	WB	B42	B42
Directions Served	R	T	T	T	T	T
Maximum Queue (ft)	25	110	156	152	101	266
Average Queue (ft)	1	11	37	15	3	16
95th Queue (ft)	11	55	117	82	72	161
Link Distance (ft)	194	272	272	272	430	430
Upstream Blk Time (%)					0	0
Queuing Penalty (veh)					0	1
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

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Intersection: 39: Int

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Movement	WB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	52
95th Queue (ft)	66
Link Distance (ft)	-2
Upstream Blk Time (%)	15
Queuing Penalty (veh)	62
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 40: Int

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Movement	WB
Directions Served	T
Maximum Queue (ft)	88
Average Queue (ft)	70
95th Queue (ft)	100
Link Distance (ft)	32
Upstream Blk Time (%)	50
Queuing Penalty (veh)	204
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 3449

1: SB On & SB Ramps Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	3.4	0.8	4.2
Delay / Veh (s)	11.6	4.6	9.0
Vehicles Entered	1056	644	1700
Vehicles Exited	1056	644	1700
Hourly Exit Rate	1056	644	1700

3: NB Ramps & NB Off Performance by movement

Movement	WBT	SWT	SWR	All
Total Delay (hr)	1.6	0.0	0.8	2.4
Delay / Veh (s)	4.8	2.3	3.9	4.4
Vehicles Entered	1195	33	705	1933
Vehicles Exited	1194	33	705	1932
Hourly Exit Rate	1194	33	705	1932

4: NB Ramps & NB Off Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	2.2	0.4	2.5
Delay / Veh (s)	6.5	2.0	4.9
Vehicles Entered	1196	655	1851
Vehicles Exited	1196	655	1851
Hourly Exit Rate	1196	655	1851

6: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	5.4	5.4
Vehicles Entered	317	317
Vehicles Exited	317	317
Hourly Exit Rate	317	317

8: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	2.2	2.3
Delay / Veh (s)	0.9	9.9	7.8
Vehicles Entered	242	814	1056
Vehicles Exited	242	814	1056
Hourly Exit Rate	242	814	1056

10: SB On & Performance by movement

Movement	EBL	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.9	1.9
Vehicles Entered	317	317
Vehicles Exited	317	317
Hourly Exit Rate	317	317

12: Int Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.1	0.5	0.5
Delay / Veh (s)	2.0	4.5	3.9
Vehicles Entered	127	368	495
Vehicles Exited	127	368	495
Hourly Exit Rate	127	368	495

13: SB Off & 41st Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	2.9	5.8	4.2	16.9	7.1	7.5	6.1	50.3
Delay / Veh (s)	48.3	49.0	19.7	38.3	23.2	151.4	15.3	31.8
Vehicles Entered	217	424	762	1585	1095	179	1432	5694
Vehicles Exited	216	425	763	1585	1096	177	1434	5696
Hourly Exit Rate	216	425	763	1585	1096	177	1434	5696

14: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.3	0.4
Delay / Veh (s)	2.5	3.1	3.0
Vehicles Entered	113	324	437
Vehicles Exited	113	325	438
Hourly Exit Rate	113	325	438

16: Main & Porter/Bay Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	0.8	1.4	2.3	180.0	0.6	25.5	0.0	1.1	0.4	25.8	132.9	0.4
Delay / Veh (s)	430.2	487.3	426.9	9817.4		13136.9	22.5	7.6	5.4	516.0	535.0	518.8
Vehicles Entered	8	11	20	72	0	9	7	540	235	180	895	3
Vehicles Exited	7	9	19	60	0	5	7	540	235	180	894	3
Hourly Exit Rate	7	9	19	60	0	5	7	540	235	180	894	3

16: Main & Porter/Bay Performance by movement

Movement	All
Total Delay (hr)	371.2
Delay / Veh (s)	678.6
Vehicles Entered	1980
Vehicles Exited	1959
Hourly Exit Rate	1959

17: NB Ramps & Porter/Bay Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	7.1	0.0	1.0	6.5	1.9	4.1	2.3	23.0
Delay / Veh (s)	69.8	1.7	12.8	64.2	13.2	22.8	25.5	32.6
Vehicles Entered	367	26	289	367	510	648	325	2532
Vehicles Exited	365	26	291	367	511	648	324	2532
Hourly Exit Rate	365	26	291	367	511	648	324	2532

18: SB Ramps & Porter/Bay Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	2.0	0.0	0.8	199.9	72.7	2.1	1.8	279.3
Delay / Veh (s)	22.9	0.9	8.5	1322.6	1206.9	36.0	7.7	408.7
Vehicles Entered	310	11	337	548	219	210	832	2467
Vehicles Exited	311	11	335	539	217	209	832	2454
Hourly Exit Rate	311	11	335	539	217	209	832	2454

19: NB Ramps & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	0.4	1.7	2.0
Delay / Veh (s)	4.7	7.2	6.6
Vehicles Entered	280	826	1106
Vehicles Exited	280	824	1104
Hourly Exit Rate	280	824	1104

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21: NB Ramps & Performance by movement

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Movement	WBT	All
Total Delay (hr)	2.8	2.8
Delay / Veh (s)	12.4	12.4
Vehicles Entered	824	824
Vehicles Exited	822	822
Hourly Exit Rate	822	822

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23: NB Ramps & Performance by movement

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Movement	WBL	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	2.5	2.5
Vehicles Entered	823	823
Vehicles Exited	822	822
Hourly Exit Rate	822	822

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26: SB Off & Performance by movement

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Movement	EBT	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	5.1	5.1
Vehicles Entered	814	814
Vehicles Exited	815	815
Hourly Exit Rate	815	815

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28: SB Off & Performance by movement

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Movement	EBL	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	1.6	1.6
Vehicles Entered	815	815
Vehicles Exited	815	815
Hourly Exit Rate	815	815

30: Gross Rd. & 41st Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	84.8	1.6	14.1	0.3	0.1	0.3	7.4	373.9	1.1	0.3	10.9	0.6
Delay / Veh (s)	2994.0	2938.3	2813.7	66.5	65.5	38.5	636.3	560.4	664.3	135.4	18.2	15.8
Vehicles Entered	104	2	19	15	8	31	41	2406	6	8	2167	140
Vehicles Exited	101	2	18	15	8	31	42	2399	6	8	2163	141
Hourly Exit Rate	101	2	18	15	8	31	42	2399	6	8	2163	141

30: Gross Rd. & 41st Performance by movement

Movement	All
Total Delay (hr)	495.5
Delay / Veh (s)	361.1
Vehicles Entered	4947
Vehicles Exited	4934
Hourly Exit Rate	4934

33: NB Ramps & 41st Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBT	SBR	All
Total Delay (hr)	2.8	3.5	0.4	5.8	0.8	291.9	76.1	381.3
Delay / Veh (s)	13.7	13.9	5.6	15.3	6.1	1418.2	1397.8	292.7
Vehicles Entered	733	914	251	1362	497	745	197	4699
Vehicles Exited	731	912	250	1363	495	737	194	4682
Hourly Exit Rate	731	912	250	1363	495	737	194	4682

34: NB Ramps & Performance by movement

Movement	EBR	WBT	All
Total Delay (hr)	0.1	0.9	1.0
Delay / Veh (s)	0.7	1.7	1.5
Vehicles Entered	495	1897	2392
Vehicles Exited	494	1897	2391
Hourly Exit Rate	494	1897	2391

39: Int Performance by movement

Movement	WBT	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	4.4	4.4
Vehicles Entered	366	366
Vehicles Exited	366	366
Hourly Exit Rate	366	366



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40: Int Performance by movement

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Movement	WBT	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	8.2	8.2
Vehicles Entered	366	366
Vehicles Exited	366	366
Hourly Exit Rate	366	366

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Total Network Performance

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Total Delay (hr)	1632.2
Delay / Veh (s)	611.5
Vehicles Entered	9644
Vehicles Exited	9575
Hourly Exit Rate	9575

Intersection: 1: SB On & SB Ramps

Movement	EB	EB	EB
Directions Served	L	L	T
Maximum Queue (ft)	204	423	136
Average Queue (ft)	14	83	8
95th Queue (ft)	157	322	119
Link Distance (ft)	1355	1355	1355
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: NB Ramps & NB Off

Movement	SW
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	1
95th Queue (ft)	14
Link Distance (ft)	278
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: NB Ramps & NB Off

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 6: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	96
Average Queue (ft)	60
95th Queue (ft)	88
Link Distance (ft)	36
Upstream Blk Time (%)	23
Queuing Penalty (veh)	115
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	194
Average Queue (ft)	144
95th Queue (ft)	232
Link Distance (ft)	84
Upstream Blk Time (%)	41
Queuing Penalty (veh)	274
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: SB On &

Movement	EB
Directions Served	L
Maximum Queue (ft)	64
Average Queue (ft)	48
95th Queue (ft)	61
Link Distance (ft)	-4
Upstream Blk Time (%)	1
Queuing Penalty (veh)	3
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Int

Movement	WB
Directions Served	T
Maximum Queue (ft)	139
Average Queue (ft)	28
95th Queue (ft)	95
Link Distance (ft)	276
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: SB Off & 41st

Movement	EB	EB	EB	EB	EB	B53	NB	NB	NB	NB	SB	SB
Directions Served	L	T	T	R	R	T	T	T	R	R	L	T
Maximum Queue (ft)	234	406	456	249	235	68	412	404	412	379	406	362
Average Queue (ft)	164	191	186	150	129	3	365	358	302	246	247	162
95th Queue (ft)	252	327	345	247	226	52	401	385	409	377	423	318
Link Distance (ft)		496	496			817	332	332	332	332	453	453
Upstream Blk Time (%)		0	0				35	36	4	1	2	0
Queuing Penalty (veh)		0	0				296	305	33	9	13	0
Storage Bay Dist (ft)	200			200	200							
Storage Blk Time (%)	7	4	3	2	1							
Queuing Penalty (veh)	14	8	24	5	3							

Intersection: 13: SB Off & 41st

Movement	SB	SB
Directions Served	T	T
Maximum Queue (ft)	312	286
Average Queue (ft)	184	169
95th Queue (ft)	280	266
Link Distance (ft)	453	453
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	46
Average Queue (ft)	4
95th Queue (ft)	24
Link Distance (ft)	360
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Main & Porter/Bay

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	179	530	904	35	126	140	333	686	690
Average Queue (ft)	109	239	866	4	47	81	202	647	670
95th Queue (ft)	205	597	997	22	107	141	333	727	694
Link Distance (ft)	166		878		134	134		658	658
Upstream Blk Time (%)	23		90		0	2		26	47
Queuing Penalty (veh)	0		0		0	10		0	0
Storage Bay Dist (ft)		500		75			300		
Storage Blk Time (%)		7	94		3		2	32	
Queuing Penalty (veh)		17	175		0		10	70	

Intersection: 17: NB Ramps & Porter/Bay

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	TR
Maximum Queue (ft)	229	436	242	251	223	225	214	204
Average Queue (ft)	154	197	86	240	92	100	121	151
95th Queue (ft)	236	363	182	254	179	194	208	180
Link Distance (ft)		1444		221	221	221	134	134
Upstream Blk Time (%)				49	0	0	11	50
Queuing Penalty (veh)				209	1	1	79	370
Storage Bay Dist (ft)	200		400					
Storage Blk Time (%)	3	9						
Queuing Penalty (veh)	12	41						

