

TRAFFIC IMPACT STUDY FOR
SOUTH BAY SALT POND RESTORATION PROJECT - PHASE 2

Traffic Impact Study for South Bay Salt Ponds Restoration - Phase 2 Project

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I PROJECT DESCRIPTION

The purpose of this traffic analysis is to evaluate the potential traffic impacts resulting from the truck trips which are required for bringing fill to the project areas shown in **Figure 1**.

Three of the project areas will require truck trips for bringing fill to the site and are located near Caltrans facilities. For the purposes of this study, a conservative approach was adopted by assigning outbound trips from the project site equal to the inbound trips to the project site during AM and PM peak hours. The project is a restoration project, so the only real traffic would be generated during construction period.

II TRAFFIC IMPACT STUDY AREA

The following are the three project areas which are being analyzed:

Alviso - A8 Ponds: are located near SR 237 in the City of Santa Clara. The construction access routes for this project area are shown in **Figure 2-1**. The following intersections are analyzed to evaluate the impacts caused by additional truck traffic generated during the construction in this project area.

1. 237 WB Ramps/Great America Pkwy
2. 237 EB Ramps/Great America Pkwy

Alviso - Mountain View Ponds: are located near 101/Shoreline Boulevard and 101/Bay Shore Road in the City of Mountain View. The construction access routes for this project area are shown in **Figure 2-2**. The following intersections are analyzed to evaluate the impacts caused by additional truck traffic generated during the construction in this project area.

3. 101 NB Ramps/Shoreline Blvd
4. 101 SB Ramps/Shoreline Blvd
5. 101 NB Ramps/San Antonio Rd

Ravenswood Ponds: are located near the Facebook campus at SR 84 and Marsh Road in the City of Menlo Park. The construction access routes for this project area are shown in **Figure 2-3**. The following intersections are analyzed to evaluate the impacts caused by additional truck traffic generated during the construction in this project area.

6. 101 NB Ramps/Marsh Rd-Rte 84
7. 101 SB Ramps/Marsh Rd-Rte 84

Intersection turning movement volumes were collected in October 2014 during the following time periods:

- 7:00 a.m. to 9:00 a.m. for the AM peak hour
- 4:00 p.m. to 6:00 p.m. for the PM peak hour

Traffic volumes were projected and impacts were assessed for the following conditions during the AM and PM peak hours:

1. Existing Conditions – Evaluate traffic conditions based on existing lane geometries, traffic controls and traffic volumes; and
2. Existing plus Project Conditions – Evaluates traffic conditions with proposed project trips added to existing traffic volumes.

III EVALUATION ANALYSIS

Evaluation Criteria

This section summarizes the methodologies used to perform peak hour intersection capacity analysis at signalized intersections. Level of service analysis was conducted based on the traffic data collected by URS and by utilizing the Synchro 9.0 software package, and based on the methodologies outlined in the Highway Capacity Manual (HCM 2000).

Resulting level of service (LOS), delays and volume-to-capacity (v/c) were compared for the existing and project conditions. LOS measures traffic operating conditions, which varies from LOS A to LOS F. **Table 1** presents a description of LOS and provides associated delays with each LOS letter grade for signalized intersections.

Table 1 – Signalized Intersection LOS Thresholds		
Level of Service	Description	Delay (sec/veh)
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	>10-20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver with the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	>20-35
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	>35-55
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	>55-80
F	Represents a breakdown in flow.	>80
Source: Highway Capacity Manual (Transportation Research Board, 2000)		



B:\Greer\I\Projects\South_Bay_Salt_Ponds\Maps\Phase II\Figure 2-2 Phase 2 Project Area.mxd

Figure 1
 SBSP Phase 2 Project Area Boundary



U:\Projects\2014\2014\USER\Malima_Vogel\PNTH\Projects\South_Bay_Salt_Ponds\Maps\Access_Routes\Figure 2-13_Alvizo_A8_Access.mxd

Figure 2-1
 A8 Ponds Construction Access Routes



URS Oakland CA 5/30/2014 USER Malorma Voice PATH L:\Projects\Access Routes\Figure 2-10 Mt. View Access.mxd

- LEGEND**
- Phase II Project Area
 - Access route
 - Needs PG&E easement
 - Trail crossing
 - X Material staging area
 - Trail detour

Figure 2-2
 Mountain View Ponds Construction Access Routes



- LEGEND**
- Access Route
 - Phase II Project Areas

IV EXISTING CONDITIONS

Existing lane geometries and traffic controls at the study intersections were illustrated on **Figures 3-1, 3-2 and 3-3** below.

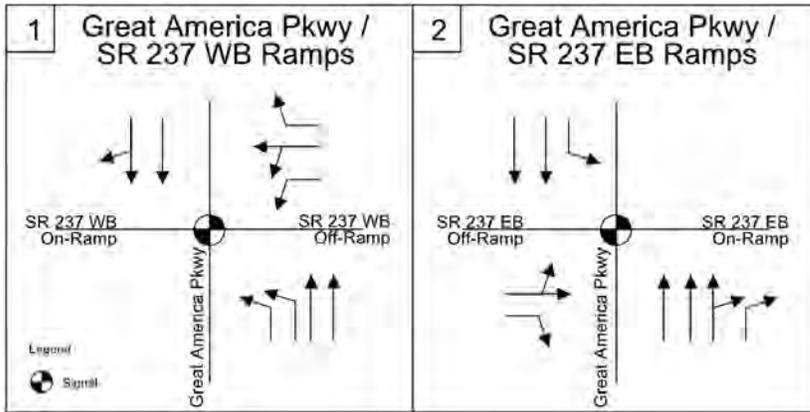


Figure 3-1: Alviso - A8 Ponds Existing Lane Geometries

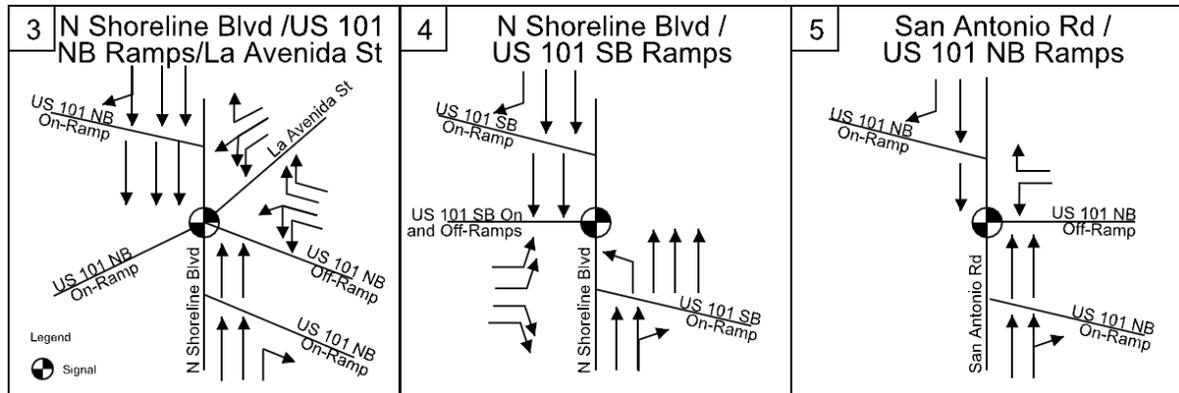


Figure 3-2: Alviso – Mountain View Ponds Existing Lane Geometries

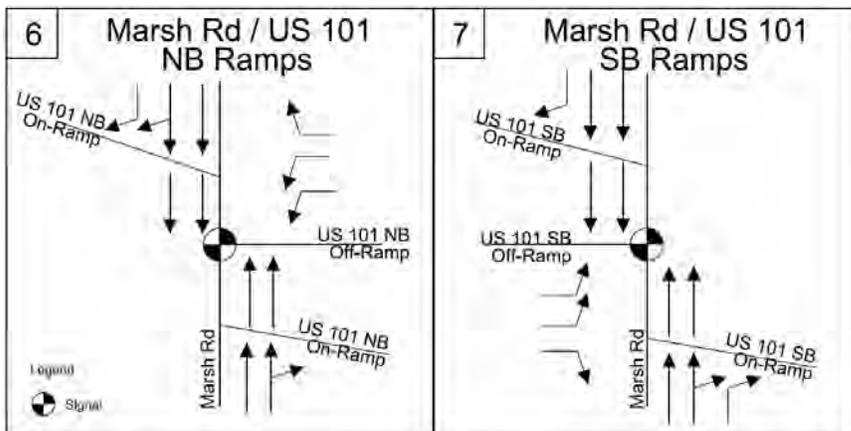


Figure 3-3: Ravenswood Ponds Existing Lane Geometries

Existing intersection turning movement volumes at the study intersections are illustrated on **Figures 4-1, 4-2, and 4-3** below. Detailed counts in AM and PM peak periods collected in 15 minute intervals were provided in **Appendix A**.

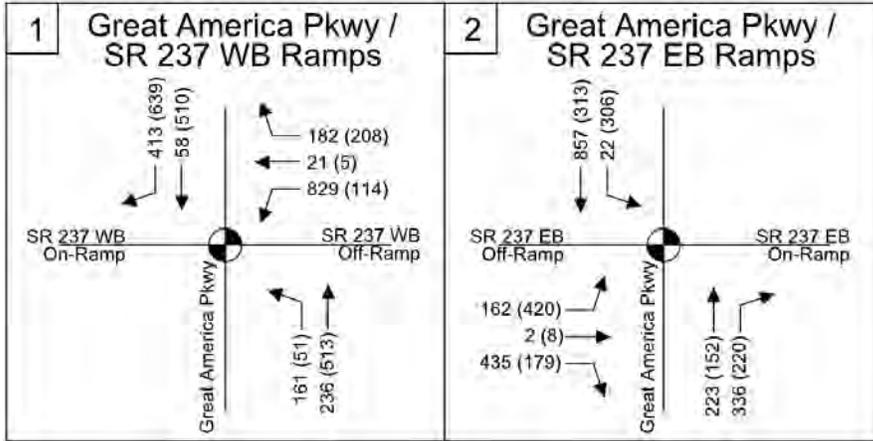


Figure 4-1: Alviso - A8 Ponds Existing Peak Hour Turning Movement Volumes

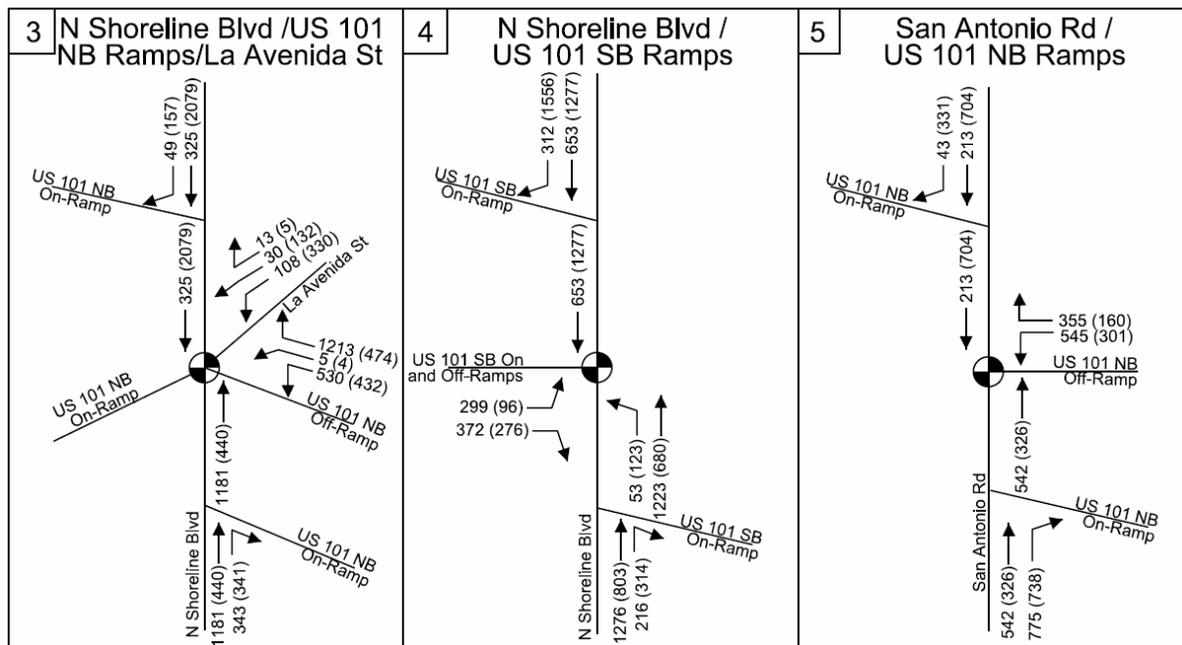


Figure 4-2: Alviso - Mountain View Ponds Existing Peak Hour Turning Movement Volumes

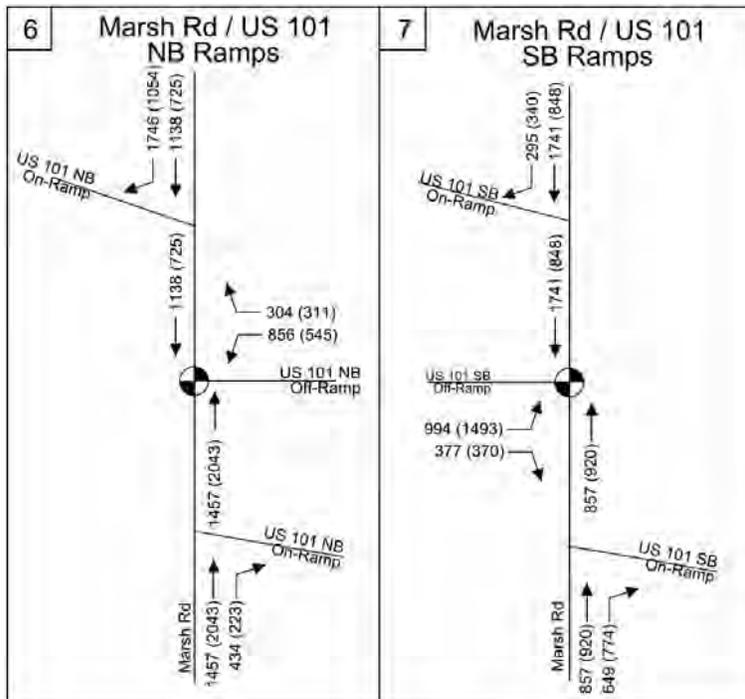


Figure 4-3: Ravenswood Ponds Existing Peak Hour Turning Movement Volumes

V PROJECT CONDITION IMPACT ANALYSIS

Trip generation

The Projects estimated trip generation is shown in the table below.

Project Area - Alternative	Net Import (CY)	Max Trips Per Day	Hours/Day	Trips per Hour
Alviso - Mountain View B	296400	200	10	20.0
Alviso - Mountain View C	369600	200	10	20.0
Alviso - A8 B	48600	180	10	18.0
Ravenswood B	37900	150	10	15.0
Ravenswood C	210400	150	10	15.0

It is projected that Alviso - A8 Ponds, Alviso - Mountain View Ponds, Ravenswood Ponds generate 18, 20 and 15 peak hour trips respectively in both the AM and PM Peak Hours.

Figures 5-1, 5-2 and 5-3 illustrate the proposed project trips.

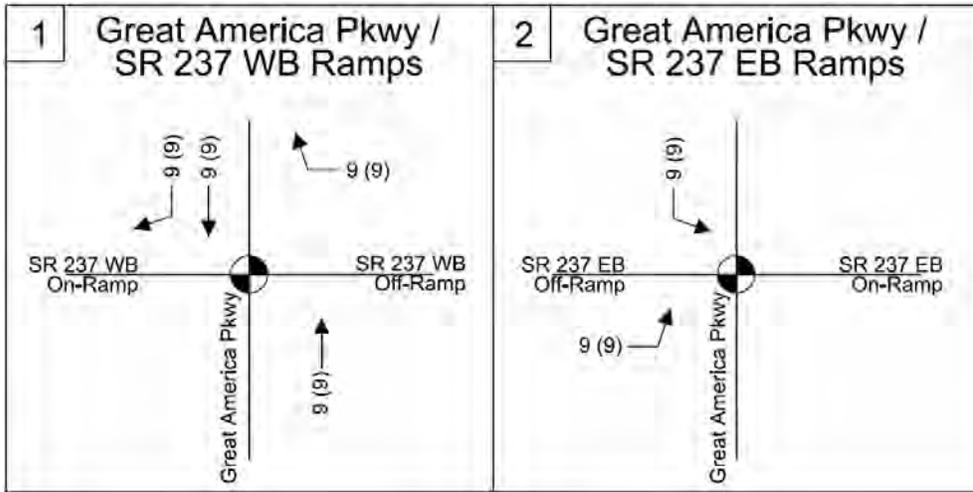


Figure 5-1: Alviso - A8 Ponds Project Trips

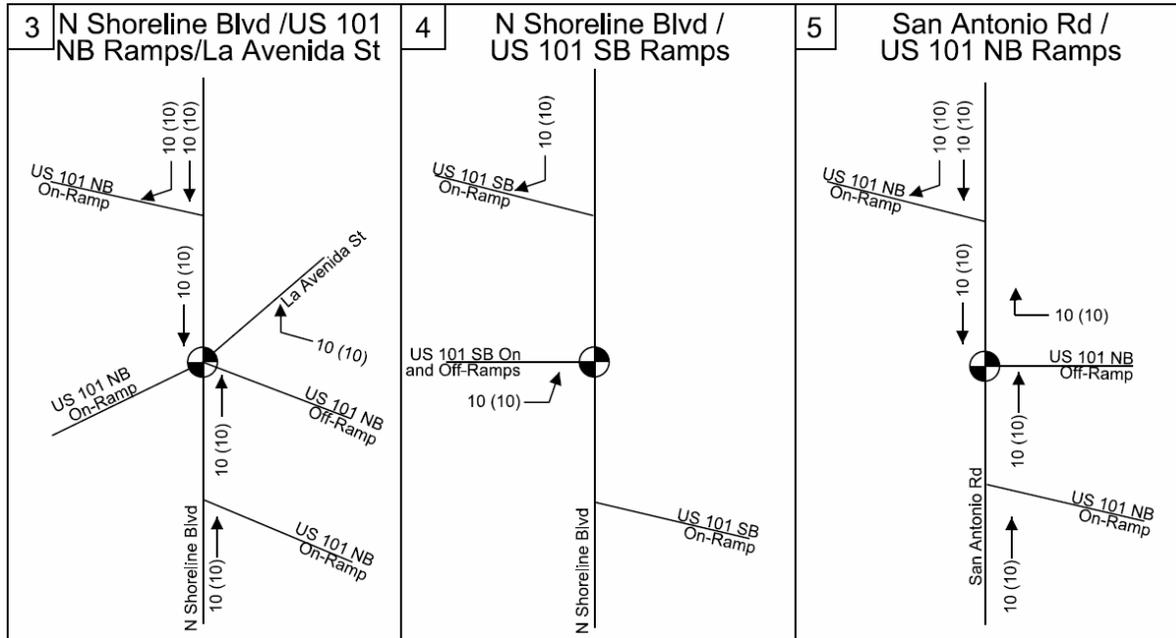


Figure 5-2: Alviso - Mountain View Ponds Project Trips

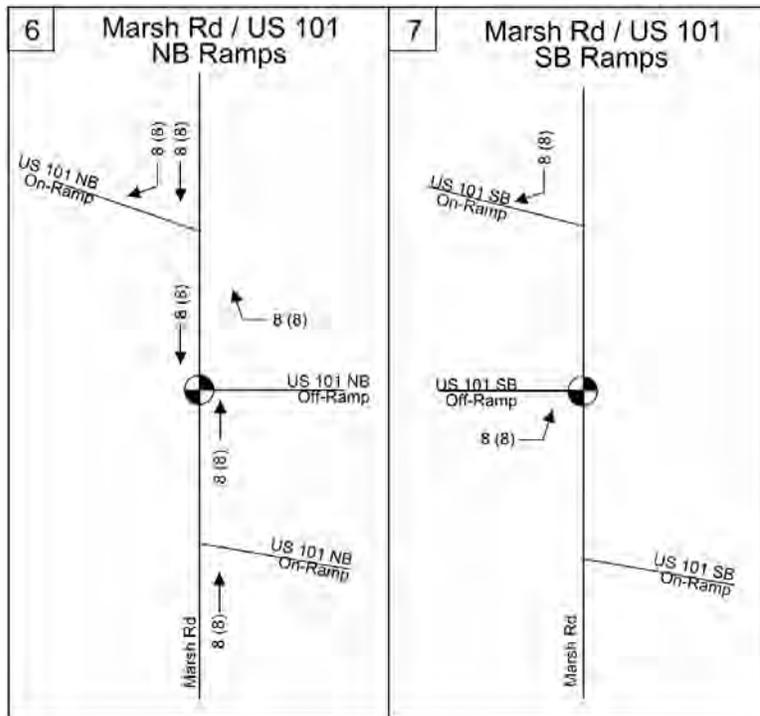


Figure 5-3: Ravenswood Ponds Project Trips

Significant Impact Thresholds

Though the study intersections are operated and maintained by Caltrans, Caltrans recommend using the corresponding City significant impact threshold criteria.

For Alviso - A8 Ponds study intersections (Great America Pkwy/237 WB Ramps and Great America Pkwy/237 EB Ramps) City of Santa Clara thresholds have been considered.

For Alviso – Mountain View Ponds study intersections (N Shoreline Blvd/US 101 NB Ramps, N Shoreline Blvd/US 101 SB Ramps and San Antonio Rd/US 101 NB Ramps) City of Mountain View thresholds have been considered.

According to these two guidelines,

- LOS D is treated as acceptable LOS. If the project causes an intersection operating at LOS D or better to fall below LOS D, then the project is projected to be causing a significant impact.
- For intersections already operating at unacceptable LOS (E or F), if the project increases average control delay of a critical movement at a signalized study intersection by more than four (4) seconds, and the volume-to-capacity ratio (v/c) by more than 0.01, then the project is projected to be causing a significant impact.

For Ravenswood Ponds study intersections (Marsh Rd/US 101 NB Ramps and Marsh Rd/US 101 SB Ramps) City of Menlo Park thresholds have been considered.

According to this guideline,

- LOS D is treated as acceptable LOS. If the project causes an intersection operating at LOS D or better to fall below LOS D, then the project is projected to be causing a significant impact.
- For intersections already operating at unacceptable LOS (E or F), if the project increases average control delay of a critical movement at a signalized study intersection by more than 0.8 seconds, then the project is projected to be causing a significant impact.

Impact Analysis

Analysis was conducted by comparing the Existing and Existing plus Project delay and LOS to determine if the project causes a significant impact. **Table 2** presents the analysis results for Existing and Existing plus Project Conditions.

Intersections 101 NB off ramp/Shoreline Blvd and 101 SB off ramp/Marsh Rd-Route 84 operate at LOS E in the AM peak hour in existing and existing plus project conditions. The delay and v/c comparison for the intersection 101 NB off ramp/Shoreline Blvd indicate that the project doesn't cause any significant impact, since the increase in delay is only 3.9sec (< 4sec) even though the change in v/c is 0.01. The intersection 101 SB off ramp/Marsh Rd-Route 84 is projected to be impacted by the project, as the delay increases by 2.9 sec (> 0.8 sec).

Detailed level of service calculation sheets are provided in **Appendix B**.

Table 2 – LOS and Delay for Existing Conditions and Project Conditions

Intersection	Peak Hour	Existing		Project			
		Delay ¹ (sec)	LOS	Delay ¹ (sec)	LOS	Δ in critical delay ² (sec)	Δ in critical v/c ³
237 WB off ramp/Great America Pkwy	AM	14.6	B	15.0	B		
	PM	9.8	A	9.9	A		
237 EB off ramp/Great America Pkwy	AM	11.6	B	11.8	B		
	PM	18.7	B	19.5	B		
101 NB off ramp/Shoreline Blvd	AM	73.3	E	75.3	E	3.9	0.01
	PM	54.0	D	54.0	D		
101 SB off ramp/Shoreline Blvd	AM	19.6	B	19.7	B		
	PM	16.6	B	16.8	B		
101 NB off ramp/San Antonio Rd	AM	10.6	B	10.7	B		
	PM	10.8	B	10.9	B		
101 NB off ramp/Marsh Rd-Route 84	AM	20.8	C	20.9	C		
	PM	26.9	C	27.3	C		
101 SB off ramp/Marsh Rd-Route 84	AM	55.8	E	57.0	E	2.9	
	PM	44.4	D	45.8	D		

Source: URS
Notes:

- Bold** indicates LOS worse than D.
- Red** indicates Impact.
- 1. Intersection Control Delay per HCM methodology
- 2. Change in critical movement delay between existing and project conditions.
- 3. Change in critical volume to capacity (v/c) between existing and project conditions.

VII MITIGATION MEASURES

No mitigations measures are necessary for the study intersections except for 101 SB off ramp/Marsh Rd-Route 84 intersection. The landowner (USFWS) shall coordinate with Caltrans and/or the City of Menlo Park to modify this intersection signal timing in the AM to reduce project related delay (seconds).

Table below shows the LOS and delay after the mitigation compared to existing condition LOS and Delay. Since the change in critical delay is 0.3 sec (less than the significant impact threshold of 0.8 sec), it is identified that this mitigation help bring the intersection to operate the same as existing condition with addition of project traffic.

The project mitigation condition LOS analysis from synchro is provided in **Appendix B**.

Intersection	Peak Hour	Existing		Mitigated Project		
		Delay¹ (sec)	LOS	Delay¹ (sec)	LOS	Δ in critical delay² (sec)
101 SB off ramp/Marsh Rd- Route 84	AM	55.8	E	55.8	E	0.3

Source: URS
Notes:

- Bold** indicates LOS worse than D.
- 1. Intersection Control Delay per HCM methodology
- 2. Change in critical movement delay between existing and project conditions.

VIII CONCLUSION

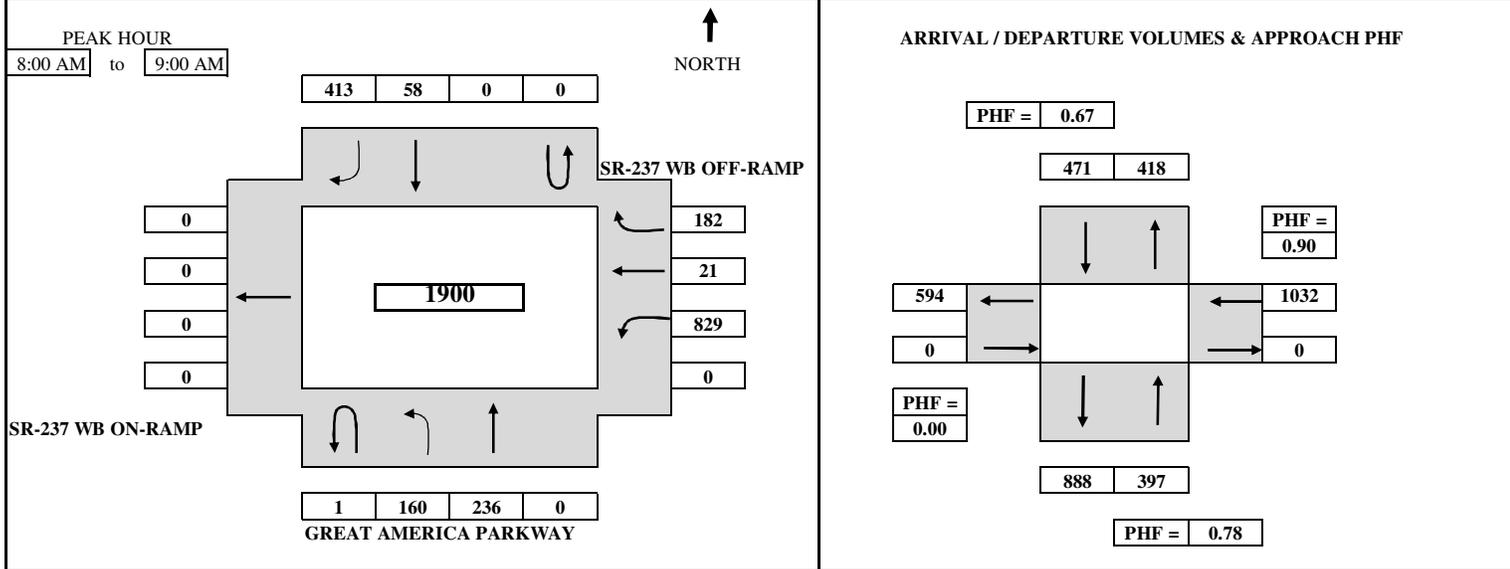
It is determined from the analysis that, with the incorporation of mitigation measures, the project doesn't cause any significant impact to the study intersections.

**APPENDIX A
DETAILED INTERSECTION TURNING
MOVEMENT VOLUMES**

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	GREAT AMERICA PARKWAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	SR-237 WB OFF-RAMP	JURISDICTION:	SUNNYVALE	FILE:	3410127-4AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU
SURVEY DATA																		
7:00 AM to 7:15 AM			1	19	26			15	66						119	1	15	262
7:15 AM to 7:30 AM			1	43	63			19	162						260	2	40	590
7:30 AM to 7:45 AM			1	78	103			28	266						428	20	67	991
7:45 AM to 8:00 AM			1	111	155			45	366						613	34	105	1430
8:00 AM to 8:15 AM			1	142	206			60	422						774	41	159	1805
8:15 AM to 8:30 AM			1	184	264			76	582						976	45	197	2325
8:30 AM to 8:45 AM			1	221	315			90	683						1213	48	237	2808
8:45 AM to 9:00 AM			2	271	391			103	779						1442	55	287	3330

TOTAL BY PERIOD																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL													
7:00 AM to 7:15 AM	1	19	26	0	0	0	15	66	0	0	0	0	0	119	1	15	262	
7:15 AM to 7:30 AM	0	24	37	0	0	0	4	96	0	0	0	0	0	141	1	25	328	
7:30 AM to 7:45 AM	0	35	40	0	0	0	9	104	0	0	0	0	0	168	18	27	401	
7:45 AM to 8:00 AM	0	33	52	0	0	0	17	100	0	0	0	0	0	185	14	38	439	
8:00 AM to 8:15 AM	0	31	51	0	0	0	15	56	0	0	0	0	0	161	7	54	375	
8:15 AM to 8:30 AM	0	42	58	0	0	0	16	160	0	0	0	0	0	202	4	38	520	
8:30 AM to 8:45 AM	0	37	51	0	0	0	14	101	0	0	0	0	0	237	3	40	483	
8:45 AM to 9:00 AM	1	50	76	0	0	0	13	96	0	0	0	0	0	229	7	50	522	

HOURLY TOTALS																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL													
7:00 AM to 8:00 AM	1	111	155	0	0	0	45	366	0	0	0	0	0	613	34	105	1430	
7:15 AM to 8:15 AM	0	123	180	0	0	0	45	356	0	0	0	0	0	655	40	144	1543	
7:30 AM to 8:30 AM	0	141	201	0	0	0	57	420	0	0	0	0	0	716	43	157	1735	
7:45 AM to 8:45 AM	0	143	212	0	0	0	62	417	0	0	0	0	0	785	28	170	1817	
8:00 AM to 9:00 AM	1	160	236	0	0	0	58	413	0	0	0	0	0	829	21	182	1900	

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
8:00 AM to 9:00 AM	1	160	236	0	0	0	58	413	0	0	0	0	0	829	21	182	1900	
PHF BY MOVEMENT	0.25	0.80	0.78	0.00	0.00	0.00	0.91	0.65	0.00	0.00	0.00	0.00	0.00	0.87	0.75	0.84	OVERALL	
PHF BY APPROACH	0.78				0.67				0.00				0.90				0.91	

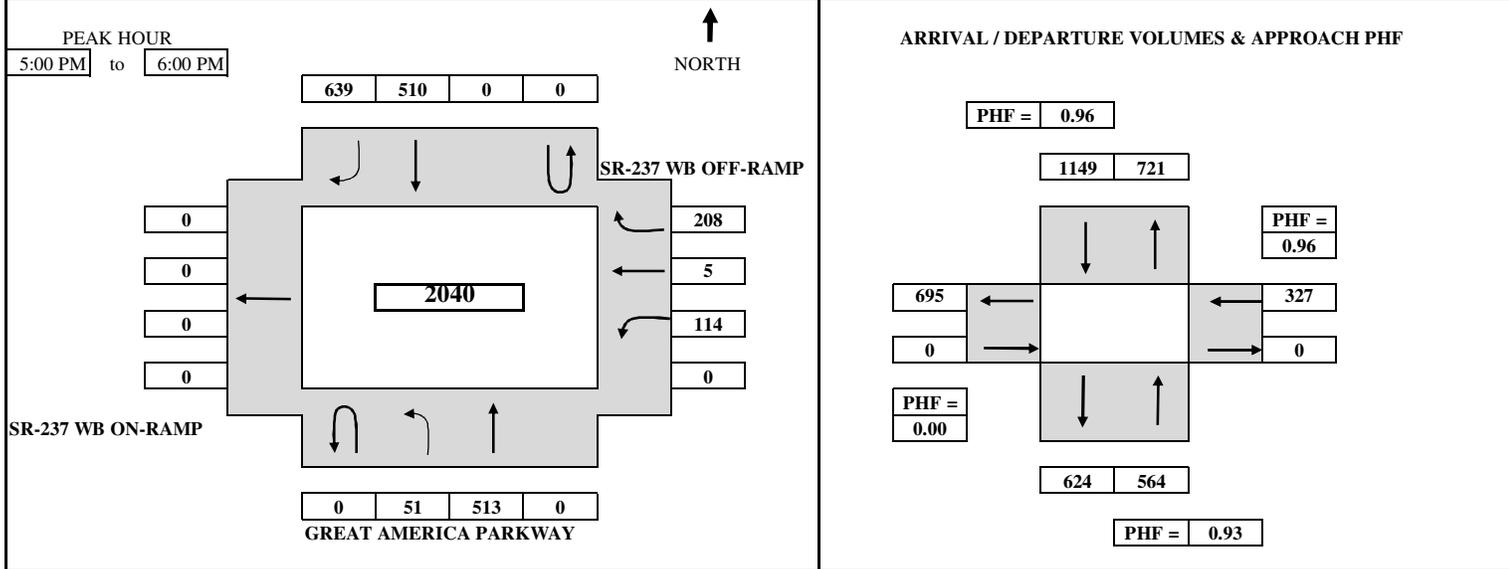
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B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	GREAT AMERICA PARKWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	SR-237 WB OFF-RAMP	JURISDICTION:	SUNNYVALE	FILE:	3410127-4PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
4:00 PM to 4:15 PM	16	113			83	163							43	1	64	483	
4:15 PM to 4:30 PM	30	215			168	317							74	1	129	934	
4:30 PM to 4:45 PM	57	318			287	473							114	1	196	1446	
4:45 PM to 5:00 PM	84	440			405	603							145	1	237	1915	
5:00 PM to 5:15 PM	99	576			528	771							168	2	296	2440	
5:15 PM to 5:30 PM	107	708			657	926							201	2	348	2949	
5:30 PM to 5:45 PM	124	817			792	1090							235	3	397	3458	
5:45 PM to 6:00 PM	135	953			915	1242							259	6	445	3955	