Intersection: 18: SB Ramps & Porter/Bay

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	R	T	T	R	L	T	T
Maximum Queue (ft)	155	179	126	635	637	330	284	274	246
Average Queue (ft)	78	93	54	617	596	109	168	133	95
95th Queue (ft)	131	145	97	654	742	305	278	260	192
Link Distance (ft)	275	275	275	608	608		221	221	221
Upstream Blk Time (%)				51	31		4	1	0
Queuing Penalty (veh)				0	0		19	3	0
Storage Bay Dist (ft)						300			
Storage Blk Time (%)					10	0			
Queuing Penalty (veh)					35	0			

Intersection: 19: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	146	127
Average Queue (ft)	44	33
95th Queue (ft)	114	96
Link Distance (ft)	405	405
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: NB Ramps &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	107	106
Average Queue (ft)	98	92
95th Queue (ft)	122	121
Link Distance (ft)	50	50
Upstream Blk Time (%)	50	46
Queuing Penalty (veh)	267	247
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 23: NB Ramps &

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Movement	WB
Directions Served	L
Maximum Queue (ft)	66
Average Queue (ft)	55
95th Queue (ft)	69
Link Distance (ft)	-7
Upstream Blk Time (%)	20
Queuing Penalty (veh)	219
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 26: SB Off &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	73
Average Queue (ft)	69
95th Queue (ft)	74
Link Distance (ft)	11
Upstream Blk Time (%)	55
Queuing Penalty (veh)	563
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 28: SB Off &

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Movement	EB
Directions Served	L
Maximum Queue (ft)	65
Average Queue (ft)	56
95th Queue (ft)	71
Link Distance (ft)	-7
Upstream Blk Time (%)	3
Queuing Penalty (veh)	28
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: Gross Rd. & 41st

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	TR	L	T	T	TR
Maximum Queue (ft)	221	150	69	73	134	637	641	636	404	410	385	360
Average Queue (ft)	210	28	21	25	46	589	616	622	249	321	301	284
95th Queue (ft)	220	106	54	60	111	691	670	661	467	416	392	394
Link Distance (ft)	197		183	183		616	616	616	332	332	332	332
Upstream Blk Time (%)	94					14	22	27	5	8	3	3
Queuing Penalty (veh)	0					0	0	0	31	56	23	21
Storage Bay Dist (ft)		120			110							
Storage Blk Time (%)	94	0			5	46						
Queuing Penalty (veh)	42	0			48	24						

Intersection: 33: NB Ramps & 41st

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	T	R	T	T	T	R	T	TR
Maximum Queue (ft)	250	251	224	143	272	262	216	187	865	870
Average Queue (ft)	172	205	147	58	162	143	116	71	847	854
95th Queue (ft)	261	275	222	108	244	229	198	130	891	876
Link Distance (ft)	192	192	192	192	453	453	453	453	838	838
Upstream Blk Time (%)	4	7	1	0					24	67
Queuing Penalty (veh)	23	43	7	0					0	0
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 34: NB Ramps &

Movement	EB	WB	WB	WB	B41	B42
Directions Served	R	T	T	T	T	T
Maximum Queue (ft)	24	69	118	99	6	212
Average Queue (ft)	2	7	20	7	0	7
95th Queue (ft)	14	41	81	48	4	106
Link Distance (ft)	192	272	272	272	341	430
Upstream Blk Time (%)						0
Queuing Penalty (veh)						1
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						



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Intersection: 39: Int

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Movement	WB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	51
95th Queue (ft)	65
Link Distance (ft)	-2
Upstream Blk Time (%)	12
Queuing Penalty (veh)	58
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 40: Int

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Movement	WB
Directions Served	T
Maximum Queue (ft)	90
Average Queue (ft)	69
95th Queue (ft)	101
Link Distance (ft)	32
Upstream Blk Time (%)	43
Queuing Penalty (veh)	203
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 4060

21: NB On & Park Ave Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	423.7	199.7	7.0	2.0	26.6	3.2	662.2
Delay / Veh (s)	28782.3	18915.4	88.2	7.9	177.3	13.8	891.2
Vehicles Entered	74	41	283	919	554	837	2708
Vehicles Exited	34	36	287	924	529	832	2642
Hourly Exit Rate	34	36	287	924	529	832	2642

22: SB Off & Park Ave Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	221.4	149.6	5.3	1.1	19.3	2.2	398.8
Delay / Veh (s)	985.1	1112.4	50.1	7.4	152.3	70.2	520.2
Vehicles Entered	799	504	384	515	456	107	2765
Vehicles Exited	819	465	383	516	458	115	2756
Hourly Exit Rate	819	465	383	516	458	115	2756

24: Kennedy & Park Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	2.0	2.2	0.1	3.0	1.2	8.6	1.2	567.9	143.8	21.2	2.5	0.4
Delay / Veh (s)	49.4	56.7	37.7	110.4	110.4	96.9	4321.5	4700.2	4794.0	332.5	31.2	24.0
Vehicles Entered	145	140	6	97	37	316	1	437	109	230	290	59
Vehicles Exited	145	140	6	98	38	321	1	432	106	228	291	59
Hourly Exit Rate	145	140	6	98	38	321	1	432	106	228	291	59

24: Kennedy & Park Ave Performance by movement

Movement	All
Total Delay (hr)	754.1
Delay / Veh (s)	1454.9
Vehicles Entered	1867
Vehicles Exited	1865
Hourly Exit Rate	1865

116: NB On & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	10.4	40.3	50.7
Delay / Veh (s)	161.9	163.5	163.3
Vehicles Entered	232	886	1118
Vehicles Exited	232	885	1117
Hourly Exit Rate	232	885	1117

194: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.2	2.2
Vehicles Entered	843	843
Vehicles Exited	843	843
Hourly Exit Rate	843	843

197: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	4.4	4.4
Vehicles Entered	843	843
Vehicles Exited	843	843
Hourly Exit Rate	843	843

200: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.1	0.7	0.8
Delay / Veh (s)	2.2	2.9	2.8
Vehicles Entered	186	862	1048
Vehicles Exited	186	860	1046
Hourly Exit Rate	186	860	1046

202: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	1.1	1.1
Delay / Veh (s)	4.6	4.6
Vehicles Entered	823	823
Vehicles Exited	823	823
Hourly Exit Rate	823	823

209: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.2	2.2
Vehicles Entered	822	822
Vehicles Exited	822	822
Hourly Exit Rate	822	822

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Total Network Performance

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Total Delay (hr)	2468.0
Delay / Veh (s)	2148.2
Vehicles Entered	4177
Vehicles Exited	4095
Hourly Exit Rate	4095

Intersection: 1: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	508	480
Average Queue (ft)	300	239
95th Queue (ft)	576	542
Link Distance (ft)	467	467
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	7	3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bend

Movement	NE
Directions Served	T
Maximum Queue (ft)	34
Average Queue (ft)	1
95th Queue (ft)	24
Link Distance (ft)	315
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 21: NB On & Park Ave

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB	B1
Directions Served	L	L	R	R	L	T	T	T	T	R	R	T
Maximum Queue (ft)	333	1400	1383	113	370	252	214	532	546	449	165	612
Average Queue (ft)	305	1367	1241	10	293	60	29	449	468	334	74	394
95th Queue (ft)	336	1544	1684	58	403	167	129	574	616	581	138	853
Link Distance (ft)		1385	1385		334	334	334	467	467			586
Upstream Blk Time (%)		93	47		22	1	1	12	16	0		19
Queuing Penalty (veh)		0	0		165	8	5	0	0	0		0
Storage Bay Dist (ft)	300			300							400	400
Storage Blk Time (%)	78	76							25			
Queuing Penalty (veh)	324	317							276			

Queuing and Blocking Report  
 Year 2035 Buildout - PM Peak (Modified)

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Intersection: 22: SB Off & Park Ave

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	T	T
Maximum Queue (ft)	370	1560	1556	414	321	276	294	410	426	410
Average Queue (ft)	324	1504	1071	317	183	90	98	367	388	256
95th Queue (ft)	436	1753	2013	579	316	236	228	396	427	478
Link Distance (ft)		1528	1528		303	303	303	334	334	334
Upstream Blk Time (%)		31	17		6	1	1	76	66	8
Queuing Penalty (veh)		0	0		49	5	8	397	345	44
Storage Bay Dist (ft)	330			400						
Storage Blk Time (%)	24	37	44	22						
Queuing Penalty (veh)	145	225	167	85						

Intersection: 24: Kennedy & Park Ave

Movement	EB	EB	WB	B3	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	LTR	L	L	TR
Maximum Queue (ft)	161	236	392	407	1388	238	339	334
Average Queue (ft)	78	136	384	390	1371	217	302	172
95th Queue (ft)	143	208	392	401	1383	255	393	351
Link Distance (ft)		1421	315	373	1354		303	303
Upstream Blk Time (%)			75	76	69		62	5
Queuing Penalty (veh)			0	0	0		510	38
Storage Bay Dist (ft)	300					200		
Storage Blk Time (%)						81	74	
Queuing Penalty (veh)						282	257	

Intersection: 116: NB On &

Movement	WB	WB	B2	B2
Directions Served	T	T	T	T
Maximum Queue (ft)	51	56	10	11
Average Queue (ft)	8	8	0	0
95th Queue (ft)	33	35	5	6
Link Distance (ft)	-6	-6	281	281
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	1	1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 194: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	64	65
Average Queue (ft)	50	51
95th Queue (ft)	64	66
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	8	7
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 197: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	74	73
Average Queue (ft)	55	54
95th Queue (ft)	74	71
Link Distance (ft)	17	17
Upstream Blk Time (%)	31	28
Queuing Penalty (veh)	229	210
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 200: SB On &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	46	38
Average Queue (ft)	4	2
95th Queue (ft)	25	19
Link Distance (ft)	259	259
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 202: SB On &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	78	78
Average Queue (ft)	60	57
95th Queue (ft)	78	75
Link Distance (ft)	20	20
Upstream Blk Time (%)	26	32
Queuing Penalty (veh)	211	261
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 209: SB On &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	67	66
Average Queue (ft)	51	51
95th Queue (ft)	64	64
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	7	9
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 4606



21: NB On & Park Ave Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Total Delay (hr)	153.7	161.8	8.3	14.2	23.2	2.7	363.8
Delay / Veh (s)	2793.7	1879.1	101.4	48.8	292.3	13.9	462.5
Vehicles Entered	231	313	290	1050	302	699	2885
Vehicles Exited	166	307	296	1044	270	696	2779
Hourly Exit Rate	166	307	296	1044	270	696	2779

22: SB Off & Park Ave Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Total Delay (hr)	504.3	113.4	9.9	1.1	10.1	19.0	657.8
Delay / Veh (s)	2008.3	1798.3	80.6	19.6	341.5	211.5	1074.0
Vehicles Entered	907	226	445	204	110	325	2217
Vehicles Exited	902	227	437	203	103	322	2194
Hourly Exit Rate	902	227	437	203	103	322	2194

24: Kennedy & Park Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay (hr)	16.3	4.3	0.6	4.5	3.8	5.0	1.0	268.2	96.7	21.4	3.6	0.8
Delay / Veh (s)	275.2	272.4	500.6	119.5	122.0	113.3	1765.1	3387.3	3283.8	475.9	52.1	22.3
Vehicles Entered	217	57	4	134	111	159	2	289	107	168	249	133
Vehicles Exited	210	56	4	136	112	159	2	281	103	158	248	134
Hourly Exit Rate	210	56	4	136	112	159	2	281	103	158	248	134