SURVEY DATA

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
4:00 PM to 4:15 PM	0	16	113	0	0	0	83	163	0	0	0	0	0	43	1	64	483
4:15 PM to 4:30 PM	0	14	102	0	0	0	85	154	0	0	0	0	0	31	0	65	451
4:30 PM to 4:45 PM	0	27	103	0	0	0	119	156	0	0	0	0	0	40	0	67	512
4:45 PM to 5:00 PM	0	27	122	0	0	0	118	130	0	0	0	0	0	31	0	41	469
5:00 PM to 5:15 PM	0	15	136	0	0	0	123	168	0	0	0	0	0	23	1	59	525
5:15 PM to 5:30 PM	0	8	132	0	0	0	129	155	0	0	0	0	0	33	0	52	509
5:30 PM to 5:45 PM	0	17	109	0	0	0	135	164	0	0	0	0	0	34	1	49	509
5:45 PM to 6:00 PM	0	11	136	0	0	0	123	152	0	0	0	0	0	24	3	48	497

HOURLY TOTALS

4:00 PM to 5:00 PM	0	84	440	0	0	0	405	603	0	0	0	0	0	145	1	237	1915
4:15 PM to 5:15 PM	0	83	463	0	0	0	445	608	0	0	0	0	0	125	1	232	1957
4:30 PM to 5:30 PM	0	77	493	0	0	0	489	609	0	0	0	0	0	127	1	219	2015
4:45 PM to 5:45 PM	0	67	499	0	0	0	505	617	0	0	0	0	0	121	2	201	2012
5:00 PM to 6:00 PM	0	51	513	0	0	0	510	639	0	0	0	0	0	114	5	208	2040

PEAK HOUR SUMMARY

5:00 PM to 6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	51	513	0	0	0	510	639	0	0	0	0	0	114	5	208	2040
PHF BY MOVEMENT	0.00	0.75	0.94	0.00	0.00	0.00	0.94	0.95	0.00	0.00	0.00	0.00	0.00	0.84	0.42	0.88	OVERALL
PHF BY APPROACH	0.93				0.96				0.00				0.96				0.97

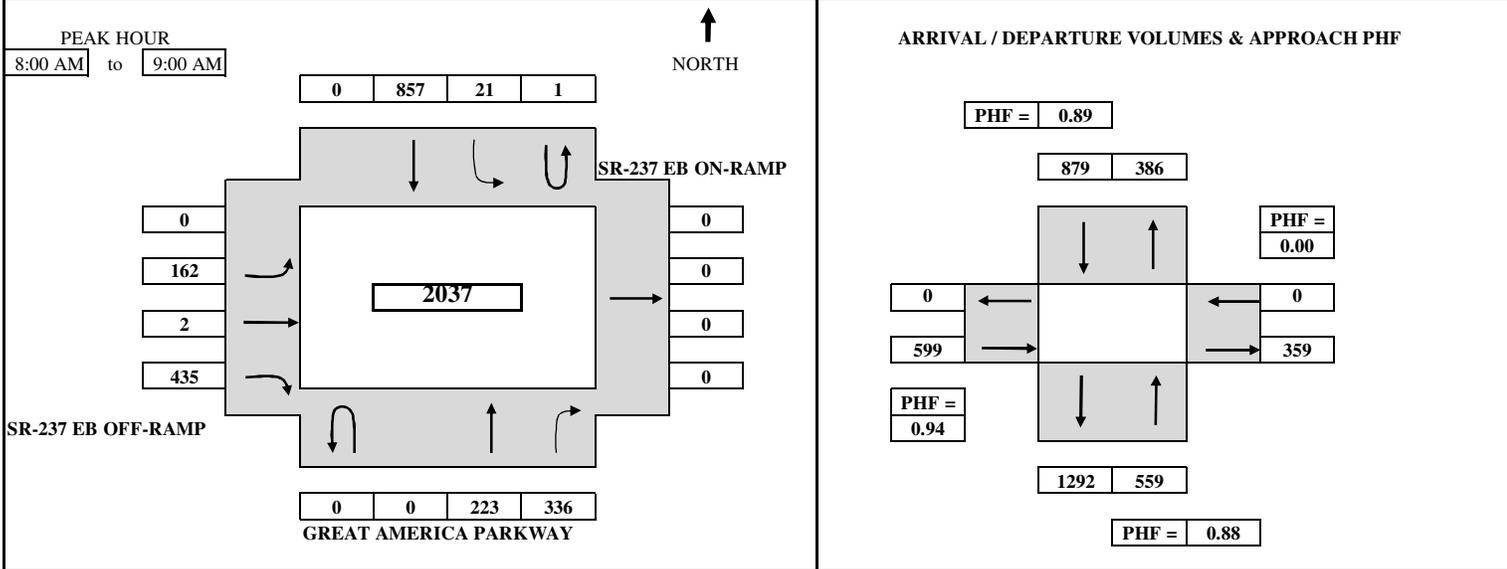
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INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	GREAT AMERICA PARKWAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	SR-237 EB OFF-RAMP	JURISDICTION:	SUNNYVALE	FILE:	3410127-5AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
7:00 AM to 7:15 AM			27	57	0	9	113		20	0	40						266
7:15 AM to 7:30 AM			70	99	0	15	267		35	0	98						584
7:30 AM to 7:45 AM			127	208	0	25	435		59	1	171						1026
7:45 AM to 8:00 AM			182	284	1	37	619		96	1	246						1466
8:00 AM to 8:15 AM			221	352	1	43	782		132	1	349						1881
8:15 AM to 8:30 AM			277	454	1	48	1005		173	1	464						2423
8:30 AM to 8:45 AM			335	553	2	54	1234		218	1	578						2975
8:45 AM to 9:00 AM			405	620	2	58	1476		258	3	681						3503

TOTAL BY PERIOD																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
7:00 AM to 7:15 AM	0	0	27	57	0	9	113	0	0	20	0	40	0	0	0	0	266
7:15 AM to 7:30 AM	0	0	43	42	0	6	154	0	0	15	0	58	0	0	0	0	318
7:30 AM to 7:45 AM	0	0	57	109	0	10	168	0	0	24	1	73	0	0	0	0	442
7:45 AM to 8:00 AM	0	0	55	76	1	12	184	0	0	37	0	75	0	0	0	0	440
8:00 AM to 8:15 AM	0	0	39	68	0	6	163	0	0	36	0	103	0	0	0	0	415
8:15 AM to 8:30 AM	0	0	56	102	0	5	223	0	0	41	0	115	0	0	0	0	542
8:30 AM to 8:45 AM	0	0	58	99	1	6	229	0	0	45	0	114	0	0	0	0	552
8:45 AM to 9:00 AM	0	0	70	67	0	4	242	0	0	40	2	103	0	0	0	0	528

HOURLY TOTALS																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
7:00 AM to 8:00 AM	0	0	182	284	1	37	619	0	0	96	1	246	0	0	0	0	1466
7:15 AM to 8:15 AM	0	0	194	295	1	34	669	0	0	112	1	309	0	0	0	0	1615
7:30 AM to 8:30 AM	0	0	207	355	1	33	738	0	0	138	1	366	0	0	0	0	1839
7:45 AM to 8:45 AM	0	0	208	345	2	29	799	0	0	159	0	407	0	0	0	0	1949
8:00 AM to 9:00 AM	0	0	223	336	1	21	857	0	0	162	2	435	0	0	0	0	2037

PEAK HOUR SUMMARY																	
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
8:00 AM to 9:00 AM	0	0	223	336	1	21	857	0	0	162	2	435	0	0	0	0	2037
PHF BY MOVEMENT	0.00	0.00	0.80	0.82	0.25	0.88	0.89	0.00	0.00	0.90	0.25	0.95	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.88				0.89				0.94				0.00				0.92

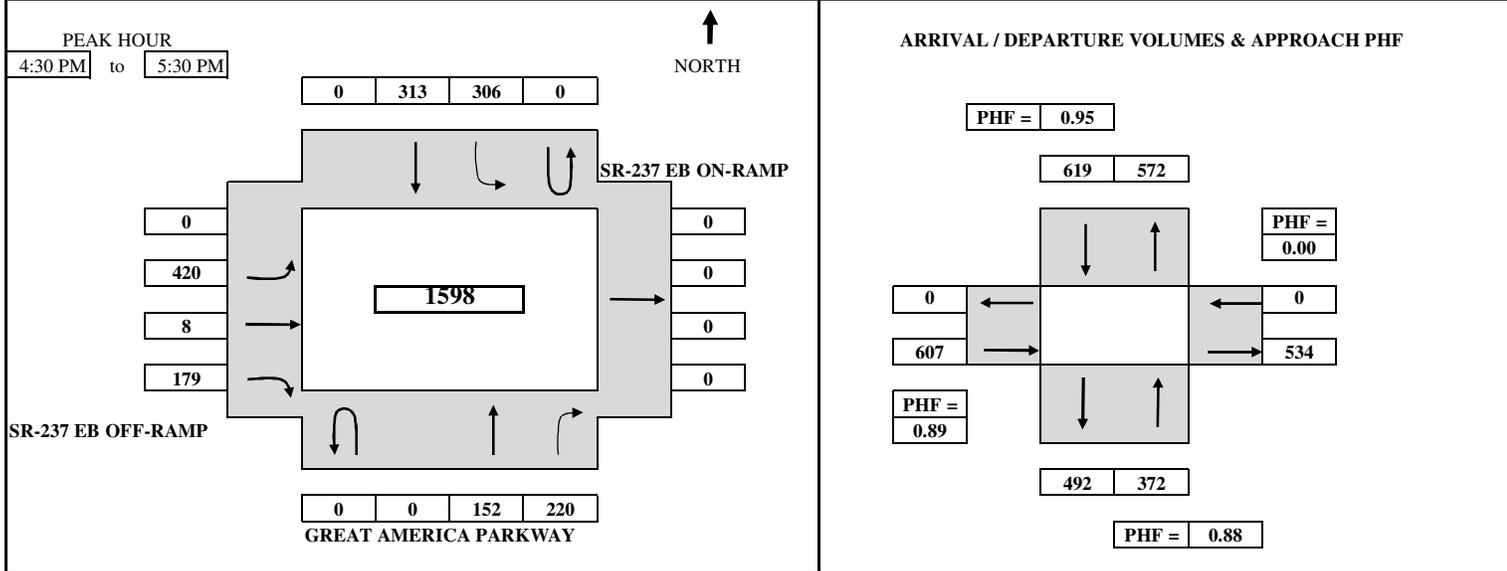
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	GREAT AMERICA PARKWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	SR-237 EB OFF-RAMP	JURISDICTION:	SUNNYVALE	FILE:	3410127-5PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
4:00 PM to 4:15 PM			35	51		56	70			96	0	33					341
4:15 PM to 4:30 PM			59	72		109	129			186	0	73					628
4:30 PM to 4:45 PM			101	131		181	218			274	2	113					1020
4:45 PM to 5:00 PM			139	199		259	288			386	5	160					1436
5:00 PM to 5:15 PM			165	257		335	359			510	7	204					1837
5:15 PM to 5:30 PM			211	292		415	442			606	8	252					2226
5:30 PM to 5:45 PM			239	352		482	545			701	8	275					2602
5:45 PM to 6:00 PM			271	392		542	628			819	10	309					2971

TOTAL BY PERIOD																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 4:15 PM	0	0	35	51	0	56	70	0	0	96	0	33	0	0	0	0	341
4:15 PM to 4:30 PM	0	0	24	21	0	53	59	0	0	90	0	40	0	0	0	0	287
4:30 PM to 4:45 PM	0	0	42	59	0	72	89	0	0	88	2	40	0	0	0	0	392
4:45 PM to 5:00 PM	0	0	38	68	0	78	70	0	0	112	3	47	0	0	0	0	416
5:00 PM to 5:15 PM	0	0	26	58	0	76	71	0	0	124	2	44	0	0	0	0	401
5:15 PM to 5:30 PM	0	0	46	35	0	80	83	0	0	96	1	48	0	0	0	0	389
5:30 PM to 5:45 PM	0	0	28	60	0	67	103	0	0	95	0	23	0	0	0	0	376
5:45 PM to 6:00 PM	0	0	32	40	0	60	83	0	0	118	2	34	0	0	0	0	369

HOURLY TOTALS																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 5:00 PM	0	0	139	199	0	259	288	0	0	386	5	160	0	0	0	0	1436
4:15 PM to 5:15 PM	0	0	130	206	0	279	289	0	0	414	7	171	0	0	0	0	1496
4:30 PM to 5:30 PM	0	0	152	220	0	306	313	0	0	420	8	179	0	0	0	0	1598
4:45 PM to 5:45 PM	0	0	138	221	0	301	327	0	0	427	6	162	0	0	0	0	1582
5:00 PM to 6:00 PM	0	0	132	193	0	283	340	0	0	433	5	149	0	0	0	0	1535

PEAK HOUR SUMMARY																	
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
4:30 PM to 5:30 PM	0	0	152	220	0	306	313	0	0	420	8	179	0	0	0	0	1598
PHF BY MOVEMENT	0.00	0.00	0.83	0.81	0.00	0.96	0.88	0.00	0.00	0.85	0.67	0.93	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.88				0.95				0.89				0.00				0.96

TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: SOUTH BAY SALT PONDS PROJECT (26818347)		SURVEY DATE: 10/22/2014		DAY: WEDNESDAY	
N-S APPROACH: SHORELINE BOULEVARD			SURVEY TIME: 7:00 AM TO 9:00 AM		
E-W APPROACH: US-101 NB RAMPS		- LA AVENIDA STREET		JURISDICTION: MOUNTAIN VIEW	
				FILE: 3410127-2AM	

PEAK HOUR		49	325	0	ARRIVAL / DEPARTURE VOLUMES					
8:00 AM	TO	9:00 AM								
						PHF = 0.92				
						374	2407			
						PHF = 0.73				
						151				
						0				
						1748				
						0				
						PHF = 0.87				
						963	1524			
				PHF = 0.89						

TIME	PERIOD	NORTHBOUND			SOUTHBOUND			WB (LA AVENIDA ST)			WB (101 NB OFFRAMPS)			TOTAL	
		LEFT	THRU	ONRAMP	LEFT	THRU	ONRAMP	LEFT	ONRAMP	RIGHT	LEFT	ONRAMP	RIGHT		
SURVEY DATA															
7:00 AM	to	7:15 AM	99	59	54	14	7	13	0	66	0	216	528		
7:15 AM	to	7:30 AM	213	122	102	24	34	35	3	122	0	495	1150		
7:30 AM	to	7:45 AM	368	235	163	32	55	50	4	202	2	797	1908		
7:45 AM	to	8:00 AM	540	316	240	46	88	57	6	277	2	1159	2731		
8:00 AM	to	8:15 AM	782	433	314	63	127	66	10	413	6	1520	3734		
8:15 AM	to	8:30 AM	1092	551	395	73	141	77	11	510	6	1822	4678		
8:30 AM	to	8:45 AM	1403	624	474	84	166	81	16	654	7	2075	5584		
8:45 AM	to	9:00 AM	1721	659	565	95	196	87	19	807	7	2372	6528		
TOTAL BY PERIOD															
7:00 AM	to	7:15 AM	0	99	59	0	54	14	7	13	0	66	0	216	528
7:15 AM	to	7:30 AM	0	114	63	0	48	10	27	22	3	56	0	279	622
7:30 AM	to	7:45 AM	0	155	113	0	61	8	21	15	1	80	2	302	758
7:45 AM	to	8:00 AM	0	172	81	0	77	14	33	7	2	75	0	362	823
8:00 AM	to	8:15 AM	0	242	117	0	74	17	39	9	4	136	4	361	1003
8:15 AM	to	8:30 AM	0	310	118	0	81	10	14	11	1	97	0	302	944
8:30 AM	to	8:45 AM	0	311	73	0	79	11	25	4	5	144	1	253	906
8:45 AM	to	9:00 AM	0	318	35	0	91	11	30	6	3	153	0	297	944
HOURLY TOTALS															
7:00 AM	to	8:00 AM	0	540	316	0	240	46	88	57	6	277	2	1159	2731
7:15 AM	to	8:15 AM	0	683	374	0	260	49	120	53	10	347	6	1304	3206
7:30 AM	to	8:30 AM	0	879	429	0	293	49	107	42	8	388	6	1327	3528
7:45 AM	to	8:45 AM	0	1035	389	0	311	52	111	31	12	452	5	1278	3676
8:00 AM	to	9:00 AM	0	1181	343	0	325	49	108	30	13	530	5	1213	3797
PEAK HOUR SUMMARY															
8:00 AM	to	9:00 AM	NORTHBOUND			SOUTHBOUND			WB (LA AVENIDA ST)			WB (101 NB OFFRAMPS)			TOTAL
			LEFT	THRU	ONRAMP	LEFT	THRU	ONRAMP	LEFT	ONRAMP	RIGHT	LEFT	ONRAMP	RIGHT	
VOLUME			0	1181	343	0	325	49	108	30	13	530	5	1213	3797
PHF BY MOVEMENT			#DIV/0!	0.93	0.73	#DIV/0!	0.89	0.72	0.69	0.68	0.65	0.87	0.31	0.84	OVERALL
PHF BY APPROACH			0.89			0.92			0.73			0.87			0.95

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: SOUTH BAY SALT PONDS PROJECT (26818347)		SURVEY DATE: 10/22/2014		DAY: WEDNESDAY	
N-S APPROACH: SHORELINE BOULEVARD			SURVEY TIME: 4:00 PM TO 6:00 PM		
E-W APPROACH US-101 NB RAMPS		- LA AVENIDA STREET		JURISDICTION: MOUNTAIN VIEW FILE: 3410127-2PM	

<p style="text-align: center;">* PEAK HOUR 5:00 PM TO 6:00 PM</p> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <tr> <td style="width: 33%;">157</td> <td style="width: 33%;">2079</td> <td style="width: 33%;">0</td> </tr> </table> <p>↑ NORTH LA AVENIDA STREET</p> <p>US-101 NB ON-RAMP</p> <p style="text-align: right;">US-101 NB RAMPS</p> <p style="text-align: center;">SHORELINE BOULEVARD</p> <p>* to NB ON-RAMP</p> </div>	157	2079	0	<p style="text-align: center;">ARRIVAL / DEPARTURE VOLUMES</p> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <tr> <td>PHF = 0.94</td> <td>2236</td> <td>919</td> </tr> </table> <table border="1" style="margin: 0 auto;"> <tr> <td>PHF = 0.88</td> <td>467</td> <td>0</td> </tr> <tr> <td>634</td> <td>910</td> <td>0</td> </tr> </table> <table border="1" style="margin: 0 auto;"> <tr> <td>PHF = 0.92</td> <td>2841</td> <td>781</td> </tr> <tr> <td>PHF = 0.89</td> <td></td> <td></td> </tr> </table> </div>	PHF = 0.94	2236	919	PHF = 0.88	467	0	634	910	0	PHF = 0.92	2841	781	PHF = 0.89		
157	2079	0																	
PHF = 0.94	2236	919																	
PHF = 0.88	467	0																	
634	910	0																	
PHF = 0.92	2841	781																	
PHF = 0.89																			

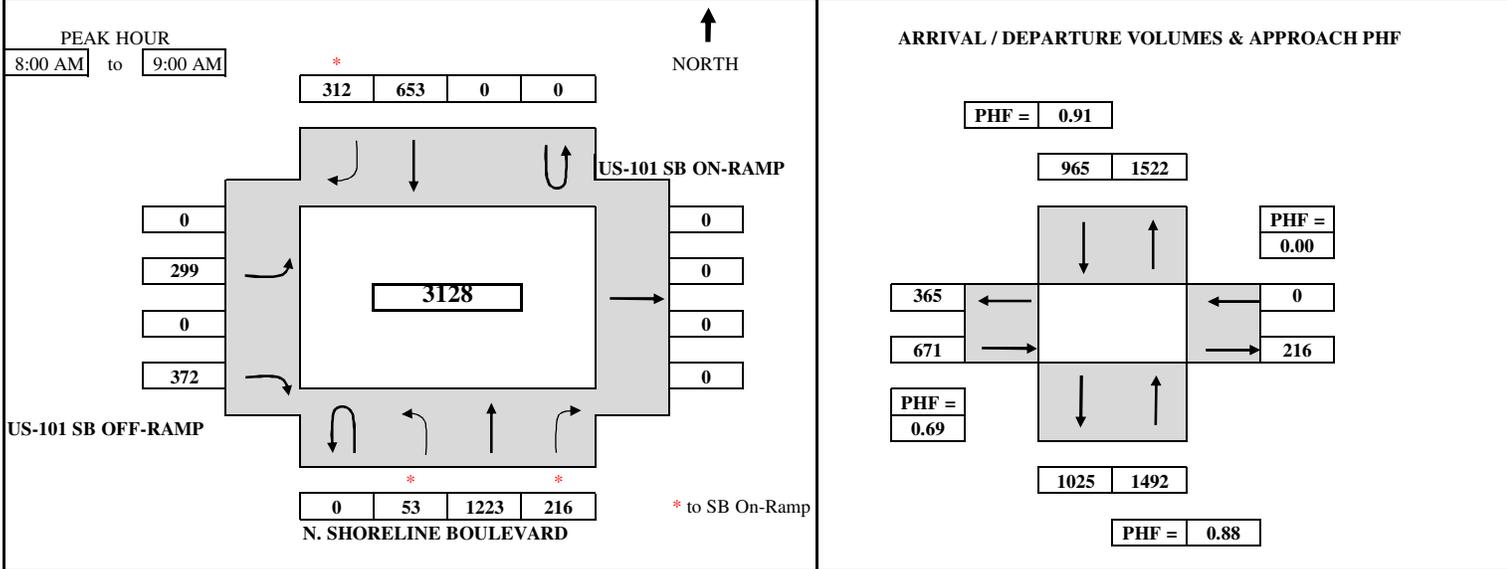
TIME PERIOD	NORTHBOUND			SOUTHBOUND			WB (LA AVENIDA ST)			WB (101 NB OFFRAMPS)			TOTAL		
	From	To	LEFT THRU ONRAMP	LEFT THRU ONRAMP	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT								
SURVEY DATA															
4:00 PM to 4:15 PM			99 71	410 58	56 19 0	90 4 67	874								
4:15 PM to 4:30 PM			178 144	840 102	116 37 1	206 5 203	1832								
4:30 PM to 4:45 PM			280 209	1270 159	190 59 4	287 6 331	2795								
4:45 PM to 5:00 PM			352 300	1718 203	258 84 5	386 6 423	3735								
5:00 PM to 5:15 PM			447 383	2265 252	350 123 6	502 6 543	4877								
5:15 PM to 5:30 PM			572 478	2770 293	443 146 8	605 7 664	5986								
5:30 PM to 5:45 PM			673 570	3309 326	526 181 10	700 9 770	7074								
5:45 PM to 6:00 PM			792 641	3797 360	588 216 10	818 10 897	8129								
TOTAL BY PERIOD															
4:00 PM to 4:15 PM			0 99 71	0 410 58	56 19 0	90 4 67	874								
4:15 PM to 4:30 PM			0 79 73	0 430 44	60 18 1	116 1 136	958								
4:30 PM to 4:45 PM			0 102 65	0 430 57	74 22 3	81 1 128	963								
4:45 PM to 5:00 PM			0 72 91	0 448 44	68 25 1	99 0 92	940								
5:00 PM to 5:15 PM			0 95 83	0 547 49	92 39 1	116 0 120	1142								
5:15 PM to 5:30 PM			0 125 95	0 505 41	93 23 2	103 1 121	1109								
5:30 PM to 5:45 PM			0 101 92	0 539 33	83 35 2	95 2 106	1088								
5:45 PM to 6:00 PM			0 119 71	0 488 34	62 35 0	118 1 127	1055								
HOURLY TOTALS															
4:00 PM to 5:00 PM			0 352 300	0 1718 203	258 84 5	386 6 423	3735								
4:15 PM to 5:15 PM			0 348 312	0 1855 194	294 104 6	412 2 476	4003								
4:30 PM to 5:30 PM			0 394 334	0 1930 191	327 109 7	399 2 461	4154								
4:45 PM to 5:45 PM			0 393 361	0 2039 167	336 122 6	413 3 439	4279								
5:00 PM to 6:00 PM			0 440 341	0 2079 157	330 132 5	432 4 474	4394								
PEAK HOUR SUMMARY															
5:00 PM to 6:00 PM			NORTHBOUND			SOUTHBOUND			WB (LA AVENIDA ST)			WB (101 NB OFFRAMPS)			TOTAL
			LEFT THRU ONRAMP	LEFT THRU ONRAMP	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT	LEFT ONRAMP RIGHT						
VOLUME			0 440 341	0 2079 157	330 132 5	432 4 474	4394								
PHF BY MOVEMENT	#DIV/0!	0.88 0.90	#DIV/0! 0.95 0.80	0.89 0.85 0.63	0.92 0.50 0.93	OVERALL									
PHF BY APPROACH		0.89	0.94	0.88	0.92	0.96									

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	N. SHORELINE BOULEVARD	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	US-101 SB OFF-RAMP	JURISDICTION:	MOUNTAIN VIEW	FILE:	3410127-3AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM to 7:15 AM			17	106	53			85	47		48	56							412
7:15 AM to 7:30 AM			40	236	126			160	102		93	124							881
7:30 AM to 7:45 AM			62	441	212			271	157		159	209							1511
7:45 AM to 8:00 AM			82	650	299			396	217		200	301							2145
8:00 AM to 8:15 AM			95	936	363			557	296		275	410							2932
8:15 AM to 8:30 AM			108	1293	417			709	349		347	497							3720
8:30 AM to 8:45 AM			122	1601	488			880	432		424	506							4453
8:45 AM to 9:00 AM			135	1873	515			1049	529		499	673							5273

TOTAL BY PERIOD																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL																
7:00 AM to 7:15 AM	0	17	106	53	0	0	85	47	0	48	0	56	0	0	0	0	0	0	0	0	412
7:15 AM to 7:30 AM	0	23	130	73	0	0	75	55	0	45	0	68	0	0	0	0	0	0	0	0	469
7:30 AM to 7:45 AM	0	22	205	86	0	0	111	55	0	66	0	85	0	0	0	0	0	0	0	0	630
7:45 AM to 8:00 AM	0	20	209	87	0	0	125	60	0	41	0	92	0	0	0	0	0	0	0	0	634
8:00 AM to 8:15 AM	0	13	286	64	0	0	161	79	0	75	0	109	0	0	0	0	0	0	0	0	787
8:15 AM to 8:30 AM	0	13	357	54	0	0	152	53	0	72	0	87	0	0	0	0	0	0	0	0	788
8:30 AM to 8:45 AM	0	14	308	71	0	0	171	83	0	77	0	9	0	0	0	0	0	0	0	0	733
8:45 AM to 9:00 AM	0	13	272	27	0	0	169	97	0	75	0	167	0	0	0	0	0	0	0	0	820

HOURLY TOTALS																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL																
7:00 AM to 8:00 AM	0	82	650	299	0	0	396	217	0	200	0	301	0	0	0	0	0	0	0	0	2145
7:15 AM to 8:15 AM	0	78	830	310	0	0	472	249	0	227	0	354	0	0	0	0	0	0	0	0	2520
7:30 AM to 8:30 AM	0	68	1057	291	0	0	549	247	0	254	0	373	0	0	0	0	0	0	0	0	2839
7:45 AM to 8:45 AM	0	60	1160	276	0	0	609	275	0	265	0	297	0	0	0	0	0	0	0	0	2942
8:00 AM to 9:00 AM	0	53	1223	216	0	0	653	312	0	299	0	372	0	0	0	0	0	0	0	0	3128

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
8:00 AM to 9:00 AM	0	53	1223	216	0	0	653	312	0	299	0	372	0	0	0	0	3128	
PHF BY MOVEMENT	0.00	0.95	0.86	0.76	0.00	0.00	0.95	0.80	0.00	0.97	0.00	0.56	0.00	0.00	0.00	0.00	OVERALL	
PHF BY APPROACH	0.88				0.91				0.69				0.00				0.95	

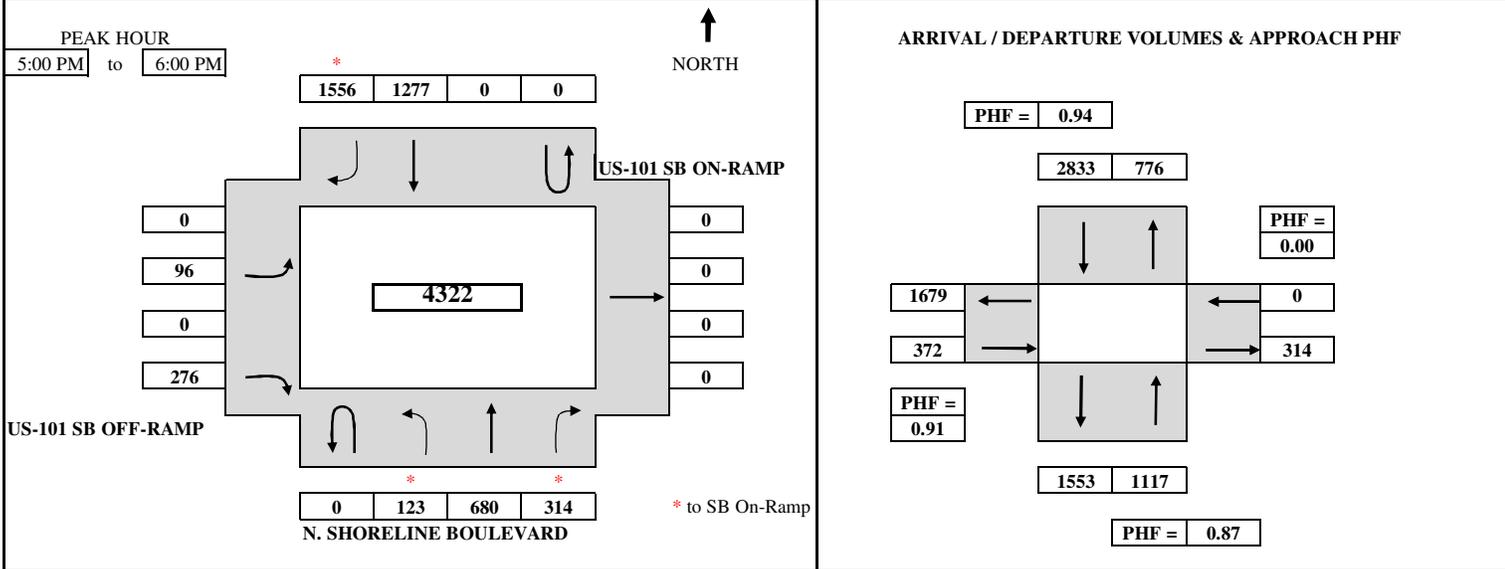
TEL: (510) 232 - 1271

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B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	N. SHORELINE BOULEVARD	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	US-101 SB OFF-RAMP	JURISDICTION:	MOUNTAIN VIEW	FILE:	3410127-3PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM to 4:15 PM			28	143	79			222	336		29		49						886
4:15 PM to 4:30 PM			46	277	151			461	715		44		98						1792
4:30 PM to 4:45 PM			84	421	235			696	1046		65		146						2693
4:45 PM to 5:00 PM			115	567	307			949	1409		87		208						3642
5:00 PM to 5:15 PM			154	719	405			1274	1835		112		264						4763
5:15 PM to 5:30 PM			185	919	495			1612	2198		135		331						5875
5:30 PM to 5:45 PM			213	1086	560			1948	2580		161		407						6955
5:45 PM to 6:00 PM			238	1247	621			2226	2965		183		484						7964

TOTAL BY PERIOD																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL																
4:00 PM to 4:15 PM	0	28	143	79	0	0	222	336	0	29	0	49	0	0	0	0	0	0	0	0	886
4:15 PM to 4:30 PM	0	18	134	72	0	0	239	379	0	15	0	49	0	0	0	0	0	0	0	0	906
4:30 PM to 4:45 PM	0	38	144	84	0	0	235	331	0	21	0	48	0	0	0	0	0	0	0	0	901
4:45 PM to 5:00 PM	0	31	146	72	0	0	253	363	0	22	0	62	0	0	0	0	0	0	0	0	949
5:00 PM to 5:15 PM	0	39	152	98	0	0	325	426	0	25	0	56	0	0	0	0	0	0	0	0	1121
5:15 PM to 5:30 PM	0	31	200	90	0	0	338	363	0	23	0	67	0	0	0	0	0	0	0	0	1112
5:30 PM to 5:45 PM	0	28	167	65	0	0	336	382	0	26	0	76	0	0	0	0	0	0	0	0	1080
5:45 PM to 6:00 PM	0	25	161	61	0	0	278	385	0	22	0	77	0	0	0	0	0	0	0	0	1009