24: Kennedy & Park Ave Performance by movement

Movement	All
Total Delay (hr)	426.1
Delay / Veh (s)	949.1
Vehicles Entered	1630
Vehicles Exited	1603
Hourly Exit Rate	1603

116: NB On & Performance by movement

Movement	WBL	WBT	All
Total Delay (hr)	4.1	33.1	37.3
Delay / Veh (s)	128.4	136.5	135.6
Vehicles Entered	116	874	990
Vehicles Exited	116	874	990
Hourly Exit Rate	116	874	990

194: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	0.6	0.6
Delay / Veh (s)	2.8	2.8
Vehicles Entered	831	831
Vehicles Exited	831	831
Hourly Exit Rate	831	831

197: NB On & Performance by movement

Movement	WBT	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	5.4	5.4
Vehicles Entered	831	831
Vehicles Exited	831	831
Hourly Exit Rate	831	831

200: SB On & Performance by movement

Movement	EBL	EBT	All
Total Delay (hr)	0.0	0.2	0.2
Delay / Veh (s)	2.0	2.2	2.1
Vehicles Entered	51	281	332
Vehicles Exited	51	280	331
Hourly Exit Rate	51	280	331

202: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	4.3	4.3
Vehicles Entered	268	268
Vehicles Exited	268	268
Hourly Exit Rate	268	268

209: SB On & Performance by movement

Movement	EBT	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.5	2.5
Vehicles Entered	268	268
Vehicles Exited	268	268
Hourly Exit Rate	268	268

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Total Network Performance

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Total Delay (hr)	2138.8
Delay / Veh (s)	2067.0
Vehicles Entered	3795
Vehicles Exited	3656
Hourly Exit Rate	3656

Intersection: 1: Bend

Movement	NB	NB
Directions Served	T	
Maximum Queue (ft)	557	566
Average Queue (ft)	446	452
95th Queue (ft)	725	740
Link Distance (ft)	467	467
Upstream Blk Time (%)	23	15
Queuing Penalty (veh)	322	215
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: NB On & Park Ave

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB	B1
Directions Served	L	L	R	R	L	T	T	T	T	R	R	T
Maximum Queue (ft)	336	1412	1410	338	371	363	392	521	539	447	170	608
Average Queue (ft)	286	1251	1175	169	316	328	329	335	347	194	66	260
95th Queue (ft)	382	1786	1813	412	400	421	446	590	627	472	145	742
Link Distance (ft)		1385	1385		334	334	334	467	467			586
Upstream Blk Time (%)		67	48		35	27	26	23	22	0		29
Queuing Penalty (veh)		0	0		332	260	243	0	0	0		0
Storage Bay Dist (ft)	300			300							400	400
Storage Blk Time (%)	57	68	23	12					34			
Queuing Penalty (veh)	146	175	82	43					313			

Intersection: 22: SB Off & Park Ave

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	R	T	T	R	L	T	T
Maximum Queue (ft)	370	1560	1411	145	333	313	304	390	399	429
Average Queue (ft)	347	1535	386	51	230	169	100	336	341	322
95th Queue (ft)	377	1651	1386	134	359	332	296	418	403	479
Link Distance (ft)		1528	1528		303	303	303	334	334	334
Upstream Blk Time (%)		45	2		21	11	3	63	53	46
Queuing Penalty (veh)		0	0		105	55	15	195	165	142
Storage Bay Dist (ft)	330			400						
Storage Blk Time (%)	26	48								
Queuing Penalty (veh)	235	427								

Intersection: 24: Kennedy & Park Ave

Movement	EB	EB	WB	B3	NB	SB	SB	SB
Directions Served	L	LTR	LTR	T	LTR	L	L	TR
Maximum Queue (ft)	303	622	395	405	1386	239	371	372
Average Queue (ft)	156	272	383	387	1368	219	310	181
95th Queue (ft)	297	901	395	404	1402	240	378	397
Link Distance (ft)		1421	315	373	1354		303	303
Upstream Blk Time (%)		8	77	78	78		57	13
Queuing Penalty (veh)		0	0	0	0		346	77
Storage Bay Dist (ft)	300					200		
Storage Blk Time (%)	14	13				82	76	
Queuing Penalty (veh)	25	15				167	155	

Intersection: 116: NB On &

Movement	WB	WB	B2	B2
Directions Served	T	T	T	T
Maximum Queue (ft)	65	68	54	58
Average Queue (ft)	20	19	6	5
95th Queue (ft)	59	58	32	33
Link Distance (ft)	-6	-6	281	281
Upstream Blk Time (%)	3	2		
Queuing Penalty (veh)	15	9		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 194: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	65	65
Average Queue (ft)	45	45
95th Queue (ft)	75	74
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	6	3
Queuing Penalty (veh)	46	25
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 197: NB On &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	74	73
Average Queue (ft)	57	54
95th Queue (ft)	95	90
Link Distance (ft)	17	17
Upstream Blk Time (%)	38	32
Queuing Penalty (veh)	274	231
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 200: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	5
Average Queue (ft)	0
95th Queue (ft)	5
Link Distance (ft)	259
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 202: SB On &

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	57	62
Average Queue (ft)	33	34
95th Queue (ft)	55	62
Link Distance (ft)	20	20
Upstream Blk Time (%)	7	11
Queuing Penalty (veh)	17	30
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 209: SB On &

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Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	59	64
Average Queue (ft)	37	41
95th Queue (ft)	65	70
Link Distance (ft)	-4	-4
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 4903

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4: Sea Ridge & McGregor Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	104.3	0.1	25.9	130.2
Delay / Veh (s)	12513.8	0.7	8620.5	995.3
Travel Time (hr)	104.5	0.8	25.9	131.2
Avg Speed (mph)	0	11	0	0
Vehicles Entered	50	436	7	493
Vehicles Exited	11	436	3	450
Hourly Exit Rate	11	436	3	450

6: NB ON Ramp & NB Off Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	245.6	245.7
Delay / Veh (s)	1.3	729.4	554.9
Travel Time (hr)	2.2	250.8	253.0
Avg Speed (mph)	20	5	6
Vehicles Entered	380	1225	1605
Vehicles Exited	384	1200	1584
Hourly Exit Rate	384	1200	1584

25: NB Off & State Park Performance by approach

Approach	NW	NE	SW	All
Total Delay (hr)	75.5	5.8	11.2	92.5
Delay / Veh (s)	225.3	26.1	26.3	94.1
Travel Time (hr)	80.9	6.7	12.8	100.3
Avg Speed (mph)	3	3	4	3
Vehicles Entered	1207	807	1534	3548
Vehicles Exited	1206	803	1522	3531
Hourly Exit Rate	1206	803	1522	3531

27: SB Ramps & State Park Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	231.3	7.3	9.1	247.8
Delay / Veh (s)	766.0	29.0	51.3	338.5
Travel Time (hr)	243.8	9.0	11.0	263.9
Avg Speed (mph)	5	4	5	5
Vehicles Entered	1121	908	637	2666
Vehicles Exited	1054	906	644	2604
Hourly Exit Rate	1054	906	644	2604



28: Sea Ridge & State Park Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	22.2	1.7	89.9	0.9	114.7
Delay / Veh (s)	5712.9	759.8	310.7	2.4	176.7
Travel Time (hr)	22.2	1.7	98.7	3.7	126.3
Avg Speed (mph)	0	0	7	16	7
Vehicles Entered	15	8	1055	1272	2350
Vehicles Exited	14	8	1029	1272	2323
Hourly Exit Rate	14	8	1029	1272	2323

29: Soquel & State Park Performance by approach

Approach	SB	NW	NE	SW	All
Total Delay (hr)	133.3	101.2	7.1	184.3	425.9
Delay / Veh (s)	373.4	259.7	22.2	3997.8	383.1
Travel Time (hr)	143.0	110.7	8.5	185.7	447.8
Avg Speed (mph)	8	5	3	1	4
Vehicles Entered	1290	1414	1145	184	4033
Vehicles Exited	1281	1392	1149	149	3971
Hourly Exit Rate	1281	1392	1149	149	3971

132: SB On & State Park Performance by approach

Approach	NB	SB	All
Total Delay (hr)	18.5	7.7	26.3
Delay / Veh (s)	77.5	21.0	43.2
Travel Time (hr)	21.6	13.5	35.1
Avg Speed (mph)	4	12	7
Vehicles Entered	869	1323	2192
Vehicles Exited	852	1334	2186
Hourly Exit Rate	852	1334	2186

133: NB On & State Park Performance by approach

Approach	NE	SW	All
Total Delay (hr)	19.1	0.7	19.8
Delay / Veh (s)	82.9	1.2	25.4
Travel Time (hr)	20.0	2.6	22.6
Avg Speed (mph)	4	15	7
Vehicles Entered	833	1979	2812
Vehicles Exited	827	1975	2802
Hourly Exit Rate	827	1975	2802

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212: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	1.3	1.3
Travel Time (hr)	3.0	3.0
Avg Speed (mph)	15	15
Vehicles Entered	513	513
Vehicles Exited	512	512
Hourly Exit Rate	512	512

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218: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	8.5	8.5
Travel Time (hr)	1.6	1.6
Avg Speed (mph)	11	11
Vehicles Entered	397	397
Vehicles Exited	397	397
Hourly Exit Rate	397	397

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221: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	7	7
Vehicles Entered	397	397
Vehicles Exited	397	397
Hourly Exit Rate	397	397

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226: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.7	1.7
Travel Time (hr)	3.5	3.5
Avg Speed (mph)	16	16
Vehicles Entered	727	727
Vehicles Exited	731	731
Hourly Exit Rate	731	731

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229: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.4	2.4
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	615	615
Vehicles Exited	616	616
Hourly Exit Rate	616	616

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233: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	2.2	2.2
Delay / Veh (s)	12.7	12.7
Travel Time (hr)	3.2	3.2
Avg Speed (mph)	9	9
Vehicles Entered	613	613
Vehicles Exited	616	616
Hourly Exit Rate	616	616

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235: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	7.0	7.0
Travel Time (hr)	2.6	2.6
Avg Speed (mph)	17	17
Vehicles Entered	372	372
Vehicles Exited	373	373
Hourly Exit Rate	373	373

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238: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	4.6	4.6
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	3	3
Vehicles Entered	326	326
Vehicles Exited	326	326
Hourly Exit Rate	326	326

240: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	9.8	9.8
Travel Time (hr)	1.1	1.1
Avg Speed (mph)	6	6
Vehicles Entered	328	328
Vehicles Exited	327	327
Hourly Exit Rate	327	327

245: SB On & Performance by approach

Approach	NB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	3.6	3.6
Travel Time (hr)	3.8	3.8
Avg Speed (mph)	16	16
Vehicles Entered	727	727
Vehicles Exited	727	727
Hourly Exit Rate	727	727

248: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	6	6
Vehicles Entered	560	560
Vehicles Exited	560	560
Hourly Exit Rate	560	560

250: SB On & Performance by approach

Approach	EB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	6.5	6.5
Travel Time (hr)	1.9	1.9
Avg Speed (mph)	6	6
Vehicles Entered	561	561
Vehicles Exited	560	560
Hourly Exit Rate	560	560