HOURLY TOTALS																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL																
4:00 PM to 5:00 PM	0	115	567	307	0	0	949	1409	0	87	0	208	0	0	0	0	0	0	0	0	3642
4:15 PM to 5:15 PM	0	126	576	326	0	0	1052	1499	0	83	0	215	0	0	0	0	0	0	0	0	3877
4:30 PM to 5:30 PM	0	139	642	344	0	0	1151	1483	0	91	0	233	0	0	0	0	0	0	0	0	4083
4:45 PM to 5:45 PM	0	129	665	325	0	0	1252	1534	0	96	0	261	0	0	0	0	0	0	0	0	4262
5:00 PM to 6:00 PM	0	123	680	314	0	0	1277	1556	0	96	0	276	0	0	0	0	0	0	0	0	4322

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
5:00 PM to 6:00 PM	0	123	680	314	0	0	1277	1556	0	96	0	276	0	0	0	0	4322		
PHF BY MOVEMENT	0.00	0.79	0.85	0.80	0.00	0.00	0.94	0.91	0.00	0.92	0.00	0.90	0.00	0.00	0.00	0.00	OVERALL		
PHF BY APPROACH	0.87				0.94				0.91				0.00				0.96		

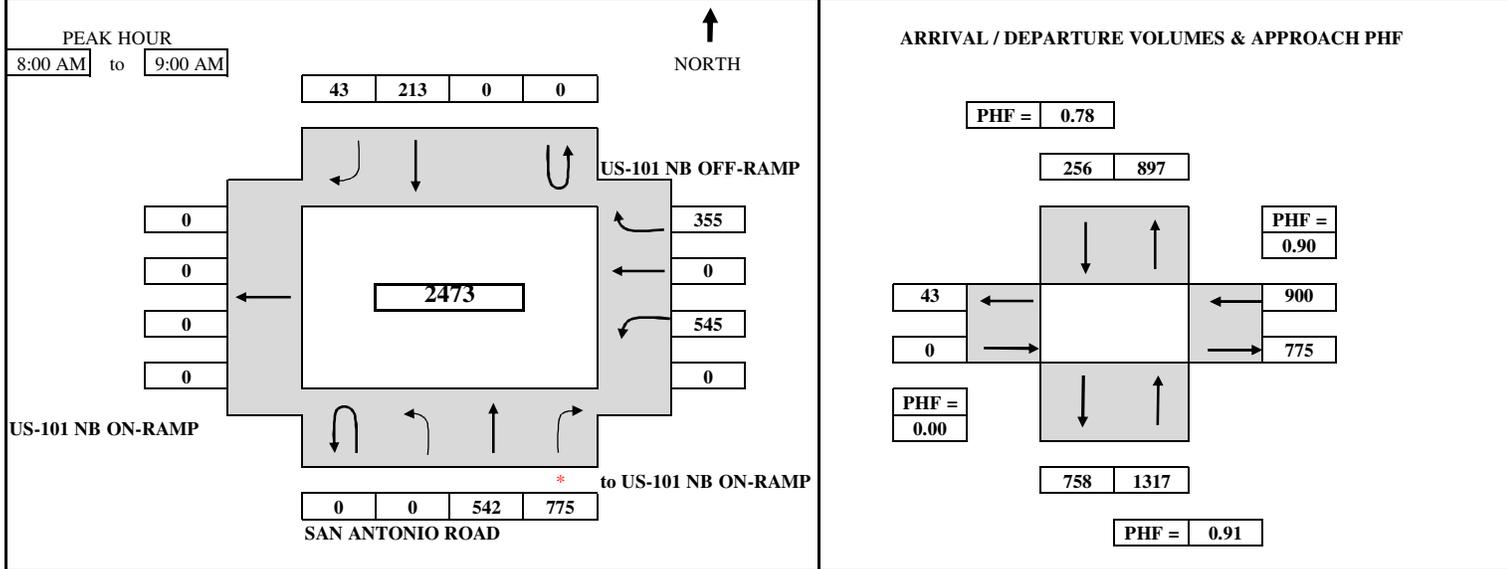
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	SAN ANTONIO ROAD	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	US-101 NB OFF-RAMP	JURISDICTION:	MOUNTAIN VIEW	FILE:	3410127-1AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM			58	93			22	4					105			32	314
7:15 AM	to	7:30 AM			118	237			46	11					224			71	707
7:30 AM	to	7:45 AM			187	393			80	14					326			111	1111
7:45 AM	to	8:00 AM			286	566			124	19					484			172	1651
8:00 AM	to	8:15 AM			397	765			162	29					642			254	2249
8:15 AM	to	8:30 AM			507	953			227	41					779			317	2824
8:30 AM	to	8:45 AM			656	1151			263	54					899			407	3430
8:45 AM	to	9:00 AM			828	1341			337	62					1029			527	4124

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	58	93	0	0	22	4	0	0	0	0	0	105	0	32	314
7:15 AM	to	7:30 AM	0	0	60	144	0	0	24	7	0	0	0	0	0	119	0	39	393
7:30 AM	to	7:45 AM	0	0	69	156	0	0	34	3	0	0	0	0	0	102	0	40	404
7:45 AM	to	8:00 AM	0	0	99	173	0	0	44	5	0	0	0	0	0	158	0	61	540
8:00 AM	to	8:15 AM	0	0	111	199	0	0	38	10	0	0	0	0	0	158	0	82	598
8:15 AM	to	8:30 AM	0	0	110	188	0	0	65	12	0	0	0	0	0	137	0	63	575
8:30 AM	to	8:45 AM	0	0	149	198	0	0	36	13	0	0	0	0	0	120	0	90	606
8:45 AM	to	9:00 AM	0	0	172	190	0	0	74	8	0	0	0	0	0	130	0	120	694

HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	286	566	0	0	124	19	0	0	0	0	0	484	0	172	1651
7:15 AM	to	8:15 AM	0	0	339	672	0	0	140	25	0	0	0	0	0	537	0	222	1935
7:30 AM	to	8:30 AM	0	0	389	716	0	0	181	30	0	0	0	0	0	555	0	246	2117
7:45 AM	to	8:45 AM	0	0	469	758	0	0	183	40	0	0	0	0	0	573	0	296	2319
8:00 AM	to	9:00 AM	0	0	542	775	0	0	213	43	0	0	0	0	0	545	0	355	2473

PEAK HOUR SUMMARY																				
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	542	775	0	0	213	43	0	0	0	0	0	545	0	355	2473	
			PHF BY MOVEMENT	0.00	0.00	0.79	0.97	0.00	0.00	0.72	0.83	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.74	OVERALL
			PHF BY APPROACH	0.91				0.78				0.00				0.90				0.89

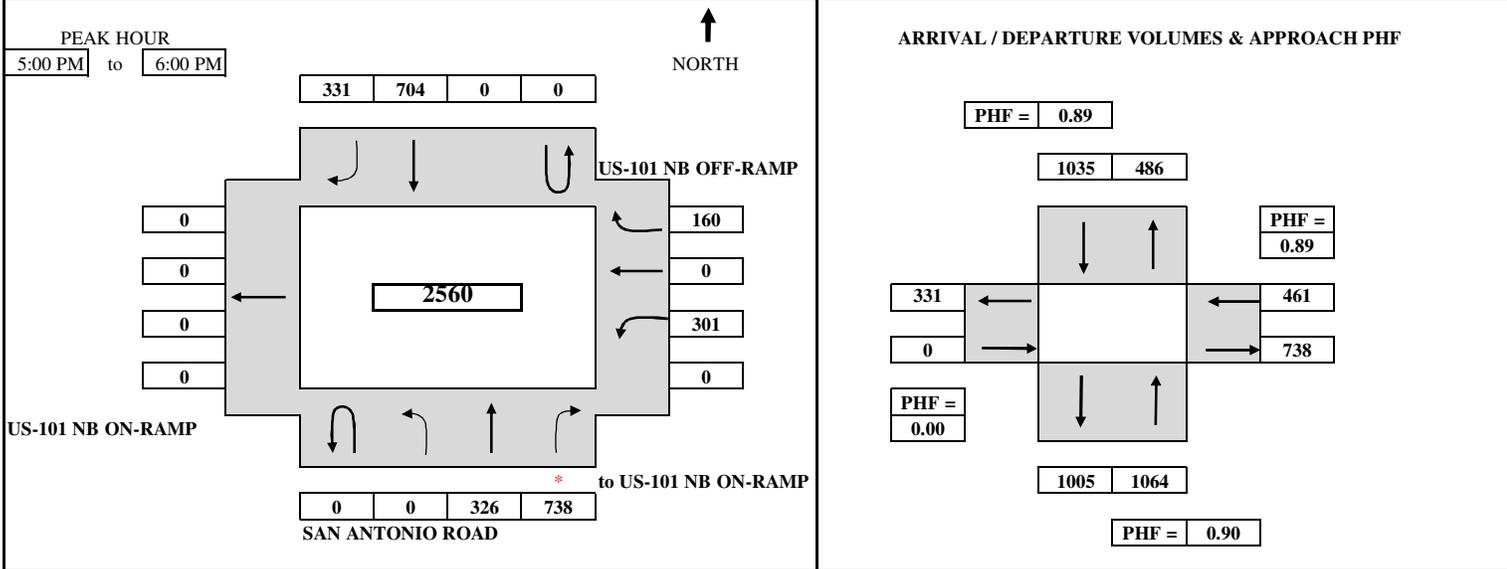
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	SAN ANTONIO ROAD	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	US-101 NB OFF-RAMP	JURISDICTION:	MOUNTAIN VIEW	FILE:	3410127-1PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU
SURVEY DATA																		
4:00 PM to 4:15 PM			69	253			113	71						62			27	595
4:15 PM to 4:30 PM			145	456			236	141						129			64	1171
4:30 PM to 4:45 PM			216	661			374	191						182			98	1722
4:45 PM to 5:00 PM			293	846			510	248						258			134	2289
5:00 PM to 5:15 PM			382	1050			716	315						340			172	2975
5:15 PM to 5:30 PM			449	1252			867	370						405			207	3550
5:30 PM to 5:45 PM			550	1446			1067	460						485			256	4264
5:45 PM to 6:00 PM			619	1584			1214	579						559			294	4849

TOTAL BY PERIOD																			
TIME PERIOD	From	To	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 4:15 PM			0	0	69	253	0	0	113	71	0	0	0	0	0	62	0	27	595
4:15 PM to 4:30 PM			0	0	76	203	0	0	123	70	0	0	0	0	0	67	0	37	576
4:30 PM to 4:45 PM			0	0	71	205	0	0	138	50	0	0	0	0	0	53	0	34	551
4:45 PM to 5:00 PM			0	0	77	185	0	0	136	57	0	0	0	0	0	76	0	36	567
5:00 PM to 5:15 PM			0	0	89	204	0	0	206	67	0	0	0	0	0	82	0	38	686
5:15 PM to 5:30 PM			0	0	67	202	0	0	151	55	0	0	0	0	0	65	0	35	575
5:30 PM to 5:45 PM			0	0	101	194	0	0	200	90	0	0	0	0	0	80	0	49	714
5:45 PM to 6:00 PM			0	0	69	138	0	0	147	119	0	0	0	0	0	74	0	38	585

HOURLY TOTALS																			
TIME PERIOD	From	To	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 5:00 PM			0	0	293	846	0	0	510	248	0	0	0	0	0	258	0	134	2289
4:15 PM to 5:15 PM			0	0	313	797	0	0	603	244	0	0	0	0	0	278	0	145	2380
4:30 PM to 5:30 PM			0	0	304	796	0	0	631	229	0	0	0	0	0	276	0	143	2379
4:45 PM to 5:45 PM			0	0	334	785	0	0	693	269	0	0	0	0	0	303	0	158	2542
5:00 PM to 6:00 PM			0	0	326	738	0	0	704	331	0	0	0	0	0	301	0	160	2560

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
5:00 PM to 6:00 PM	0	0	326	738	0	0	704	331	0	0	0	0	0	301	0	160	2560	
PHF BY MOVEMENT	0.00	0.00	0.81	0.90	0.00	0.00	0.85	0.70	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.82	OVERALL	
PHF BY APPROACH	0.90				0.89				0.00				0.89				0.90	

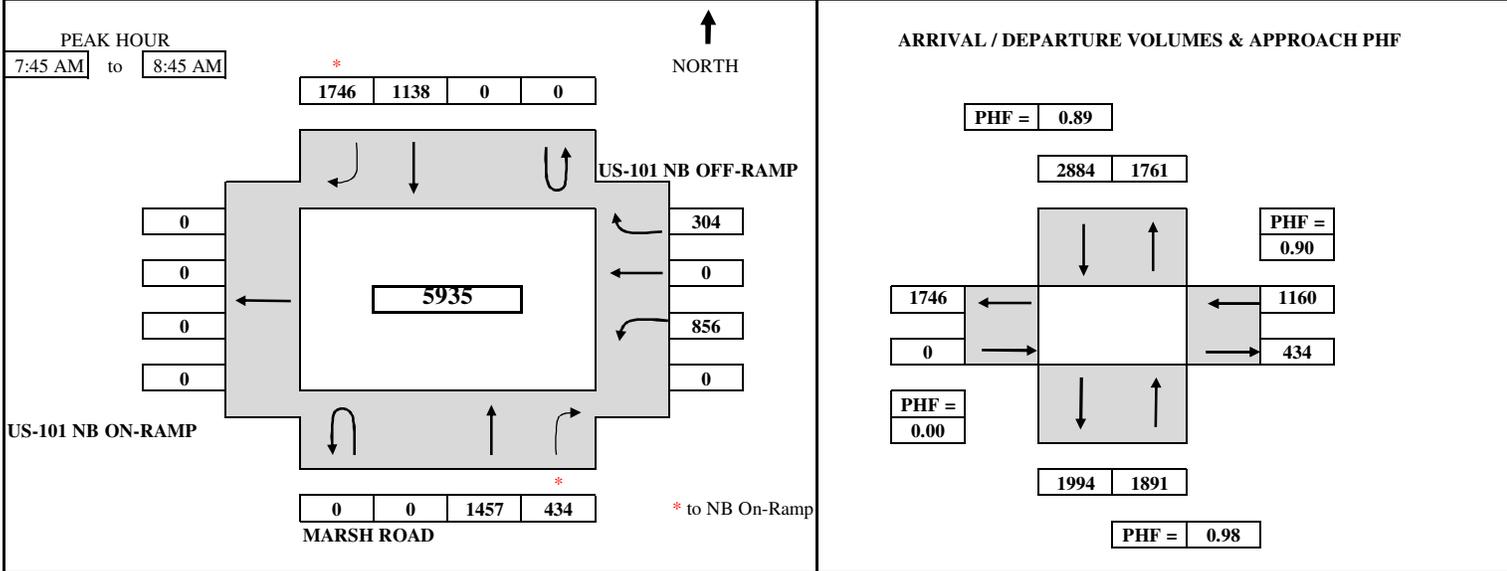
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	MARSH ROAD	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	US-101 NB OFF-RAMP	JURISDICTION:	MENLO PARK	FILE:	3410127-6AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM to 7:15 AM			211	130			262	474						172	68				1317
7:15 AM to 7:30 AM			534	217			495	900						382	124				2652
7:30 AM to 7:45 AM			816	366			811	1378						591	188				4150
7:45 AM to 8:00 AM			1158	475			1159	1837						851	249				5729
8:00 AM to 8:15 AM			1534	578			1421	2217						1058	318				7126
8:15 AM to 8:30 AM			1900	693			1662	2657						1243	401				8556
8:30 AM to 8:45 AM			2273	800			1949	3124						1447	492				10085
8:45 AM to 9:00 AM			2644	938			2139	3579						1606	575				11481

TOTAL BY PERIOD																			
7:00 AM to 7:15 AM	0	0	211	130	0	0	262	474	0	0	0	0	0	172	68	0	0	0	1317
7:15 AM to 7:30 AM	0	0	323	87	0	0	233	426	0	0	0	0	0	210	56	0	0	0	1335
7:30 AM to 7:45 AM	0	0	282	149	0	0	316	478	0	0	0	0	0	209	64	0	0	0	1498
7:45 AM to 8:00 AM	0	0	342	109	0	0	348	459	0	0	0	0	0	260	61	0	0	0	1579
8:00 AM to 8:15 AM	0	0	376	103	0	0	262	380	0	0	0	0	0	207	69	0	0	0	1397
8:15 AM to 8:30 AM	0	0	366	115	0	0	241	440	0	0	0	0	0	185	83	0	0	0	1430
8:30 AM to 8:45 AM	0	0	373	107	0	0	287	467	0	0	0	0	0	204	91	0	0	0	1529
8:45 AM to 9:00 AM	0	0	371	138	0	0	190	455	0	0	0	0	0	159	83	0	0	0	1396

HOURLY TOTALS																			
7:00 AM to 8:00 AM	0	0	1158	475	0	0	1159	1837	0	0	0	0	0	851	249	0	0	0	5729
7:15 AM to 8:15 AM	0	0	1323	448	0	0	1159	1743	0	0	0	0	0	886	250	0	0	0	5809
7:30 AM to 8:30 AM	0	0	1366	476	0	0	1167	1757	0	0	0	0	0	861	277	0	0	0	5904
7:45 AM to 8:45 AM	0	0	1457	434	0	0	1138	1746	0	0	0	0	0	856	304	0	0	0	5935
8:00 AM to 9:00 AM	0	0	1486	463	0	0	980	1742	0	0	0	0	0	755	326	0	0	0	5752

PEAK HOUR SUMMARY																			
7:45 AM to 8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
VOLUME	0	0	1457	434	0	0	1138	1746	0	0	0	0	0	856	0	304	5935		
PHF BY MOVEMENT	0.00	0.00	0.97	0.94	0.00	0.00	0.82	0.93	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.84	OVERALL		
PHF BY APPROACH	0.98				0.89				0.00				0.90				0.94		

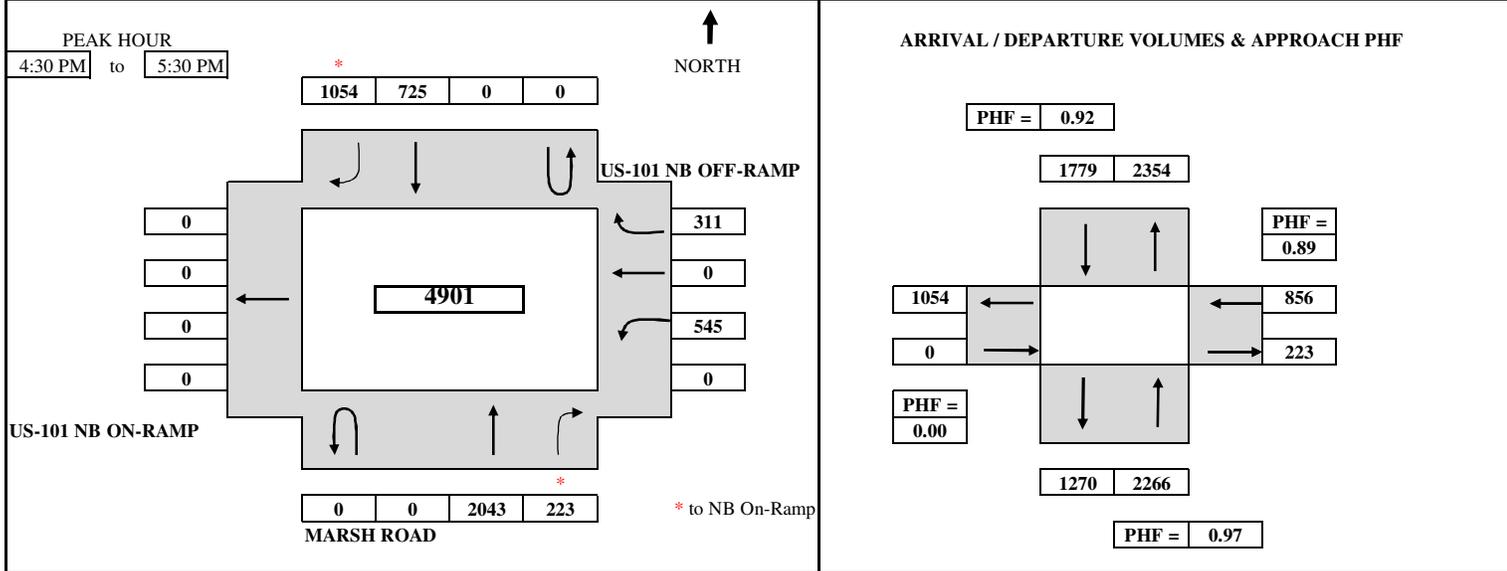
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	MARSH ROAD	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	US-101 NB OFF-RAMP	JURISDICTION:	MENLO PARK	FILE:	3410127-6PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
4:00 PM to 4:15 PM			541	110			152	238						140		88	1269
4:15 PM to 4:30 PM			1085	178			261	426						294		166	2410
4:30 PM to 4:45 PM			1609	236			439	670						425		234	3613
4:45 PM to 5:00 PM			2118	298			606	935						581		318	4856
5:00 PM to 5:15 PM			2617	342			797	1183						714		402	6055
5:15 PM to 5:30 PM			3128	401			986	1480						839		477	7311
5:30 PM to 5:45 PM			3673	456			1139	1654						976		535	8433
5:45 PM to 6:00 PM			4198	504			1291	1883						1099		596	9571

TOTAL BY PERIOD																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 4:15 PM	0	0	541	110	0	0	152	238	0	0	0	0	0	140	0	88	1269
4:15 PM to 4:30 PM	0	0	544	68	0	0	109	188	0	0	0	0	0	154	0	78	1141
4:30 PM to 4:45 PM	0	0	524	58	0	0	178	244	0	0	0	0	0	131	0	68	1203
4:45 PM to 5:00 PM	0	0	509	62	0	0	167	265	0	0	0	0	0	156	0	84	1243
5:00 PM to 5:15 PM	0	0	499	44	0	0	191	248	0	0	0	0	0	133	0	84	1199
5:15 PM to 5:30 PM	0	0	511	59	0	0	189	297	0	0	0	0	0	125	0	75	1256
5:30 PM to 5:45 PM	0	0	545	55	0	0	153	174	0	0	0	0	0	137	0	58	1122
5:45 PM to 6:00 PM	0	0	525	48	0	0	152	229	0	0	0	0	0	123	0	61	1138

HOURLY TOTALS																	
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	TOTAL												
4:00 PM to 5:00 PM	0	0	2118	298	0	0	606	935	0	0	0	0	0	581	0	318	4856
4:15 PM to 5:15 PM	0	0	2076	232	0	0	645	945	0	0	0	0	0	574	0	314	4786
4:30 PM to 5:30 PM	0	0	2043	223	0	0	725	1054	0	0	0	0	0	545	0	311	4901
4:45 PM to 5:45 PM	0	0	2064	220	0	0	700	984	0	0	0	0	0	551	0	301	4820
5:00 PM to 6:00 PM	0	0	2080	206	0	0	685	948	0	0	0	0	0	518	0	278	4715

PEAK HOUR SUMMARY																	
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
4:30 PM to 5:30 PM	0	0	2043	223	0	0	725	1054	0	0	0	0	0	545	0	311	4901
PHF BY MOVEMENT	0.00	0.00	0.97	0.90	0.00	0.00	0.95	0.89	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.93	OVERALL
PHF BY APPROACH	0.97				0.92				0.00				0.89				0.98

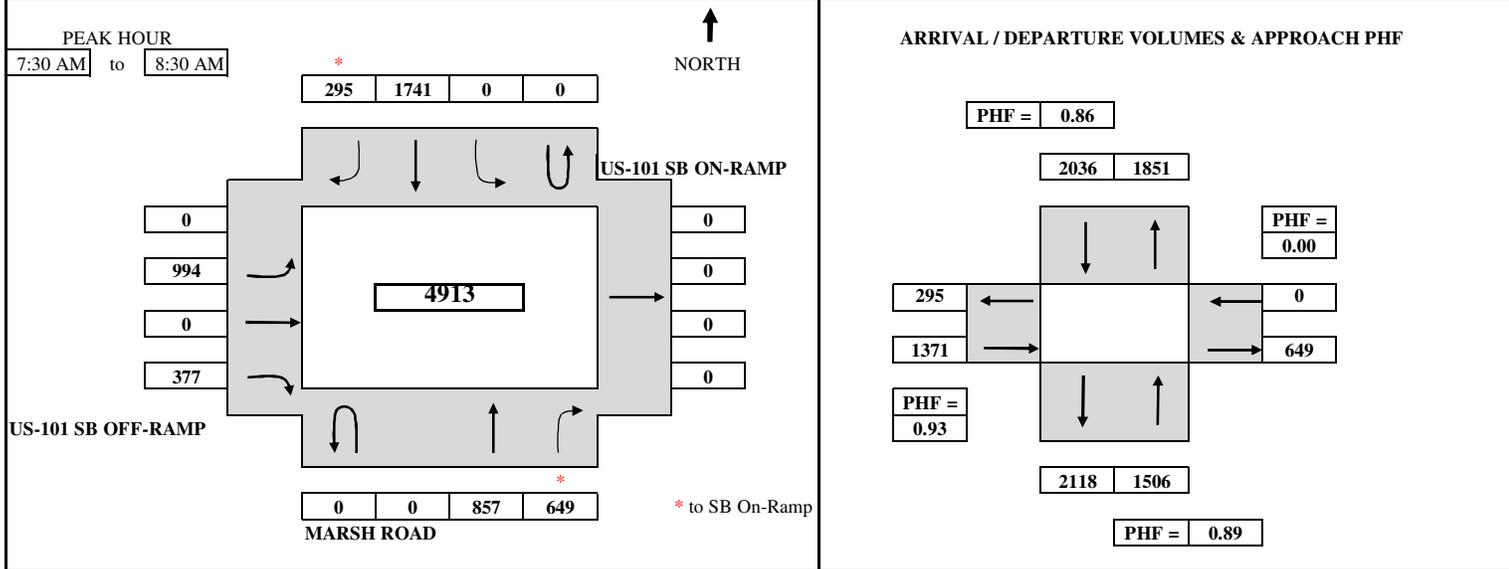
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	MARSH ROAD	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	US-101 SB OFF-RAMP	JURISDICTION:	MENLO PARK	FILE:	3410127-7AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM to 7:15 AM			151	145			348	79	196	91									1010
7:15 AM to 7:30 AM			341	286			744	137	395	193									2096
7:30 AM to 7:45 AM			545	506			1184	230	631	305									3401
7:45 AM to 8:00 AM			751	651			1641	362	881	383									4669
8:00 AM to 8:15 AM			957	776			2089	399	1146	487									5854
8:15 AM to 8:30 AM			1198	935			2485	432	1389	570									7009
8:30 AM to 8:45 AM			1385	1071			2861	541	1674	672									8204
8:45 AM to 9:00 AM			1600	1200			3183	579	1970	791									9323

TOTAL BY PERIOD																			
7:00 AM to 7:15 AM	0	0	151	145	0	0	348	79	0	196	0	91	0	0	0	0	0	0	1010
7:15 AM to 7:30 AM	0	0	190	141	0	0	396	58	0	199	0	102	0	0	0	0	0	0	1086
7:30 AM to 7:45 AM	0	0	204	220	0	0	440	93	0	236	0	112	0	0	0	0	0	0	1305
7:45 AM to 8:00 AM	0	0	206	145	0	0	457	132	0	250	0	78	0	0	0	0	0	0	1268
8:00 AM to 8:15 AM	0	0	206	125	0	0	448	37	0	265	0	104	0	0	0	0	0	0	1185
8:15 AM to 8:30 AM	0	0	241	159	0	0	396	33	0	243	0	83	0	0	0	0	0	0	1155
8:30 AM to 8:45 AM	0	0	187	136	0	0	376	109	0	285	0	102	0	0	0	0	0	0	1195
8:45 AM to 9:00 AM	0	0	215	129	0	0	322	38	0	296	0	119	0	0	0	0	0	0	1119

HOURLY TOTALS																			
7:00 AM to 8:00 AM	0	0	751	651	0	0	1641	362	0	881	0	383	0	0	0	0	0	0	4669
7:15 AM to 8:15 AM	0	0	806	631	0	0	1741	320	0	950	0	396	0	0	0	0	0	0	4844
7:30 AM to 8:30 AM	0	0	857	649	0	0	1741	295	0	994	0	377	0	0	0	0	0	0	4913
7:45 AM to 8:45 AM	0	0	840	565	0	0	1677	311	0	1043	0	367	0	0	0	0	0	0	4803
8:00 AM to 9:00 AM	0	0	849	549	0	0	1542	217	0	1089	0	408	0	0	0	0	0	0	4654

PEAK HOUR SUMMARY																			
7:30 AM to 8:30 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
VOLUME	0	0	857	649	0	0	1741	295	0	994	0	377	0	0	0	0	4913		
PHF BY MOVEMENT	0.00	0.00	0.89	0.74	0.00	0.00	0.95	0.56	0.00	0.94	0.00	0.84	0.00	0.00	0.00	0.00	OVERALL		
PHF BY APPROACH	0.89				0.86				0.93				0.00				0.94		

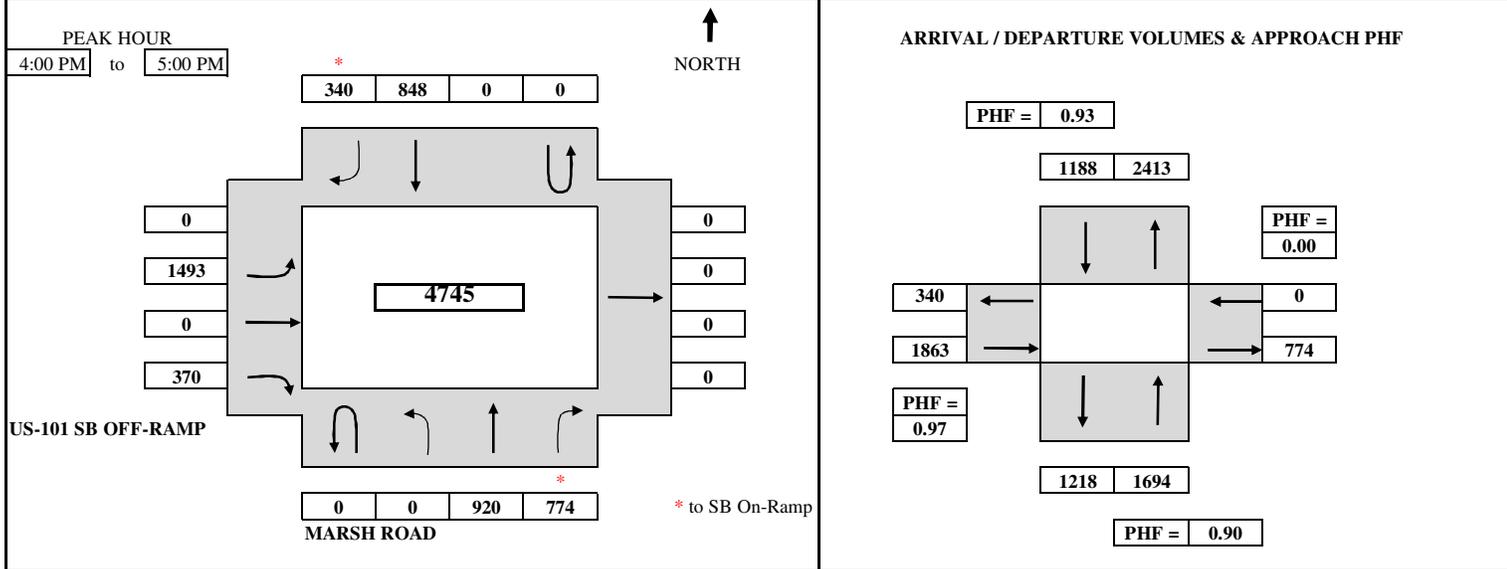
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	SOUTH BAY SALT PONDS PROJECT (26818347)	SURVEY DATE:	10/22/2014	DAY:	WEDNESDAY
N-S APPROACH:	MARSH ROAD	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	US-101 SB OFF-RAMP	JURISDICTION:	MENLO PARK	FILE:	3410127-7PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																	
4:00 PM to 4:15 PM			279	190			214	69			368	102					1222
4:15 PM to 4:30 PM			515	397			447	110			745	200					2414
4:30 PM to 4:45 PM			736	588			662	207			1104	279					3576
4:45 PM to 5:00 PM			920	774			848	340			1493	370					4745
5:00 PM to 5:15 PM			1102	982			1067	446			1854	447					5898
5:15 PM to 5:30 PM			1339	1199			1266	557			2181	528					7070
5:30 PM to 5:45 PM			1540	1379			1493	621			2581	613					8227
5:45 PM to 6:00 PM			1726	1592			1727	671			2969	716					9401

TOTAL BY PERIOD																	
4:00 PM to 4:15 PM	0	0	279	190	0	0	214	69	0	368	0	102	0	0	0	0	1222
4:15 PM to 4:30 PM	0	0	236	207	0	0	233	41	0	377	0	98	0	0	0	0	1192
4:30 PM to 4:45 PM	0	0	221	191	0	0	215	97	0	359	0	79	0	0	0	0	1162
4:45 PM to 5:00 PM	0	0	184	186	0	0	186	133	0	389	0	91	0	0	0	0	1169
5:00 PM to 5:15 PM	0	0	182	208	0	0	219	106	0	361	0	77	0	0	0	0	1153
5:15 PM to 5:30 PM	0	0	237	217	0	0	199	111	0	327	0	81	0	0	0	0	1172
5:30 PM to 5:45 PM	0	0	201	180	0	0	227	64	0	400	0	85	0	0	0	0	1157
5:45 PM to 6:00 PM	0	0	186	213	0	0	234	50	0	388	0	103	0	0	0	0	1174

HOURLY TOTALS																	
4:00 PM to 5:00 PM	0	0	920	774	0	0	848	340	0	1493	0	370	0	0	0	0	4745
4:15 PM to 5:15 PM	0	0	823	792	0	0	853	377	0	1486	0	345	0	0	0	0	4676
4:30 PM to 5:30 PM	0	0	824	802	0	0	819	447	0	1436	0	328	0	0	0	0	4656
4:45 PM to 5:45 PM	0	0	804	791	0	0	831	414	0	1477	0	334	0	0	0	0	4651
5:00 PM to 6:00 PM	0	0	806	818	0	0	879	331	0	1476	0	346	0	0	0	0	4656