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Total Network Performance

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Total Delay (hr)	1536.7
Delay / Veh (s)	835.7
Travel Time (hr)	1672.7
Avg Speed (mph)	5
Vehicles Entered	6768
Vehicles Exited	6472
Hourly Exit Rate	6472

Intersection: 4: Sea Ridge & McGregor

Movement	EB	WB	SB	B8
Directions Served	LT	TR	LR	T
Maximum Queue (ft)	1159	12	569	651
Average Queue (ft)	1061	1	556	620
95th Queue (ft)	1395	8	571	751
Link Distance (ft)	1138	75	507	637
Upstream Blk Time (%)	79		99	92
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NB ON Ramp & NB Off

Movement	SE	NW	NW
Directions Served	R	T	T
Maximum Queue (ft)	36	687	692
Average Queue (ft)	3	619	661
95th Queue (ft)	19	834	814
Link Distance (ft)	566	664	664
Upstream Blk Time (%)		17	52
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: NB Off & State Park

Movement	NW	NW	NW	NE	NE	SW	SW	SW	B3	B3
Directions Served	L	LR	R	T	TR	T	T	T	T	T
Maximum Queue (ft)	628	626	559	137	142	190	191	194	109	167
Average Queue (ft)	574	621	553	112	131	185	130	162	97	110
95th Queue (ft)	718	643	589	167	140	196	194	226	107	146
Link Distance (ft)	566	566		16	16	117	117	117	82	82
Upstream Blk Time (%)	33	57	6	51	68	43	22	34	34	34
Queuing Penalty (veh)	278	479	0	367	494	270	138	213	319	316
Storage Bay Dist (ft)			600							
Storage Blk Time (%)		57	6							
Queuing Penalty (veh)		295	47							

Intersection: 27: SB Ramps & State Park

Movement	EB	EB	EB	EB	NB	NB	SB	SB
Directions Served	<	<	R	R	T	T	T	T
Maximum Queue (ft)	164	1697	1685	338	169	172	424	403
Average Queue (ft)	130	1413	1217	95	118	130	295	165
95th Queue (ft)	181	2162	2150	318	199	210	507	417
Link Distance (ft)		1663	1663		150	150	348	348
Upstream Blk Time (%)		46	13		17	31	23	3
Queuing Penalty (veh)		0	0		85	160	98	13
Storage Bay Dist (ft)	120			300				
Storage Blk Time (%)	33	71	9	1				
Queuing Penalty (veh)	115	249	39	4				

Intersection: 28: Sea Ridge & State Park

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LR	LTR	LT	TR	LT	R
Maximum Queue (ft)	102	93	240	1317	187	63
Average Queue (ft)	81	40	181	984	38	8
95th Queue (ft)	95	112	275	1805	144	46
Link Distance (ft)	75	238		1285	150	150
Upstream Blk Time (%)	99			29	3	
Queuing Penalty (veh)	548			0	28	
Storage Bay Dist (ft)			200			
Storage Blk Time (%)			21	26		
Queuing Penalty (veh)			111	174		

Intersection: 29: Soquel & State Park

Movement	SB	SB	SB	SB	SB	NW	NW	NW	NW	NE	NE	NE
Directions Served	<	L	L	R	R	L	L	R	R>	L	LT	R
Maximum Queue (ft)	227	889	1017	253	239	586	599	938	892	157	154	157
Average Queue (ft)	120	266	408	209	196	460	485	613	491	142	143	82
95th Queue (ft)	213	628	883	282	268	693	708	1076	880	171	163	162
Link Distance (ft)		1044	1044					916	916	82	82	82
Upstream Blk Time (%)		0	1					12	1	48	55	6
Queuing Penalty (veh)		0	0					0	0	297	337	36
Storage Bay Dist (ft)	200			200	200	550	550					
Storage Blk Time (%)	3	4	2	19	19	11	28	4				
Queuing Penalty (veh)	8	6	17	47	47	49	124	25				

Intersection: 29: Soquel & State Park

Movement	B3	B3	B3	SW	SW
Directions Served	T	T	T	L	TR
Maximum Queue (ft)	143	167	157	227	1266
Average Queue (ft)	99	111	49	37	1217
95th Queue (ft)	162	167	145	152	1414
Link Distance (ft)	117	117	117		1232
Upstream Blk Time (%)	13	18	1		84
Queuing Penalty (veh)	83	113	7		0
Storage Bay Dist (ft)				200	
Storage Blk Time (%)					91
Queuing Penalty (veh)					45

Intersection: 132: SB On & State Park

Movement	NB	NB	SB	SB	B26	B26
Directions Served	T	T	T	TR	T	T
Maximum Queue (ft)	488	429	639	641	189	178
Average Queue (ft)	370	353	163	152	34	33
95th Queue (ft)	564	503	560	546	157	151
Link Distance (ft)	348	348	570	570	107	107
Upstream Blk Time (%)	33	48	6	7	7	6
Queuing Penalty (veh)	240	345	53	59	57	50
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						



Intersection: 133: NB On & State Park

Movement	NE	NE	B26	B26	SW	SW	SW
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	183	187	661	653	37	32	2
Average Queue (ft)	74	178	612	626	5	3	0
95th Queue (ft)	189	190	783	718	26	21	2
Link Distance (ft)	107	107	570	570	16	16	16
Upstream Blk Time (%)	10	67	29	63	5	3	0
Queuing Penalty (veh)	75	484	209	454	44	31	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 212: SB Ramps &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 218: SB Ramps &

Movement	EB
Directions Served	T
Maximum Queue (ft)	143
Average Queue (ft)	65
95th Queue (ft)	113
Link Distance (ft)	182
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 221: SB Ramps &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	49
95th Queue (ft)	68
Link Distance (ft)	-3
Upstream Blk Time (%)	1
Queuing Penalty (veh)	8
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 226: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	20
Link Distance (ft)	323
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 229: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	52
95th Queue (ft)	67
Link Distance (ft)	-5
Upstream Blk Time (%)	5
Queuing Penalty (veh)	43
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 233: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	249
Average Queue (ft)	125
95th Queue (ft)	218
Link Distance (ft)	209
Upstream Blk Time (%)	1
Queuing Penalty (veh)	11
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 235: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	9	191
Average Queue (ft)	0	53
95th Queue (ft)	5	146
Link Distance (ft)	598	598
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 238: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	41
95th Queue (ft)	57
Link Distance (ft)	-9
Upstream Blk Time (%)	12
Queuing Penalty (veh)	70
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 240: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	80
Average Queue (ft)	65
95th Queue (ft)	93
Link Distance (ft)	70
Upstream Blk Time (%)	9
Queuing Penalty (veh)	51
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 245: SB On &

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Movement	NB
Directions Served	>
Maximum Queue (ft)	232
Average Queue (ft)	36
95th Queue (ft)	143
Link Distance (ft)	413
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 248: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	61
Average Queue (ft)	47
95th Queue (ft)	62
Link Distance (ft)	-9
Upstream Blk Time (%)	3
Queuing Penalty (veh)	18
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 250: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	129
Average Queue (ft)	100
95th Queue (ft)	148
Link Distance (ft)	69
Upstream Blk Time (%)	26
Queuing Penalty (veh)	186
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 8575

4: Sea Ridge & McGregor Performance by approach

Approach	EB	WB	SB	All
Total Delay (hr)	4.7	0.2	25.5	30.5
Delay / Veh (s)	569.3	1.1	6131.5	126.9
Travel Time (hr)	5.0	1.6	25.6	32.2
Avg Speed (mph)	1	11	0	1
Vehicles Entered	34	821	16	871
Vehicles Exited	26	821	14	861
Hourly Exit Rate	26	821	14	861

6: NB ON Ramp & NB Off Performance by approach

Approach	SE	NW	All
Total Delay (hr)	0.1	125.5	125.6
Delay / Veh (s)	1.1	411.4	288.4
Travel Time (hr)	2.7	130.3	133.0
Avg Speed (mph)	20	3	4
Vehicles Entered	468	1119	1587
Vehicles Exited	472	1077	1549
Hourly Exit Rate	472	1077	1549

25: NB Off & State Park Performance by approach

Approach	NW	NE	SW	All
Total Delay (hr)	50.5	5.4	7.7	63.6
Delay / Veh (s)	164.1	16.5	17.0	58.5
Travel Time (hr)	55.4	6.6	9.5	71.4
Avg Speed (mph)	3	4	6	3
Vehicles Entered	1113	1182	1634	3929
Vehicles Exited	1106	1177	1624	3907
Hourly Exit Rate	1106	1177	1624	3907

27: SB Ramps & State Park Performance by approach

Approach	EB	NB	SB	All
Total Delay (hr)	197.8	3.4	13.4	214.7
Delay / Veh (s)	454.5	10.0	57.4	212.9
Travel Time (hr)	215.9	5.7	15.9	237.5
Avg Speed (mph)	6	9	5	6
Vehicles Entered	1603	1219	838	3660
Vehicles Exited	1531	1222	848	3601
Hourly Exit Rate	1531	1222	848	3601

28: Sea Ridge & State Park Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	16.6	1.8	6.3	1.4	26.0
Delay / Veh (s)	1655.9	440.9	18.5	2.8	31.1
Travel Time (hr)	16.6	1.9	16.6	5.3	40.4
Avg Speed (mph)	0	0	19	15	14
Vehicles Entered	37	16	1224	1737	3014
Vehicles Exited	36	14	1221	1737	3008
Hourly Exit Rate	36	14	1221	1737	3008

29: Soquel & State Park Performance by approach

Approach	SB	NW	NE	SW	All
Total Delay (hr)	287.3	142.7	7.1	170.4	607.5
Delay / Veh (s)	721.8	333.2	23.3	3809.7	515.7
Travel Time (hr)	298.1	153.0	8.5	171.6	631.3
Avg Speed (mph)	9	7	3	1	5
Vehicles Entered	1441	1549	1107	177	4274
Vehicles Exited	1426	1536	1102	145	4209
Hourly Exit Rate	1426	1536	1102	145	4209

132: SB On & State Park Performance by approach

Approach	NB	SB	All
Total Delay (hr)	5.6	10.2	15.8
Delay / Veh (s)	16.6	22.5	20.0
Travel Time (hr)	10.1	17.2	27.3
Avg Speed (mph)	11	11	11
Vehicles Entered	1218	1637	2855
Vehicles Exited	1213	1637	2850
Hourly Exit Rate	1213	1637	2850

133: NB On & State Park Performance by approach

Approach	NE	SW	All
Total Delay (hr)	13.1	0.7	13.8
Delay / Veh (s)	39.3	1.1	14.2
Travel Time (hr)	14.4	3.0	17.4
Avg Speed (mph)	5	15	8
Vehicles Entered	1207	2310	3517
Vehicles Exited	1203	2306	3509
Hourly Exit Rate	1203	2306	3509

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212: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.3	1.3
Travel Time (hr)	4.1	4.1
Avg Speed (mph)	15	15
Vehicles Entered	696	696
Vehicles Exited	696	696
Hourly Exit Rate	696	696

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218: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	8.4	8.4
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	12	12
Vehicles Entered	515	515
Vehicles Exited	515	515
Hourly Exit Rate	515	515

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221: SB Ramps & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	7	7
Vehicles Entered	515	515
Vehicles Exited	515	515
Hourly Exit Rate	515	515

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226: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	1.3	1.3
Travel Time (hr)	3.6	3.6
Avg Speed (mph)	16	16
Vehicles Entered	747	747
Vehicles Exited	748	748
Hourly Exit Rate	748	748



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229: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.4	2.4
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	572	572
Vehicles Exited	572	572
Hourly Exit Rate	572	572

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233: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.6	1.6
Delay / Veh (s)	9.9	9.9
Travel Time (hr)	2.5	2.5
Avg Speed (mph)	11	11
Vehicles Entered	569	569
Vehicles Exited	571	571
Hourly Exit Rate	571	571

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235: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	5.2	5.2
Travel Time (hr)	3.0	3.0
Avg Speed (mph)	18	18
Vehicles Entered	455	455
Vehicles Exited	458	458
Hourly Exit Rate	458	458

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238: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	4.4	4.4
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	3	3
Vehicles Entered	362	362
Vehicles Exited	362	362
Hourly Exit Rate	362	362

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240: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.9	0.9
Delay / Veh (s)	9.2	9.2
Travel Time (hr)	1.2	1.2
Avg Speed (mph)	7	7
Vehicles Entered	363	363
Vehicles Exited	362	362
Hourly Exit Rate	362	362

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245: SB On & Performance by approach

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Approach	NB	All
Total Delay (hr)	1.5	1.5
Delay / Veh (s)	6.4	6.4
Travel Time (hr)	4.8	4.8
Avg Speed (mph)	13	13
Vehicles Entered	827	827
Vehicles Exited	826	826
Hourly Exit Rate	826	826

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248: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.1	2.1
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	6	6
Vehicles Entered	665	665
Vehicles Exited	665	665
Hourly Exit Rate	665	665

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250: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.4	1.4
Delay / Veh (s)	7.5	7.5
Travel Time (hr)	2.3	2.3
Avg Speed (mph)	6	6
Vehicles Entered	667	667
Vehicles Exited	665	665
Hourly Exit Rate	665	665

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Total Network Performance

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Total Delay (hr)	1343.4
Delay / Veh (s)	645.5
Travel Time (hr)	1501.9
Avg Speed (mph)	7
Vehicles Entered	7621
Vehicles Exited	7363
Hourly Exit Rate	7363

Intersection: 4: Sea Ridge & McGregor

Movement	EB	WB	SB	B8
Directions Served	LT	TR	LR	T
Maximum Queue (ft)	284	70	577	654
Average Queue (ft)	124	4	559	624
95th Queue (ft)	311	30	576	720
Link Distance (ft)	1138	75	507	637
Upstream Blk Time (%)		0	100	93
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NB ON Ramp & NB Off

Movement	SE	NW	NW
Directions Served	R	T	T
Maximum Queue (ft)	34	692	688
Average Queue (ft)	3	593	594
95th Queue (ft)	19	912	910
Link Distance (ft)	566	664	664
Upstream Blk Time (%)		49	53
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: NB Off & State Park

Movement	NW	NW	NW	NE	NE	SW	SW	SW	B3	B3
Directions Served	L	LR	R	T	TR	T	T	T	T	T
Maximum Queue (ft)	629	631	559	138	141	192	191	190	108	174
Average Queue (ft)	616	613	502	122	131	186	144	145	95	108
95th Queue (ft)	673	677	687	160	140	198	205	221	114	155
Link Distance (ft)	566	566		16	16	117	117	117	82	82
Upstream Blk Time (%)	61	51	2	52	53	35	22	22	27	24
Queuing Penalty (veh)	411	348	0	394	404	253	158	156	286	256
Storage Bay Dist (ft)			600							
Storage Blk Time (%)		51	2							
Queuing Penalty (veh)		123	11							

Intersection: 27: SB Ramps & State Park

Movement	EB	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	<	<	R	R	T	T	R	T	T
Maximum Queue (ft)	161	1695	1696	339	170	171	23	426	415
Average Queue (ft)	133	1513	1469	173	88	92	1	352	266
95th Queue (ft)	167	2100	2155	379	170	184	22	513	475
Link Distance (ft)		1663	1663		150	150	150	351	351
Upstream Blk Time (%)		29	21		3	6	0	28	8
Queuing Penalty (veh)		0	0		16	32	0	162	47
Storage Bay Dist (ft)	120			300					
Storage Blk Time (%)	39	59	11	3					
Queuing Penalty (veh)	157	234	59	19					

Intersection: 28: Sea Ridge & State Park

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LR	LTR	LT	TR	LT	R
Maximum Queue (ft)	101	126	213	812	192	155
Average Queue (ft)	81	48	77	112	46	22
95th Queue (ft)	95	140	179	517	164	96
Link Distance (ft)	75	238		1285	150	150
Upstream Blk Time (%)	95	0		1	4	0
Queuing Penalty (veh)	437	0		0	41	1
Storage Bay Dist (ft)			200			
Storage Blk Time (%)			2	2		
Queuing Penalty (veh)			14	15		

Queuing and Blocking Report  
 Year 2035 Buildout - PM Peak (Modified)

4/19/2010

Intersection: 29: Soquel & State Park

Movement	SB	SB	SB	SB	SB	NW	NW	NW	NW	NE	NE	NE
Directions Served	<	L	L	R	R	L	L	R	R>	L	LT	R
Maximum Queue (ft)	142	832	1001	254	243	579	594	936	851	161	158	156
Average Queue (ft)	32	314	432	223	205	425	446	415	323	146	143	84
95th Queue (ft)	97	647	871	275	262	646	662	892	695	167	164	157
Link Distance (ft)		1044	1044					916	916	82	82	82
Upstream Blk Time (%)		0	1					3	0	50	51	7
Queuing Penalty (veh)		0	0					0	0	238	244	33
Storage Bay Dist (ft)	200			200	200	550	550					
Storage Blk Time (%)		12	7	20	16	5	12	2				
Queuing Penalty (veh)		5	73	80	66	21	54	14				

Intersection: 29: Soquel & State Park

Movement	B3	B3	B3	SW	SW
Directions Served	T	T	T	L	TR
Maximum Queue (ft)	144	187	141	234	1265
Average Queue (ft)	99	106	51	68	1217
95th Queue (ft)	166	174	138	210	1397
Link Distance (ft)	117	117	117		1232
Upstream Blk Time (%)	13	10	1		82
Queuing Penalty (veh)	64	48	4		0
Storage Bay Dist (ft)				200	
Storage Blk Time (%)				0	92
Queuing Penalty (veh)				1	86

Intersection: 132: SB On & State Park

Movement	NB	NB	SB	SB	B26	B26
Directions Served	T	T	T	TR	T	T
Maximum Queue (ft)	433	392	641	642	223	225
Average Queue (ft)	145	164	236	227	48	45
95th Queue (ft)	424	430	656	662	187	177
Link Distance (ft)	351	351	568	568	107	107
Upstream Blk Time (%)	5	8	7	8	8	7
Queuing Penalty (veh)	40	62	78	83	83	76
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 133: NB On & State Park

Movement	NE	NE	B26	B26	SW	SW	SW
Directions Served	T	T	T	T	T	T	R
Maximum Queue (ft)	185	186	647	652	65	48	4
Average Queue (ft)	108	174	421	509	6	5	0
95th Queue (ft)	223	210	853	819	36	26	4
Link Distance (ft)	107	107	568	568	16	16	16
Upstream Blk Time (%)	18	48	13	26	6	4	0
Queuing Penalty (veh)	137	366	97	196	58	44	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 212: SB Ramps &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 218: SB Ramps &

Movement	EB
Directions Served	T
Maximum Queue (ft)	131
Average Queue (ft)	70
95th Queue (ft)	110
Link Distance (ft)	182
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 221: SB Ramps &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	52
95th Queue (ft)	67
Link Distance (ft)	-3
Upstream Blk Time (%)	2
Queuing Penalty (veh)	11
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 226: NB On &

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Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 229: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	64
Average Queue (ft)	51
95th Queue (ft)	65
Link Distance (ft)	-5
Upstream Blk Time (%)	4
Queuing Penalty (veh)	27
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	



Intersection: 233: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	197
Average Queue (ft)	86
95th Queue (ft)	149
Link Distance (ft)	209
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 235: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	18	168
Average Queue (ft)	1	42
95th Queue (ft)	9	121
Link Distance (ft)	598	598
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 238: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	44
95th Queue (ft)	58
Link Distance (ft)	-9
Upstream Blk Time (%)	12
Queuing Penalty (veh)	55
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 240: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	77
Average Queue (ft)	65
95th Queue (ft)	87
Link Distance (ft)	70
Upstream Blk Time (%)	8
Queuing Penalty (veh)	37
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 245: SB On &

Movement	NB	NB
Directions Served	R	>
Maximum Queue (ft)	37	334
Average Queue (ft)	2	78
95th Queue (ft)	53	243
Link Distance (ft)	380	380
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 248: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	59
Average Queue (ft)	47
95th Queue (ft)	62
Link Distance (ft)	-9
Upstream Blk Time (%)	3
Queuing Penalty (veh)	30
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 250: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	125
Average Queue (ft)	106
95th Queue (ft)	143
Link Distance (ft)	70
Upstream Blk Time (%)	42
Queuing Penalty (veh)	372
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Network Summary

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Network wide Queuing Penalty: 6916

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	6:55	6:55	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	4317	4352	4282	3522	4353	4372	4427	4226
Vehs Exited	4175	4164	4120	3295	4205	4162	4259	4050
Starting Vehs	247	244	237	216	239	221	244	253
Ending Vehs	389	432	399	443	387	431	412	429
Denied Entry Before	13	4	7	4	8	2	13	23
Denied Entry After	1264	1289	1446	2247	1412	1288	1309	1710
Travel Distance (mi)	2080	2074	2046	1642	2082	2091	2102	2012
Travel Time (hr)	1010.1	965.0	1074.3	1345.8	1068.0	941.3	973.4	1148.0
Total Delay (hr)	931.7	886.9	996.9	1283.5	989.4	862.3	894.0	1071.9
Total Stops	15298	15983	15245	12416	15802	13654	15146	14421
Fuel Used (gal)	761.1	727.0	790.8	920.2	795.3	722.7	747.2	838.2

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	4317	4352	4282	3522	4353	4372	4427	4226
Vehs Exited	4175	4164	4120	3295	4205	4162	4259	4050
Starting Vehs	247	244	237	216	239	221	244	253
Ending Vehs	389	432	399	443	387	431	412	429
Denied Entry Before	13	4	7	4	8	2	13	23
Denied Entry After	1264	1289	1446	2247	1412	1288	1309	1710
Travel Distance (mi)	2080	2074	2046	1642	2082	2091	2102	2012
Travel Time (hr)	1010.1	965.0	1074.3	1345.8	1068.0	941.3	973.4	1148.0
Total Delay (hr)	931.7	886.9	996.9	1283.5	989.4	862.3	894.0	1071.9
Total Stops	15298	15983	15245	12416	15802	13654	15146	14421
Fuel Used (gal)	761.1	727.0	790.8	920.2	795.3	722.7	747.2	838.2

Intersection: 30: Rio Del Mar & NB On

Movement	NB	NB	NB	SB	SB	SB	NW	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R	R
Maximum Queue (ft)	563	605	571	365	364	136	283	1259	1252	379
Average Queue (ft)	449	369	366	237	220	72	256	1213	698	87
95th Queue (ft)	664	631	638	385	407	148	285	1414	1489	333
Link Distance (ft)	500	500	500	316	316			1230	1230	
Upstream Blk Time (%)	16	9	16	10	13			57	8	
Queuing Penalty (veh)	82	46	79	46	60			0	0	
Storage Bay Dist (ft)						100	240			344
Storage Blk Time (%)					28	2	72	52	14	0
Queuing Penalty (veh)					55	6	226	164	59	0