PEAK HOUR SUMMARY																	
4:00 PM to 5:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	0	920	774	0	0	848	340	0	1493	0	370	0	0	0	0	4745
PHF BY MOVEMENT	0.00	0.00	0.82	0.93	0.00	0.00	0.91	0.64	0.00	0.96	0.00	0.91	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.90				0.93				0.97				0.00				0.97

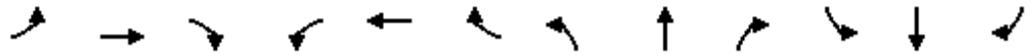
TEL: (510) 232 - 1271

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**APPENDIX B
LEVEL OF SERVICE CALCULATION SHEETS**

HCM Signalized Intersection Capacity Analysis
 1: SR 237 WB Ramps & Great America Parkway

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	
Volume (vph)	0	0	0	829	21	182	161	236	0	0	58	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Lane Util. Factor				0.95	0.95	1.00	0.97	0.95			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.86	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	3433	3539			3057	
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	3433	3539			3057	
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.75	0.84	0.80	0.78	0.92	0.92	0.91	0.65
Adj. Flow (vph)	0	0	0	953	28	217	201	303	0	0	64	635
RTOR Reduction (vph)	0	0	0	0	0	111	0	0	0	0	547	0
Lane Group Flow (vph)	0	0	0	486	495	106	201	303	0	0	152	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				4	4	4	5	2			6	
Permitted Phases												
Actuated Green, G (s)				26.5	26.5	26.5	9.0	18.2			7.5	
Effective Green, g (s)				26.5	26.5	26.5	9.0	18.2			7.5	
Actuated g/C Ratio				0.49	0.49	0.49	0.17	0.34			0.14	
Clearance Time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				821	826	773	570	1188			423	
v/s Ratio Prot				0.29	c0.29	0.07	c0.06	0.09			c0.05	
v/s Ratio Perm												
v/c Ratio				0.59	0.60	0.14	0.35	0.26			0.36	
Uniform Delay, d1				10.0	10.0	7.6	20.0	13.1			21.2	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				0.8	0.8	0.0	0.1	0.0			0.2	
Delay (s)				10.7	10.8	7.6	20.2	13.1			21.4	
Level of Service				B	B	A	C	B			C	
Approach Delay (s)		0.0			10.2			15.9			21.4	
Approach LOS		A			B			B			C	

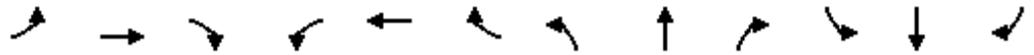
Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Great America Parkway & SR 237 EB Ramps

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕↕	↗	↘	↕↕	
Volume (vph)	162	2	435	0	0	0	0	223	336	22	857	0
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	3.5	4.0	
Lane Util. Factor		1.00	1.00					0.86	0.86	1.00	0.95	
Frt		1.00	0.85					0.94	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583					4501	1362	1770	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1778	1583					4501	1362	1770	3539	
Peak-hour factor, PHF	0.90	0.25	0.95	0.92	0.92	0.92	0.92	0.80	0.82	0.88	0.89	0.92
Adj. Flow (vph)	180	8	458	0	0	0	0	279	410	25	963	0
RTOR Reduction (vph)	0	0	94	0	0	0	0	122	124	0	0	0
Lane Group Flow (vph)	0	188	364	0	0	0	0	362	81	25	963	0
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		18.2	18.2					20.9	20.9	2.0	26.4	
Effective Green, g (s)		18.2	18.2					20.9	20.9	2.0	26.4	
Actuated g/C Ratio		0.35	0.35					0.40	0.40	0.04	0.50	
Clearance Time (s)		4.0	4.0					4.0	4.0	3.5	4.0	
Vehicle Extension (s)		2.0	2.0					4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		615	547					1788	541	67	1776	
v/s Ratio Prot		0.11	c0.23					0.08		0.01	c0.27	
v/s Ratio Perm									0.06			
v/c Ratio		0.31	0.67					0.20	0.15	0.37	0.54	
Uniform Delay, d1		12.6	14.6					10.4	10.2	24.7	9.0	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	2.4					0.1	0.2	1.3	0.4	
Delay (s)		12.7	17.0					10.5	10.3	26.0	9.4	
Level of Service		B	B					B	B	C	A	
Approach Delay (s)		15.7			0.0			10.4			9.8	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	11.5
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: N Shoreline Boulevard & 101 NB Off Ramp & La Avenida Street

11/19/2014



Movement	WBL2	WBL	WBR	NBT	SBT	NWL2	NWL	NWR
Lane Configurations								
Volume (vph)	108	30	13	1181	325	530	5	1213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Lane Util. Factor	0.95	0.95	1.00	0.95	0.91	0.95	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	3539	5085	1681	1681	2787
Flt Permitted	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	3539	5085	1681	1681	2787
Peak-hour factor, PHF	0.69	0.68	0.65	0.93	0.89	0.87	0.31	0.84
Adj. Flow (vph)	157	44	20	1270	365	609	16	1444
RTOR Reduction (vph)	0	0	18	0	0	0	0	0
Lane Group Flow (vph)	100	101	2	1270	365	311	314	1444
Turn Type	Prot	Prot	Prot	NA	NA	Prot	Prot	Prot
Protected Phases	7	7	7	2	6	8	8	8
Permitted Phases								
Actuated Green, G (s)	11.8	11.8	11.8	51.8	53.0	63.2	63.2	63.2
Effective Green, g (s)	11.8	11.8	11.8	51.8	53.0	63.2	63.2	63.2
Actuated g/C Ratio	0.08	0.08	0.08	0.37	0.38	0.45	0.45	0.45
Clearance Time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lane Grp Cap (vph)	141	141	133	1309	1925	758	758	1258
v/s Ratio Prot	0.06	c0.06	0.00	c0.36	0.07	0.18	0.19	c0.52
v/s Ratio Perm								
v/c Ratio	0.71	0.72	0.01	0.97	0.19	0.41	0.41	1.15
Uniform Delay, d1	62.4	62.5	58.8	43.3	29.1	25.9	25.9	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.5	13.4	0.0	18.7	0.2	0.1	0.1	76.2
Delay (s)	74.9	75.9	58.8	62.0	29.3	26.0	26.0	114.6
Level of Service	E	E	E	E	C	C	C	F
Approach Delay (s)		73.9		62.0	29.3		87.9	
Approach LOS		E		E	C		F	

Intersection Summary

HCM 2000 Control Delay	73.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: 101 SB Ramps & N Shoreline Boulevard

11/19/2014



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	299	372	53	1223	653	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	2787	1770	5085	3539	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	2787	1770	5085	3539	
Peak-hour factor, PHF	0.97	0.56	0.95	0.86	0.95	0.92
Adj. Flow (vph)	308	664	56	1422	687	0
RTOR Reduction (vph)	0	580	0	0	0	0
Lane Group Flow (vph)	308	84	56	1422	687	0
Turn Type	Prot	Prot	Prot	NA	NA	
Protected Phases	4	4	5	2	6	
Permitted Phases						
Actuated Green, G (s)	15.1	15.1	13.6	97.4	80.8	
Effective Green, g (s)	15.1	15.1	13.6	97.4	80.8	
Actuated g/C Ratio	0.13	0.13	0.11	0.81	0.67	
Clearance Time (s)	3.5	3.5	3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0	2.0	4.0	4.0	
Lane Grp Cap (vph)	431	350	200	4127	2382	
v/s Ratio Prot	c0.09	0.03	0.03	c0.28	0.19	
v/s Ratio Perm						
v/c Ratio	0.71	0.24	0.28	0.34	0.29	
Uniform Delay, d1	50.4	47.3	48.7	3.0	7.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	0.1	0.3	0.2	0.3	
Delay (s)	55.0	47.4	49.0	3.2	8.3	
Level of Service	E	D	D	A	A	
Approach Delay (s)	49.8			4.9	8.3	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: San Antonio Rd & 101 NB Off Ramp

11/19/2014

	↑	↖	↙	↓	↘	↗
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑			↑	↘	↗
Volume (vph)	542	0	0	213	545	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			3.5	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	1.00
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			1863	1770	1583
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			1863	1770	1583
Peak-hour factor, PHF	0.79	0.92	0.92	0.72	0.86	0.74
Adj. Flow (vph)	686	0	0	296	634	480
RTOR Reduction (vph)	0	0	0	0	0	74
Lane Group Flow (vph)	686	0	0	296	634	406
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	13.8			14.8	19.7	19.7
Effective Green, g (s)	13.8			14.8	19.7	19.7
Actuated g/C Ratio	0.34			0.36	0.48	0.48
Clearance Time (s)	4.5			3.5	3.0	3.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	1191			672	850	760
v/s Ratio Prot	c0.19			0.16	c0.36	0.26
v/s Ratio Perm						
v/c Ratio	0.58			0.44	0.75	0.53
Uniform Delay, d ₁	11.2			10.0	8.6	7.4
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d ₂	0.4			0.2	3.1	0.4
Delay (s)	11.6			10.1	11.8	7.8
Level of Service	B			B	B	A
Approach Delay (s)	11.6			10.1	10.1	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	41.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 6: 101 NB Off Ramp & Marsh Road

11/19/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕			↕↕
Volume (vph)	856	304	1457	0	0	1138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2	4.1			4.1
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.82	0.84	0.97	0.92	0.92	0.82
Adj. Flow (vph)	1044	362	1502	0	0	1388
RTOR Reduction (vph)	0	21	0	0	0	0
Lane Group Flow (vph)	1044	341	1502	0	0	1388
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	25.6	25.6	46.1			46.1
Effective Green, g (s)	25.6	25.6	46.1			46.1
Actuated g/C Ratio	0.32	0.32	0.58			0.58
Clearance Time (s)	4.2	4.2	4.1			4.1
Vehicle Extension (s)	2.0	2.0	3.0			3.0
Lane Grp Cap (vph)	1098	506	2039			2039
v/s Ratio Prot	c0.30		c0.42			0.39
v/s Ratio Perm		0.22				
v/c Ratio	0.95	0.67	0.74			0.68
Uniform Delay, d1	26.6	23.6	12.5			11.8
Progression Factor	1.00	1.00	0.69			1.00
Incremental Delay, d2	16.5	2.8	1.8			1.9
Delay (s)	43.1	26.4	10.5			13.7
Level of Service	D	C	B			B
Approach Delay (s)	38.8		10.5			13.7
Approach LOS	D		B			B

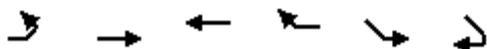
Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.3
Intersection Capacity Utilization	120.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Marsh Road & 101 SB Off Ramp

11/19/2014



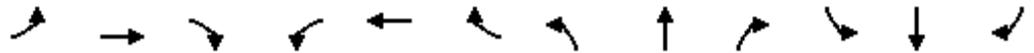
Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	857	1741	0	994	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.1	4.1		4.1	4.1
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1583
Peak-hour factor, PHF	0.92	0.89	0.95	0.92	0.94	0.84
Adj. Flow (vph)	0	963	1833	0	1057	449
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	963	1833	0	1057	448
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		43.7	35.5		28.1	37.3
Effective Green, g (s)		43.7	35.5		28.1	37.3
Actuated g/C Ratio		0.55	0.44		0.35	0.47
Clearance Time (s)		4.1	4.1		4.1	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1933	1570		1205	738
v/s Ratio Prot		0.27	c0.52		c0.31	c0.28
v/s Ratio Perm						
v/c Ratio		0.50	1.17		0.88	0.61
Uniform Delay, d1		11.3	22.2		24.3	15.9
Progression Factor		1.00	0.98		1.00	1.00
Incremental Delay, d2		0.9	80.4		7.2	1.0
Delay (s)		12.2	102.3		31.6	16.9
Level of Service		B	F		C	B
Approach Delay (s)		12.2	102.3		27.2	
Approach LOS		B	F		C	

Intersection Summary

HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 1: SR 237 WB Ramps & Great America Parkway

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	
Volume (vph)	0	0	0	114	5	208	51	513	0	0	510	639
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Lane Util. Factor				0.95	0.95	1.00	0.97	0.95			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.92	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1698	1583	3433	3539			3245	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1698	1583	3433	3539			3245	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.42	0.88	0.75	0.94	0.92	0.92	0.94	0.95
Adj. Flow (vph)	0	0	0	136	12	236	68	546	0	0	543	673
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	80	0
Lane Group Flow (vph)	0	0	0	73	75	31	68	546	0	0	1136	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				4	4	4	5	2			6	
Permitted Phases												
Actuated Green, G (s)				7.8	7.8	7.8	5.0	43.0			36.3	
Effective Green, g (s)				7.8	7.8	7.8	5.0	43.0			36.3	
Actuated g/C Ratio				0.13	0.13	0.13	0.08	0.71			0.60	
Clearance Time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				217	219	204	284	2523			1953	
v/s Ratio Prot				0.04	c0.04	0.02	0.02	c0.15			c0.35	
v/s Ratio Perm												
v/c Ratio				0.34	0.34	0.15	0.24	0.22			0.58	
Uniform Delay, d1				23.9	23.9	23.3	25.9	2.9			7.3	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				0.3	0.3	0.1	0.2	0.0			0.3	
Delay (s)				24.2	24.3	23.4	26.0	3.0			7.6	
Level of Service				C	C	C	C	A			A	
Approach Delay (s)		0.0			23.7			5.5			7.6	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Great America Parkway & SR 237 EB Ramps

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕↕	↗	↘	↕↕	
Volume (vph)	420	8	179	0	0	0	0	152	220	306	313	0
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	3.5	4.0	
Lane Util. Factor		1.00	1.00					0.86	0.86	1.00	0.95	
Frt		1.00	0.85					0.94	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1776	1583					4499	1362	1770	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1776	1583					4499	1362	1770	3539	
Peak-hour factor, PHF	0.85	0.67	0.93	0.92	0.92	0.92	0.92	0.83	0.81	0.96	0.88	0.92
Adj. Flow (vph)	494	12	192	0	0	0	0	183	272	319	356	0
RTOR Reduction (vph)	0	0	113	0	0	0	0	115	115	0	0	0
Lane Group Flow (vph)	0	506	79	0	0	0	0	204	21	319	356	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		26.4	26.4					10.0	10.0	16.5	30.0	
Effective Green, g (s)		26.4	26.4					10.0	10.0	16.5	30.0	
Actuated g/C Ratio		0.41	0.41					0.16	0.16	0.26	0.47	
Clearance Time (s)		4.0	4.0					4.0	4.0	3.5	4.0	
Vehicle Extension (s)		2.0	2.0					4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		728	648					698	211	453	1648	
v/s Ratio Prot		c0.28						c0.05		c0.18	0.10	
v/s Ratio Perm			0.05						0.02			
v/c Ratio		0.70	0.12					0.29	0.10	0.70	0.22	
Uniform Delay, d1		15.7	11.8					24.1	23.3	21.7	10.2	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.3	0.0					0.3	0.3	4.0	0.1	
Delay (s)		18.0	11.8					24.4	23.6	25.8	10.3	
Level of Service		B	B					C	C	C	B	
Approach Delay (s)		16.3			0.0			24.2			17.6	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	11.5
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: N Shoreline Boulevard & 101 NB Off Ramp & La Avenida Street

11/19/2014



Movement	WBL2	WBL	WBR	NBT	SBT	NWL2	NWL	NWR
Lane Configurations								
Volume (vph)	330	132	5	440	2079	432	4	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Lane Util. Factor	0.95	0.95	1.00	0.95	0.91	0.95	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	3539	5085	1681	1681	2787
Flt Permitted	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	3539	5085	1681	1681	2787
Peak-hour factor, PHF	0.89	0.85	0.63	0.88	0.95	0.92	0.50	0.93
Adj. Flow (vph)	371	155	8	500	2188	470	8	510
RTOR Reduction (vph)	0	0	7	0	0	0	0	0
Lane Group Flow (vph)	263	263	1	500	2188	240	238	510
Turn Type	Prot	Prot	Prot	NA	NA	Prot	Prot	Prot
Protected Phases	7	7	7	2	6	8	8	8
Permitted Phases								
Actuated Green, G (s)	15.0	15.0	15.0	69.9	71.1	26.9	26.9	26.9
Effective Green, g (s)	15.0	15.0	15.0	69.9	71.1	26.9	26.9	26.9
Actuated g/C Ratio	0.12	0.12	0.12	0.56	0.57	0.22	0.22	0.22
Clearance Time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lane Grp Cap (vph)	201	201	189	1979	2892	361	361	599
v/s Ratio Prot	c0.16	0.16	0.00	0.14	c0.43	0.14	0.14	c0.18
v/s Ratio Perm								
v/c Ratio	1.31	1.31	0.01	0.25	0.76	0.66	0.66	0.85
Uniform Delay, d1	55.0	55.0	48.4	14.1	20.4	44.9	44.9	47.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	169.9	169.9	0.0	0.3	1.9	3.6	3.3	10.8
Delay (s)	224.9	224.9	48.4	14.4	22.3	48.5	48.2	57.9
Level of Service	F	F	D	B	C	D	D	E
Approach Delay (s)		222.2		14.4	22.3		53.3	
Approach LOS		F		B	C		D	