Intersection: 31: SB On & Rio Del Mar

Movement	EB	EB	EB	EB	NE	NE	NE	B4	B4	B4	B5	B5
Directions Served	L	L	R	R	T	T	R	T	T	T	T	T
Maximum Queue (ft)	527	879	253	170	175	171	167	157	139	150	1356	1357
Average Queue (ft)	355	556	162	65	165	119	95	145	38	29	1188	1188
95th Queue (ft)	590	1091	315	132	177	197	189	165	120	112	1684	1758
Link Distance (ft)		937			96	96	96	78	78	78	1323	1323
Upstream Blk Time (%)		10			70	28	11	70	9	2	27	42
Queuing Penalty (veh)		0			0	0	0	0	0	0	0	0
Storage Bay Dist (ft)	500		200	200								
Storage Blk Time (%)	2	46	0	0								
Queuing Penalty (veh)	11	283	0	0								

Intersection: 31: SB On & Rio Del Mar

Movement	SW	SW	SW
Directions Served	L	T	T
Maximum Queue (ft)	332	519	433
Average Queue (ft)	229	147	78
95th Queue (ft)	386	464	301
Link Distance (ft)		500	500
Upstream Blk Time (%)		3	0
Queuing Penalty (veh)		21	2
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	12	0	
Queuing Penalty (veh)	46	1	

Intersection: 32: Soquel & Rio Del Mar

Movement	EB	EB	B6	WB	NB	NB	NB	SB	B1
Directions Served	LT	R	T	LTR	L	T	R	LTR	T
Maximum Queue (ft)	552	193	504	933	418	410	308	342	775
Average Queue (ft)	515	143	426	911	348	345	113	311	357
95th Queue (ft)	668	258	674	969	415	473	257	397	897
Link Distance (ft)	472		474	900	316	316	316	265	913
Upstream Blk Time (%)	61		56	77	35	26	0	66	9
Queuing Penalty (veh)	0		0	0	181	132	1	0	0
Storage Bay Dist (ft)		150							
Storage Blk Time (%)	56	11							
Queuing Penalty (veh)	252	29							

Intersection: 119: NB On &

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	14	165
Average Queue (ft)	0	122
95th Queue (ft)	14	183
Link Distance (ft)	151	151
Upstream Blk Time (%)	0	1
Queuing Penalty (veh)	0	7
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 120: SB On &

Movement	EB	EB	B3	B3
Directions Served	L	T	T	T
Maximum Queue (ft)	221	275	28	36
Average Queue (ft)	13	90	2	2
95th Queue (ft)	110	216	21	22
Link Distance (ft)	241	241	77	77
Upstream Blk Time (%)	0	1	0	0
Queuing Penalty (veh)	2	6	1	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

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Intersection: 254: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	91
Average Queue (ft)	84
95th Queue (ft)	106
Link Distance (ft)	31
Upstream Blk Time (%)	61
Queuing Penalty (veh)	533
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 256: SB On &

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Movement	EB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	54
95th Queue (ft)	69
Link Distance (ft)	-3
Upstream Blk Time (%)	4
Queuing Penalty (veh)	38
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 264: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	55
Average Queue (ft)	43
95th Queue (ft)	58
Link Distance (ft)	-13
Upstream Blk Time (%)	2
Queuing Penalty (veh)	17
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

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Intersection: 266: NB On &

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Movement	WB
Directions Served	T
Maximum Queue (ft)	105
Average Queue (ft)	103
95th Queue (ft)	120
Link Distance (ft)	46
Upstream Blk Time (%)	58
Queuing Penalty (veh)	515
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

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Network wide Queuing Penalty: 2900



30: Rio Del Mar & NB On Performance by approach

Approach	NB	SB	NW	All
Total Delay (hr)	27.9	8.0	379.5	415.4
Delay / Veh (s)	82.2	45.0	1703.4	560.3
Travel Time (hr)	33.3	10.0	386.3	429.6
Avg Speed (mph)	4	4	3	3
Vehicles Entered	1230	647	811	2688
Vehicles Exited	1215	642	793	2650
Hourly Exit Rate	1215	642	793	2650

31: SB On & Rio Del Mar Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	35.4	9.3	6.6	51.3
Delay / Veh (s)	151.3	30.8	27.4	66.0
Travel Time (hr)	41.2	11.0	10.4	62.6
Avg Speed (mph)	5	3	9	6
Vehicles Entered	849	1083	872	2804
Vehicles Exited	836	1085	870	2791
Hourly Exit Rate	836	1085	870	2791

32: Soquel & Rio Del Mar Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	16.9	165.8	13.0	10.6	206.4
Delay / Veh (s)	109.3	1750.2	42.8	143.4	328.6
Travel Time (hr)	19.2	167.9	16.6	11.3	214.9
Avg Speed (mph)	3	2	5	1	3
Vehicles Entered	561	351	1085	271	2268
Vehicles Exited	556	332	1103	263	2254
Hourly Exit Rate	556	332	1103	263	2254

119: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	1.5	1.5
Delay / Veh (s)	7.2	7.2
Travel Time (hr)	3.1	3.1
Avg Speed (mph)	10	10
Vehicles Entered	737	737
Vehicles Exited	738	738
Hourly Exit Rate	738	738

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120: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	2.1	2.1
Delay / Veh (s)	8.8	8.8
Travel Time (hr)	3.6	3.6
Avg Speed (mph)	13	13
Vehicles Entered	837	837
Vehicles Exited	836	836
Hourly Exit Rate	836	836

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254: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.3	1.3
Delay / Veh (s)	7.2	7.2
Travel Time (hr)	1.6	1.6
Avg Speed (mph)	6	6
Vehicles Entered	622	622
Vehicles Exited	622	622
Hourly Exit Rate	622	622

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256: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.3	2.3
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	7	7
Vehicles Entered	622	622
Vehicles Exited	621	621
Hourly Exit Rate	621	621

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264: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.0	2.0
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	6	6
Vehicles Entered	636	636
Vehicles Exited	636	636
Hourly Exit Rate	636	636

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266: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	1.6	1.6
Delay / Veh (s)	9.0	9.0
Travel Time (hr)	2.0	2.0
Avg Speed (mph)	5	5
Vehicles Entered	634	634
Vehicles Exited	635	635
Hourly Exit Rate	635	635

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Total Network Performance

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Total Delay (hr)	988.0
Delay / Veh (s)	853.2
Travel Time (hr)	1064.6
Avg Speed (mph)	5
Vehicles Entered	4261
Vehicles Exited	4078
Hourly Exit Rate	4078

Summary of All Intervals

Run Number	1	10	2	3	4	5	6	7
Start Time	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	65	65	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1	1	1
Vehs Entered	3325	2731	3930	3380	3402	3960	3116	2802
Vehs Exited	3260	2667	3817	3284	3332	3854	3037	2728
Starting Vehs	312	306	273	289	312	292	289	312
Ending Vehs	377	370	386	385	382	398	368	386
Denied Entry Before	24	63	17	26	17	22	26	14
Denied Entry After	3581	4213	2869	3414	3378	2796	3805	4061
Travel Distance (mi)	1667	1360	1951	1682	1710	1976	1555	1393
Travel Time (hr)	1989.0	2449.4	1861.0	1849.8	1811.2	1674.4	2066.4	2351.6
Total Delay (hr)	1926.5	2398.0	1787.9	1786.4	1746.9	1600.1	2007.8	2299.3
Total Stops	13125	10304	15570	13020	12800	15657	12135	10384
Fuel Used (gal)	1343.0	1601.1	1281.2	1240.6	1235.9	1164.7	1374.4	1538.2

Interval #0 Information Seeding

Start Time	4:55
End Time	5:00
Total Time (min)	5
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	10	2	3	4	5	6	7
Vehs Entered	3325	2731	3930	3380	3402	3960	3116	2802
Vehs Exited	3260	2667	3817	3284	3332	3854	3037	2728
Starting Vehs	312	306	273	289	312	292	289	312
Ending Vehs	377	370	386	385	382	398	368	386
Denied Entry Before	24	63	17	26	17	22	26	14
Denied Entry After	3581	4213	2869	3414	3378	2796	3805	4061
Travel Distance (mi)	1667	1360	1951	1682	1710	1976	1555	1393
Travel Time (hr)	1989.0	2449.4	1861.0	1849.8	1811.2	1674.4	2066.4	2351.6
Total Delay (hr)	1926.5	2398.0	1787.9	1786.4	1746.9	1600.1	2007.8	2299.3
Total Stops	13125	10304	15570	13020	12800	15657	12135	10384
Fuel Used (gal)	1343.0	1601.1	1281.2	1240.6	1235.9	1164.7	1374.4	1538.2

30: Rio Del Mar & NB On Performance by approach

Approach	NB	SB	NW	All
Total Delay (hr)	32.8	10.4	551.8	595.1
Delay / Veh (s)	110.5	64.1	3401.6	957.2
Travel Time (hr)	37.4	12.2	556.9	606.5
Avg Speed (mph)	4	3	2	2
Vehicles Entered	1062	583	595	2240
Vehicles Exited	1076	588	573	2237
Hourly Exit Rate	1076	588	573	2237

31: SB On & Rio Del Mar Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	45.0	9.3	9.3	63.6
Delay / Veh (s)	155.3	45.6	46.9	92.0
Travel Time (hr)	52.2	10.3	12.3	74.8
Avg Speed (mph)	11	2	6	7
Vehicles Entered	1047	732	705	2484
Vehicles Exited	1042	730	722	2494
Hourly Exit Rate	1042	730	722	2494

32: Soquel & Rio Del Mar Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	19.4	194.8	14.8	13.4	242.5
Delay / Veh (s)	150.5	3560.3	48.1	596.7	471.8
Travel Time (hr)	21.3	196.0	18.4	13.6	249.3
Avg Speed (mph)	2	1	4	0	2
Vehicles Entered	462	203	1111	83	1859
Vehicles Exited	465	191	1106	79	1841
Hourly Exit Rate	465	191	1106	79	1841

119: NB On & Performance by approach

Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.7	2.7
Travel Time (hr)	1.4	1.4
Avg Speed (mph)	14	14
Vehicles Entered	500	500
Vehicles Exited	497	497
Hourly Exit Rate	497	497

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120: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	3.4	3.4
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	10	10
Vehicles Entered	456	456
Vehicles Exited	456	456
Hourly Exit Rate	456	456

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254: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	6.1	6.1
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	6	6
Vehicles Entered	400	400
Vehicles Exited	399	399
Hourly Exit Rate	399	399

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256: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	8	8
Vehicles Entered	399	399
Vehicles Exited	399	399
Hourly Exit Rate	399	399

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264: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.2	0.2
Delay / Veh (s)	2.2	2.2
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	5	5
Vehicles Entered	339	339
Vehicles Exited	339	339
Hourly Exit Rate	339	339

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266: NB On & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	7.2	7.2
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	7	7
Vehicles Entered	340	340
Vehicles Exited	340	340
Hourly Exit Rate	340	340

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Total Network Performance

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Total Delay (hr)	1919.1
Delay / Veh (s)	2032.5
Travel Time (hr)	1983.5
Avg Speed (mph)	4
Vehicles Entered	3443
Vehicles Exited	3356
Hourly Exit Rate	3356

Intersection: 6: Bend

Movement	WB
Directions Served	T
Maximum Queue (ft)	117
Average Queue (ft)	6
95th Queue (ft)	102
Link Distance (ft)	472
Upstream Blk Time (%)	0
Queuing Penalty (veh)	1
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: Rio Del Mar & NB On

Movement	NB	NB	NB	SB	SB	SB	NW	NW	NW	NW
Directions Served	L	T	T	T	T	R	L	LT	R	R
Maximum Queue (ft)	641	583	609	373	365	127	196	1264	1264	388
Average Queue (ft)	392	517	516	324	340	56	90	1242	1245	270
95th Queue (ft)	764	580	595	380	410	152	177	1275	1264	501
Link Distance (ft)	504	504	504	316	316			1230	1230	
Upstream Blk Time (%)	9	26	23	52	55			52	72	
Queuing Penalty (veh)	53	153	133	477	497			0	0	
Storage Bay Dist (ft)						100	240			344
Storage Blk Time (%)					23	2	0	0	80	1
Queuing Penalty (veh)					109	16	0	0	395	4



Intersection: 31: SB On & Rio Del Mar

Movement	EB	EB	EB	EB	NE	NE	NE	B4	B4	B4	B5	B5
Directions Served	L	L	R	R	T	T	R	T	T	T	T	T
Maximum Queue (ft)	391	577	236	192	178	172	123	152	152	151	1354	1357
Average Queue (ft)	161	182	109	77	113	164	22	64	143	14	1150	1291
95th Queue (ft)	312	441	224	152	219	183	80	174	160	87	1679	1614
Link Distance (ft)		937			96	96	96	78	78	78	1323	1323
Upstream Blk Time (%)		0			31	84	1	20	79	1	14	70
Queuing Penalty (veh)		0			0	0	0	0	0	0	0	0
Storage Bay Dist (ft)	500		200	200								
Storage Blk Time (%)	0	7	0	0								
Queuing Penalty (veh)	0	58	2	2								

Intersection: 31: SB On & Rio Del Mar

Movement	SW	SW	SW
Directions Served	L	T	T
Maximum Queue (ft)	321	510	460
Average Queue (ft)	219	259	170
95th Queue (ft)	425	675	521
Link Distance (ft)		504	504
Upstream Blk Time (%)		14	0
Queuing Penalty (veh)		134	2
Storage Bay Dist (ft)	300		
Storage Blk Time (%)	30	0	
Queuing Penalty (veh)	194	1	

Intersection: 32: Soquel & Rio Del Mar

Movement	EB	EB	B6	WB	NB	NB	NB	SB	B1
Directions Served	LT	R	T	LTR	L	T	R	LTR	T
Maximum Queue (ft)	552	190	503	927	371	371	241	333	941
Average Queue (ft)	536	172	479	902	338	274	75	323	873
95th Queue (ft)	555	197	544	976	359	389	173	346	1145
Link Distance (ft)	472		474	900	316	316	316	265	913
Upstream Blk Time (%)	73		72	86	55	10		97	83
Queuing Penalty (veh)	0		0	0	402	74		0	0
Storage Bay Dist (ft)		150							
Storage Blk Time (%)	10	65							
Queuing Penalty (veh)	104	166							

Intersection: 119: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	125
Average Queue (ft)	27
95th Queue (ft)	92
Link Distance (ft)	151
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 120: SB On &

Movement	EB	B3
Directions Served	T	T
Maximum Queue (ft)	85	68
Average Queue (ft)	42	8
95th Queue (ft)	91	43
Link Distance (ft)	18	313
Upstream Blk Time (%)	9	
Queuing Penalty (veh)	44	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 254: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	89
Average Queue (ft)	77
95th Queue (ft)	106
Link Distance (ft)	31
Upstream Blk Time (%)	35
Queuing Penalty (veh)	316
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 256: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	67
Average Queue (ft)	53
95th Queue (ft)	68
Link Distance (ft)	-3
Upstream Blk Time (%)	1
Queuing Penalty (veh)	10
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 264: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	55
Average Queue (ft)	39
95th Queue (ft)	54
Link Distance (ft)	-13
Upstream Blk Time (%)	1
Queuing Penalty (veh)	9
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 266: NB On &

Movement	WB
Directions Served	T
Maximum Queue (ft)	105
Average Queue (ft)	78
95th Queue (ft)	123
Link Distance (ft)	46
Upstream Blk Time (%)	22
Queuing Penalty (veh)	173
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 3529

33: NB on & Freedom Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	1.9	1.9	5.2	8.9
Delay / Veh (s)	14.3	10.1	12.3	12.1
Vehicles Entered	473	663	1521	2657
Vehicles Exited	473	660	1514	2647
Hourly Exit Rate	473	660	1514	2647

34: SB Off & Freedom Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	112.0	1.3	6.9	120.2
Delay / Veh (s)	356.6	23.3	40.6	222.7
Vehicles Entered	1127	200	616	1943
Vehicles Exited	1134	199	612	1945
Hourly Exit Rate	1134	199	612	1945

35: Bonita & Freedom Performance by approach

Approach	EB	WB	SW	All
Total Delay (hr)	0.9	1.7	0.9	3.5
Delay / Veh (s)	84.7	21.9	4.5	11.8
Vehicles Entered	37	279	745	1061
Vehicles Exited	37	278	745	1060
Hourly Exit Rate	37	278	745	1060

36: Soquel & Freedom Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	1.5	0.1	4.0	11.2	16.9
Delay / Veh (s)	23.5	32.2	13.8	25.9	21.3
Vehicles Entered	228	15	1057	1557	2857
Vehicles Exited	228	15	1053	1558	2854
Hourly Exit Rate	228	15	1053	1558	2854

124: NB on & Performance by approach

Approach	WB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	2.7	2.7
Vehicles Entered	1007	1007
Vehicles Exited	1007	1007
Hourly Exit Rate	1007	1007

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268: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.0	1.0
Delay / Veh (s)	6.5	6.5
Vehicles Entered	563	563
Vehicles Exited	562	562
Hourly Exit Rate	562	562

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270: SB On & Performance by approach

---

Approach	EB	All
Total Delay (hr)	4.3	4.3
Delay / Veh (s)	32.2	32.2
Vehicles Entered	478	478
Vehicles Exited	478	478
Hourly Exit Rate	478	478

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272: SB On & Performance by approach

---

Approach	EB	All
Total Delay (hr)	0.7	0.7
Delay / Veh (s)	5.1	5.1
Vehicles Entered	479	479
Vehicles Exited	479	479
Hourly Exit Rate	479	479

---

275: NB on & Performance by approach

---

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.2	2.2
Vehicles Entered	864	864
Vehicles Exited	864	864
Hourly Exit Rate	864	864

---

277: NB on & Performance by approach

---

Approach	WB	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	5.0	5.0
Vehicles Entered	863	863
Vehicles Exited	864	864
Hourly Exit Rate	864	864

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Total Network Performance

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Total Delay (hr)	160.1
Delay / Veh (s)	152.4
Vehicles Entered	3787
Vehicles Exited	3778
Hourly Exit Rate	3778

Intersection: 33: NB on & Freedom

Movement	WB	WB	NE	NE	NE	SW	SW	SW
Directions Served	LTR	R	L	T	T	T	R	R
Maximum Queue (ft)	194	169	116	220	230	571	441	85
Average Queue (ft)	90	60	30	60	69	207	69	31
95th Queue (ft)	159	117	75	163	172	476	269	72
Link Distance (ft)	542	542		380	380	642	642	
Upstream Blk Time (%)						1	0	
Queuing Penalty (veh)						5	4	
Storage Bay Dist (ft)			150					200
Storage Blk Time (%)				1				
Queuing Penalty (veh)				1				

Intersection: 34: SB Off & Freedom

Movement	EB	EB	EB	NE	NE	SW	SW
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	266	397	314	57	68	409	194
Average Queue (ft)	131	146	132	13	51	296	61
95th Queue (ft)	220	292	245	41	72	444	138
Link Distance (ft)		889		46	46	380	380
Upstream Blk Time (%)		0		2	29	8	
Queuing Penalty (veh)		0		2	28	25	
Storage Bay Dist (ft)	300		350				
Storage Blk Time (%)	1	1	0				
Queuing Penalty (veh)	6	5	0				

Intersection: 35: Bonita & Freedom

Movement	EB	WB	WB	B4	SW	SW	SW
Directions Served	LT	T	R	T	L	L	R
Maximum Queue (ft)	126	183	193	13	84	80	54
Average Queue (ft)	43	72	56	1	48	37	22
95th Queue (ft)	105	157	157	19	78	81	51
Link Distance (ft)	297	378		119	46	46	46
Upstream Blk Time (%)		0		0	9	7	1
Queuing Penalty (veh)		0		0	25	21	4
Storage Bay Dist (ft)			300				
Storage Blk Time (%)			1				
Queuing Penalty (veh)			1				

Intersection: 36: Soquel & Freedom

Movement	SE	SE	B182	NW	NE	NE	NE	SW	SW	SW	SW
Directions Served	LT	R	T	LTR	L	T	TR	L	T	T	R
Maximum Queue (ft)	102	62	136	55	182	270	282	32	671	648	273
Average Queue (ft)	77	20	32	15	81	106	118	5	326	295	41
95th Queue (ft)	111	48	95	43	164	239	251	22	656	626	158
Link Distance (ft)	43	43	1338	27		642	642		1017	1017	
Upstream Blk Time (%)	38	4		12					1	1	
Queuing Penalty (veh)	0	0		0					0	0	
Storage Bay Dist (ft)					200			125			300
Storage Blk Time (%)					3	0			25	7	0
Queuing Penalty (veh)					16	0			2	6	0

Intersection: 124: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	38	42
Average Queue (ft)	3	3
95th Queue (ft)	20	21
Link Distance (ft)	242	242
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 268: SB On &

Movement	EB	EB
Directions Served	L	T
Maximum Queue (ft)	51	203
Average Queue (ft)	2	67
95th Queue (ft)	30	191
Link Distance (ft)	175	175
Upstream Blk Time (%)		2
Queuing Penalty (veh)		5
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Intersection: 270: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	232
Average Queue (ft)	204
95th Queue (ft)	278
Link Distance (ft)	174
Upstream Blk Time (%)	37
Queuing Penalty (veh)	173
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 272: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	44
95th Queue (ft)	59
Link Distance (ft)	-8
Upstream Blk Time (%)	27
Queuing Penalty (veh)	127
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 275: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	66	64
Average Queue (ft)	52	51
95th Queue (ft)	66	66
Link Distance (ft)	-5	-5
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	5	4
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 277: NB on &

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Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	81	80
Average Queue (ft)	57	56
95th Queue (ft)	77	74
Link Distance (ft)	25	25
Upstream Blk Time (%)	34	27
Queuing Penalty (veh)	148	120
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 733

33: NB on & Freedom Performance by approach

Approach	WB	NE	SW	All
Total Delay (hr)	1.0	1.9	22.7	25.5
Delay / Veh (s)	16.7	6.2	70.1	37.0
Vehicles Entered	206	1119	1170	2495
Vehicles Exited	204	1121	1156	2481
Hourly Exit Rate	204	1121	1156	2481

34: SB Off & Freedom Performance by approach

Approach	EB	NE	SW	All
Total Delay (hr)	125.7	1.9	17.5	145.1
Delay / Veh (s)	384.7	15.3	122.7	244.4
Vehicles Entered	1173	446	518	2137
Vehicles Exited	1179	447	511	2137
Hourly Exit Rate	1179	447	511	2137

35: Bonita & Freedom Performance by approach

Approach	EB	WB	SW	All
Total Delay (hr)	1.6	5.2	1.9	8.7
Delay / Veh (s)	68.3	49.6	9.3	26.0
Vehicles Entered	83	384	744	1211
Vehicles Exited	81	378	745	1204
Hourly Exit Rate	81	378	745	1204

36: Soquel & Freedom Performance by approach

Approach	SE	NW	NE	SW	All
Total Delay (hr)	1.5	1.1	7.1	296.9	306.6
Delay / Veh (s)	67.3	127.4	21.0	835.1	424.3
Vehicles Entered	82	30	1213	1304	2629
Vehicles Exited	81	30	1205	1257	2573
Hourly Exit Rate	81	30	1205	1257	2573

124: NB on & Performance by approach

Approach	WB	All
Total Delay (hr)	0.5	0.5
Delay / Veh (s)	2.4	2.4
Vehicles Entered	773	773
Vehicles Exited	776	776
Hourly Exit Rate	776	776

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268: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.1	0.1
Delay / Veh (s)	1.4	1.4
Vehicles Entered	301	301
Vehicles Exited	301	301
Hourly Exit Rate	301	301

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270: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	1.2	1.2
Delay / Veh (s)	17.3	17.3
Vehicles Entered	242	242
Vehicles Exited	244	244
Hourly Exit Rate	244	244

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272: SB On & Performance by approach

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Approach	EB	All
Total Delay (hr)	0.3	0.3
Delay / Veh (s)	4.9	4.9
Vehicles Entered	243	243
Vehicles Exited	244	244
Hourly Exit Rate	244	244

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275: NB on & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.4	0.4
Delay / Veh (s)	2.2	2.2
Vehicles Entered	637	637
Vehicles Exited	637	637
Hourly Exit Rate	637	637

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277: NB on & Performance by approach

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Approach	WB	All
Total Delay (hr)	0.8	0.8
Delay / Veh (s)	4.8	4.8
Vehicles Entered	635	635
Vehicles Exited	636	636
Hourly Exit Rate	636	636

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Total Network Performance

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Total Delay (hr)	493.0
Delay / Veh (s)	538.3
Vehicles Entered	3336
Vehicles Exited	3258
Hourly Exit Rate	3258

Intersection: 33: NB on & Freedom

Movement	WB	WB	NE	NE	NE	SW	SW	SW
Directions Served	LR	R	L	T	T	T	R	R
Maximum Queue (ft)	108	84	141	131	128	715	739	93
Average Queue (ft)	54	36	65	21	27	623	585	26
95th Queue (ft)	92	66	121	74	86	829	967	70
Link Distance (ft)	542	542		380	380	642	642	
Upstream Blk Time (%)						38	24	
Queuing Penalty (veh)						326	207	
Storage Bay Dist (ft)			150					200
Storage Blk Time (%)			1	0				
Queuing Penalty (veh)			4	0				

Intersection: 34: SB Off & Freedom

Movement	EB	EB	EB	NE	NE	SW	SW
Directions Served	L	LT	R	T	TR	L	T
Maximum Queue (ft)	332	910	380	65	74	403	406
Average Queue (ft)	216	335	204	26	54	220	368
95th Queue (ft)	333	769	346	64	76	432	465
Link Distance (ft)		889		46	46	380	380
Upstream Blk Time (%)		3		8	49	9	38
Queuing Penalty (veh)		0		18	114	36	145
Storage Bay Dist (ft)	300		350				
Storage Blk Time (%)	4	8	0				
Queuing Penalty (veh)	39	72	4				

Intersection: 35: Bonita & Freedom

Movement	EB	WB	WB	B4	SW	SW	SW
Directions Served	LT	T	R	T	L	L	R
Maximum Queue (ft)	195	449	333	121	128	83	32
Average Queue (ft)	75	122	214	17	71	40	5
95th Queue (ft)	167	432	386	86	104	82	20
Link Distance (ft)	297	378		119	46	46	46
Upstream Blk Time (%)	1	10		4	30	12	0
Queuing Penalty (veh)	0	0		0	97	38	0
Storage Bay Dist (ft)			300				
Storage Blk Time (%)			15				
Queuing Penalty (veh)			1				

Intersection: 36: Soquel & Freedom

Movement	SE	SE	B182	NW	B185	NE	NE	NE	SW	SW	SW	SW
Directions Served	LT	R	T	LTR	T	L	T	TR	L	T	T	R
Maximum Queue (ft)	96	55	140	81	65	228	450	454	88	1051	1050	340
Average Queue (ft)	50	12	21	41	11	135	144	147	9	945	933	133
95th Queue (ft)	96	41	91	84	64	245	364	355	48	1324	1339	372
Link Distance (ft)	43	43	1338	27	656		642	642		1017	1017	
Upstream Blk Time (%)	35	6		53			0	0		46	43	
Queuing Penalty (veh)	0	0		0			0	0		0	0	
Storage Bay Dist (ft)						200			125			300
Storage Blk Time (%)						16	1			63	51	0
Queuing Penalty (veh)						93	1			7	85	0

Intersection: 124: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	18	14
Average Queue (ft)	1	0
95th Queue (ft)	9	7
Link Distance (ft)	242	242
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 268: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	34
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	175
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 270: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	228
Average Queue (ft)	103
95th Queue (ft)	211
Link Distance (ft)	174
Upstream Blk Time (%)	3
Queuing Penalty (veh)	11
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 272: SB On &

Movement	EB
Directions Served	T
Maximum Queue (ft)	58
Average Queue (ft)	41
95th Queue (ft)	54
Link Distance (ft)	-8
Upstream Blk Time (%)	11
Queuing Penalty (veh)	36
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 275: NB on &

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	66	64
Average Queue (ft)	51	47
95th Queue (ft)	64	62
Link Distance (ft)	-5	-5
Upstream Blk Time (%)	1	1
Queuing Penalty (veh)	4	3
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 277: NB on &

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Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	78	78
Average Queue (ft)	50	48
95th Queue (ft)	73	70
Link Distance (ft)	25	25
Upstream Blk Time (%)	25	19
Queuing Penalty (veh)	113	88
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 1543

#	Interchange	Ramp	Original (2007) Analysis <sup>(1)</sup>			Updated (2010) Analysis <sup>(2)</sup>		
			Approximate Storage Length (ft)	Maximum 95 <sup>th</sup> Percentile Queue Length (ft)		Approximate Storage Length (ft)	Maximum 95 <sup>th</sup> Percentile Queue Length (ft)	
				AM Peak	PM Peak		AM Peak	PM Peak
1	Morrissey Boulevard Interchange	NB Off-Ramp	800	403	426	1200	240	647
		SB Off-Ramp	800	198	291	870	180	343
2	Soquel Avenue Interchange	NB Off-Ramp	800	<b>1238</b>	<b>1269</b>	1210	676	285
		SB Off-Ramp	950	526	<b>984</b>	1100	313	893
3	41 <sup>st</sup> Avenue/ Porter Street/ Bay Avenue Interchange	NB Off-Ramp	700	112	<b>724</b>	2140	394	388
		SB Off-Ramp	750	<b>959</b>	262	1290	163	215
4	Park Avenue Interchange	NB Off-Ramp	700	320	<b>972</b>	810	<b>1110</b>	151
		SB Off-Ramp	800	<b>1767</b>	<b>1628</b>	860	<b>1039</b>	378
5	State Park Drive Interchange	NB Off-Ramp	1100	400	406	1170	382	278
		SB Off-Ramp	1250	281	361	1320	241	394
6	Rio Del Mar Boulevard Interchange	NB Off-Ramp	750	178	145	660	592	576
		SB Off-Ramp	1150	161	232	1480	151	124
7	Freedom Boulevard Interchange	NB Off-Ramp	800	430	94	1050	137	92
		SB Off-Ramp	800	658	259	1460	208	408
8	San Andreas Road/ Larkin Valley Road Interchange	NB Off-Ramp	1000	64	70	1100	64	70
		SB Off-Ramp	900	285	105	970	285	105

Source: Wilbur Smith Associates, May 2010

**NOTES:**

**Bold** indicates 95<sup>th</sup> percentile queue length likely to exceed storage length.

(1) 2007 Analysis includes 95<sup>th</sup> Percentile queue lengths based on previous roadway improvements and assumptions presented in State Route 1 HOV Lane Widening Project – Traffic Operations Report (July 2007).

(2) 2010 Analysis includes 95<sup>th</sup> Percentile queue lengths based on updated roadway improvements and assumptions (May 2010).

#	Interchange	Ramp	Original (2007) Analysis <sup>(1)</sup>			Updated (2010) Analysis <sup>(2)</sup>		
			Approximate Storage Length (ft)	Maximum 95 <sup>th</sup> Percentile Queue Length (ft)		Approximate Storage Length (ft)	Maximum 95 <sup>th</sup> Percentile Queue Length (ft)	
				AM Peak	PM Peak		AM Peak	PM Peak
1	Morrissey Boulevard Interchange	NB Off-Ramp	1300	1100	910	1200	549	898
		SB Off-Ramp	800	701	708	870	159	210
2	Soquel Avenue Interchange	NB Off-Ramp	1250	1009	1111	1210	732	920
		SB Off-Ramp	1100	880	851	1100	1096	754
3	41 <sup>st</sup> Avenue/ Porter Street/ Bay Avenue Interchange	NB Off-Ramp	700	220	345	2140	552	466
		SB Off-Ramp	1180	905	1110	1290	401	397
4	Park Avenue Interchange	NB Off-Ramp	920	<b>1335</b>	<b>1712</b>	810	<b>1786</b>	<b>1684</b>
		SB Off-Ramp	1000	<b>1477</b>	<b>2074</b>	860	<b>1651</b>	<b>1753</b>
5	State Park Drive Interchange	NB Off-Ramp	1000	<b>1617</b>	<b>1693</b>	1170	<b>1552</b>	<b>1599</b>
		SB Off-Ramp	1380	<b>1748</b>	<b>2066</b>	1320	<b>2162</b>	<b>2155</b>
6	Rio Del Mar Boulevard Interchange	NB Off-Ramp	750	<b>1646</b>	<b>1311</b>	660	<b>1489</b>	<b>1275</b>
		SB Off-Ramp	1300	308	1020	1480	1091	441
7	Freedom Boulevard Interchange	NB Off-Ramp	1050	154	105	1050	159	92
		SB Off-Ramp	1400	265	1009	1460	229	769
8	San Andreas Road/ Larkin Valley Road Interchange	NB Off-Ramp	1100	69	100	1100	69	100
		SB Off-Ramp	1000	76	238	970	76	238

Source: Wilbur Smith Associates, May 2010

**NOTES:**

**Bold** indicates 95<sup>th</sup> percentile queue length likely to exceed storage length.

(1) 2007 Analysis includes 95<sup>th</sup> Percentile queue lengths based on previous roadway improvements and assumptions presented in State Route 1 HOV Lane Widening Project – Traffic Operations Report (July 2007).

(2) 2010 Analysis includes 95<sup>th</sup> Percentile queue lengths based on updated roadway improvements and assumptions (May 2010).