Intersection Summary

HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: 101 SB Ramps & N Shoreline Boulevard

11/19/2014



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	96	276	123	680	1277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	2787	1770	5085	3539	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	2787	1770	5085	3539	
Peak-hour factor, PHF	0.92	0.90	0.79	0.85	0.94	0.92
Adj. Flow (vph)	104	307	156	800	1359	0
RTOR Reduction (vph)	0	287	0	0	0	0
Lane Group Flow (vph)	104	20	156	800	1359	0
Turn Type	Prot	Prot	Prot	NA	NA	
Protected Phases	4	4	5	2	6	
Permitted Phases						
Actuated Green, G (s)	8.2	8.2	17.0	110.3	90.3	
Effective Green, g (s)	8.2	8.2	17.0	110.3	90.3	
Actuated g/C Ratio	0.07	0.07	0.13	0.88	0.72	
Clearance Time (s)	3.5	3.5	3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0	2.0	4.0	4.0	
Lane Grp Cap (vph)	223	181	238	4451	2536	
v/s Ratio Prot	c0.03	0.01	c0.09	0.16	c0.38	
v/s Ratio Perm						
v/c Ratio	0.47	0.11	0.66	0.18	0.54	
Uniform Delay, d1	56.8	55.5	51.7	1.2	8.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.1	4.9	0.1	0.8	
Delay (s)	57.4	55.6	56.6	1.2	9.0	
Level of Service	E	E	E	A	A	
Approach Delay (s)	56.0			10.3	9.0	
Approach LOS	E			B	A	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	126.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: San Antonio Rd & 101 NB Off Ramp

11/19/2014

	↑	↖	↙	↓	↘	↗
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑			↑	↘	↗
Volume (vph)	326	0	0	704	301	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			3.5	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			1863	1770	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			1863	1770	1583
Peak-hour factor, PHF	0.81	0.92	0.92	0.85	0.92	0.82
Adj. Flow (vph)	402	0	0	828	327	195
RTOR Reduction (vph)	0	0	0	0	0	140
Lane Group Flow (vph)	402	0	0	828	327	55
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	26.9			27.9	13.4	13.4
Effective Green, g (s)	26.9			27.9	13.4	13.4
Actuated g/C Ratio	0.56			0.58	0.28	0.28
Clearance Time (s)	4.5			3.5	3.0	3.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	1991			1087	496	443
v/s Ratio Prot	0.11			c0.44	c0.18	0.03
v/s Ratio Perm						
v/c Ratio	0.20			0.76	0.66	0.12
Uniform Delay, d1	5.2			7.5	15.2	12.8
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d2	0.0			2.9	2.4	0.0
Delay (s)	5.2			10.3	17.6	12.9
Level of Service	A			B	B	B
Approach Delay (s)	5.2			10.3	15.8	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			10.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			47.8		Sum of lost time (s)	7.5
Intersection Capacity Utilization			96.6%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 6: 101 NB Off Ramp & Marsh Road

11/19/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↙	↕↕			↕↕
Volume (vph)	545	311	2043	0	0	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	3.2	4.1			4.1
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.87	0.93	0.97	0.92	0.92	0.95
Adj. Flow (vph)	626	334	2106	0	0	763
RTOR Reduction (vph)	0	9	0	0	0	0
Lane Group Flow (vph)	626	325	2106	0	0	763
Turn Type	Prot	custom	NA			NA
Protected Phases	8	1 8	2			6
Permitted Phases						
Actuated Green, G (s)	19.7	28.9	63.8			72.0
Effective Green, g (s)	19.7	24.7	63.8			72.0
Actuated g/C Ratio	0.20	0.25	0.64			0.72
Clearance Time (s)	4.2		4.1			4.1
Vehicle Extension (s)	2.0		3.0			3.0
Lane Grp Cap (vph)	676	391	2257			2548
v/s Ratio Prot	c0.18	c0.21	c0.60			0.22
v/s Ratio Perm						
v/c Ratio	0.93	0.83	0.93			0.30
Uniform Delay, d1	39.4	35.7	16.2			5.0
Progression Factor	1.00	1.00	1.03			1.00
Incremental Delay, d2	18.4	13.4	5.3			0.3
Delay (s)	57.8	49.0	22.1			5.3
Level of Service	E	D	C			A
Approach Delay (s)	54.8		22.1			5.3
Approach LOS	D		C			A

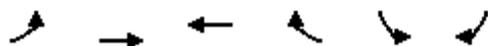
Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Marsh Road & 101 SB Off Ramp

11/19/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	920	848	0	1493	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.1	4.1		4.1	4.1
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1583
Peak-hour factor, PHF	0.92	0.82	0.91	0.92	0.96	0.91
Adj. Flow (vph)	0	1122	932	0	1555	407
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1122	932	0	1555	407
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		33.2	24.9		58.6	67.9
Effective Green, g (s)		33.2	24.9		58.6	67.9
Actuated g/C Ratio		0.33	0.25		0.59	0.68
Clearance Time (s)		4.1	4.1		4.1	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1174	881		2011	1074
v/s Ratio Prot		c0.32	c0.26		c0.45	0.26
v/s Ratio Perm						
v/c Ratio		0.96	1.06		0.77	0.38
Uniform Delay, d1		32.7	37.5		15.7	6.9
Progression Factor		1.00	1.44		1.00	1.00
Incremental Delay, d2		17.6	44.6		1.7	0.1
Delay (s)		50.3	98.6		17.4	7.0
Level of Service		D	F		B	A
Approach Delay (s)		50.3	98.6		15.3	
Approach LOS		D	F		B	

Intersection Summary

HCM 2000 Control Delay	44.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 1: SR 237 WB Ramps & Great America Parkway

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	
Volume (vph)	0	0	0	829	21	191	170	236	0	0	67	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Lane Util. Factor				0.95	0.95	1.00	0.97	0.95			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.87	
Flt Protected				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1690	1583	3433	3539			3063	
Flt Permitted				0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1690	1583	3433	3539			3063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.75	0.84	0.80	0.78	0.92	0.92	0.91	0.65
Adj. Flow (vph)	0	0	0	953	28	227	212	303	0	0	74	649
RTOR Reduction (vph)	0	0	0	0	0	116	0	0	0	0	559	0
Lane Group Flow (vph)	0	0	0	486	495	111	212	303	0	0	164	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				4	4	4	5	2			6	
Permitted Phases												
Actuated Green, G (s)				27.0	27.0	27.0	9.4	18.8			7.7	
Effective Green, g (s)				27.0	27.0	27.0	9.4	18.8			7.7	
Actuated g/C Ratio				0.49	0.49	0.49	0.17	0.34			0.14	
Clearance Time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				820	825	772	583	1203			426	
v/s Ratio Prot				0.29	c0.29	0.07	c0.06	0.09			c0.05	
v/s Ratio Perm												
v/c Ratio				0.59	0.60	0.14	0.36	0.25			0.39	
Uniform Delay, d1				10.2	10.2	7.8	20.3	13.2			21.6	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				0.8	0.8	0.0	0.1	0.0			0.2	
Delay (s)				11.0	11.0	7.8	20.4	13.2			21.9	
Level of Service				B	B	A	C	B			C	
Approach Delay (s)		0.0			10.4			16.2			21.9	
Approach LOS		A			B			B			C	

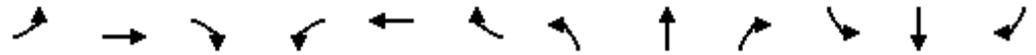
Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Great America Parkway & SR 237 EB Ramps

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕↕	↗	↘	↕↕	
Volume (vph)	171	2	435	0	0	0	0	223	336	31	857	0
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	3.5	4.0	
Lane Util. Factor		1.00	1.00					0.86	0.86	1.00	0.95	
Frt		1.00	0.85					0.94	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777	1583					4501	1362	1770	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1777	1583					4501	1362	1770	3539	
Peak-hour factor, PHF	0.90	0.25	0.95	0.92	0.92	0.92	0.92	0.80	0.82	0.88	0.89	0.92
Adj. Flow (vph)	190	8	458	0	0	0	0	279	410	35	963	0
RTOR Reduction (vph)	0	0	94	0	0	0	0	123	124	0	0	0
Lane Group Flow (vph)	0	198	364	0	0	0	0	361	81	35	963	0
Turn Type	Split	NA	Prot					NA	Perm	Prot	NA	
Protected Phases	4	4	4					2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		18.2	18.2					20.7	20.7	2.2	26.4	
Effective Green, g (s)		18.2	18.2					20.7	20.7	2.2	26.4	
Actuated g/C Ratio		0.35	0.35					0.39	0.39	0.04	0.50	
Clearance Time (s)		4.0	4.0					4.0	4.0	3.5	4.0	
Vehicle Extension (s)		2.0	2.0					4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		614	547					1771	535	74	1776	
v/s Ratio Prot		0.11	c0.23					0.08		0.02	c0.27	
v/s Ratio Perm									0.06			
v/c Ratio		0.32	0.67					0.20	0.15	0.47	0.54	
Uniform Delay, d1		12.7	14.6					10.5	10.3	24.6	9.0	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	2.4					0.1	0.2	1.7	0.4	
Delay (s)		12.8	17.0					10.6	10.5	26.4	9.4	
Level of Service		B	B					B	B	C	A	
Approach Delay (s)		15.7			0.0			10.6			10.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	11.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: N Shoreline Boulevard & 101 NB Off Ramp & La Avenida Street

11/19/2014



Movement	WBL2	WBL	WBR	NBT	SBT	NWL2	NWL	NWR
Lane Configurations								
Volume (vph)	108	30	13	1191	335	530	5	1223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Lane Util. Factor	0.95	0.95	1.00	0.95	0.91	0.95	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	3539	5085	1681	1681	2787
Flt Permitted	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	3539	5085	1681	1681	2787
Peak-hour factor, PHF	0.69	0.68	0.65	0.93	0.89	0.87	0.31	0.84
Adj. Flow (vph)	157	44	20	1281	376	609	16	1456
RTOR Reduction (vph)	0	0	18	0	0	0	0	0
Lane Group Flow (vph)	100	101	2	1281	376	311	314	1456
Turn Type	Prot	Prot	Prot	NA	NA	Prot	Prot	Prot
Protected Phases	7	7	7	2	6	8	8	8
Permitted Phases								
Actuated Green, G (s)	11.8	11.8	11.8	51.8	53.0	63.2	63.2	63.2
Effective Green, g (s)	11.8	11.8	11.8	51.8	53.0	63.2	63.2	63.2
Actuated g/C Ratio	0.08	0.08	0.08	0.37	0.38	0.45	0.45	0.45
Clearance Time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lane Grp Cap (vph)	141	141	133	1309	1925	758	758	1258
v/s Ratio Prot	0.06	c0.06	0.00	c0.36	0.07	0.18	0.19	c0.52
v/s Ratio Perm								
v/c Ratio	0.71	0.72	0.01	0.98	0.20	0.41	0.41	1.16
Uniform Delay, d1	62.4	62.5	58.8	43.6	29.2	25.9	25.9	38.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.5	13.4	0.0	20.3	0.2	0.1	0.1	80.1
Delay (s)	74.9	75.9	58.8	63.8	29.4	26.0	26.0	118.5
Level of Service	E	E	E	E	C	C	C	F
Approach Delay (s)		73.9		63.8	29.4		90.7	
Approach LOS		E		E	C		F	

Intersection Summary

HCM 2000 Control Delay	75.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: 101 SB Ramps & N Shoreline Boulevard

11/19/2014



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	309	372	53	1223	653	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	2787	1770	5085	3539	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	2787	1770	5085	3539	
Peak-hour factor, PHF	0.97	0.56	0.95	0.86	0.95	0.92
Adj. Flow (vph)	319	664	56	1422	687	0
RTOR Reduction (vph)	0	578	0	0	0	0
Lane Group Flow (vph)	319	86	56	1422	687	0
Turn Type	Prot	Prot	Prot	NA	NA	
Protected Phases	4	4	5	2	6	
Permitted Phases						
Actuated Green, G (s)	15.5	15.5	13.6	97.0	80.4	
Effective Green, g (s)	15.5	15.5	13.6	97.0	80.4	
Actuated g/C Ratio	0.13	0.13	0.11	0.81	0.67	
Clearance Time (s)	3.5	3.5	3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0	2.0	4.0	4.0	
Lane Grp Cap (vph)	443	359	200	4110	2371	
v/s Ratio Prot	c0.09	0.03	0.03	c0.28	0.19	
v/s Ratio Perm						
v/c Ratio	0.72	0.24	0.28	0.35	0.29	
Uniform Delay, d1	50.2	46.9	48.7	3.1	8.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.1	0.3	0.2	0.3	
Delay (s)	55.0	47.1	49.0	3.3	8.4	
Level of Service	D	D	D	A	A	
Approach Delay (s)	49.6			5.0	8.4	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: San Antonio Rd & 101 NB Off Ramp

11/19/2014

	↑	↖	↙	↓	↘	↗
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑			↑	↘	↗
Volume (vph)	552	0	0	223	545	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			3.5	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	1.00
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			1863	1770	1583
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			1863	1770	1583
Peak-hour factor, PHF	0.79	0.92	0.92	0.72	0.86	0.74
Adj. Flow (vph)	699	0	0	310	634	493
RTOR Reduction (vph)	0	0	0	0	0	71
Lane Group Flow (vph)	699	0	0	310	634	422
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	14.0			15.0	19.8	19.8
Effective Green, g (s)	14.0			15.0	19.8	19.8
Actuated g/C Ratio	0.34			0.36	0.48	0.48
Clearance Time (s)	4.5			3.5	3.0	3.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	1199			676	848	758
v/s Ratio Prot	c0.20			0.17	c0.36	0.27
v/s Ratio Perm						
v/c Ratio	0.58			0.46	0.75	0.56
Uniform Delay, d ₁	11.2			10.0	8.7	7.6
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d ₂	0.5			0.2	3.2	0.5
Delay (s)	11.7			10.2	11.9	8.1
Level of Service	B			B	B	A
Approach Delay (s)	11.7			10.2	10.3	
Approach LOS	B			B	B	
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			41.3		Sum of lost time (s)	7.5
Intersection Capacity Utilization			92.1%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 6: 101 NB Off Ramp & Marsh Road

11/19/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	856	312	1465	0	0	1146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.2	4.1			4.1
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.82	0.84	0.97	0.92	0.92	0.82
Adj. Flow (vph)	1044	371	1510	0	0	1398
RTOR Reduction (vph)	0	21	0	0	0	0
Lane Group Flow (vph)	1044	350	1510	0	0	1398
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	25.6	25.6	46.1			46.1
Effective Green, g (s)	25.6	25.6	46.1			46.1
Actuated g/C Ratio	0.32	0.32	0.58			0.58
Clearance Time (s)	4.2	4.2	4.1			4.1
Vehicle Extension (s)	2.0	2.0	3.0			3.0
Lane Grp Cap (vph)	1098	506	2039			2039
v/s Ratio Prot	c0.30		c0.43			0.40
v/s Ratio Perm		0.22				
v/c Ratio	0.95	0.69	0.74			0.69
Uniform Delay, d1	26.6	23.8	12.5			11.9
Progression Factor	1.00	1.00	0.69			1.00
Incremental Delay, d2	16.5	3.3	1.9			1.9
Delay (s)	43.1	27.0	10.5			13.8
Level of Service	D	C	B			B
Approach Delay (s)	38.9		10.5			13.8
Approach LOS	D		B			B

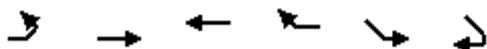
Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.3
Intersection Capacity Utilization	120.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Marsh Road & 101 SB Off Ramp

11/19/2014



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	857	1741	0	1002	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.1	4.1		4.1	4.1
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1583
Peak-hour factor, PHF	0.92	0.89	0.95	0.92	0.94	0.84
Adj. Flow (vph)	0	963	1833	0	1066	449
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	963	1833	0	1066	448
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		43.5	35.3		28.3	37.5
Effective Green, g (s)		43.5	35.3		28.3	37.5
Actuated g/C Ratio		0.54	0.44		0.35	0.47
Clearance Time (s)		4.1	4.1		4.1	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1924	1561		1214	742
v/s Ratio Prot		0.27	c0.52		c0.31	c0.28
v/s Ratio Perm						
v/c Ratio		0.50	1.17		0.88	0.60
Uniform Delay, d1		11.4	22.4		24.2	15.7
Progression Factor		1.00	0.98		1.00	1.00
Incremental Delay, d2		0.9	83.3		7.2	1.0
Delay (s)		12.4	105.2		31.5	16.7
Level of Service		B	F		C	B
Approach Delay (s)		12.4	105.2		27.1	
Approach LOS		B	F		C	

Intersection Summary

HCM 2000 Control Delay	57.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	110.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: SR 237 WB Ramps & Great America Parkway

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	
Volume (vph)	0	0	0	114	5	217	51	522	0	0	519	648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Lane Util. Factor				0.95	0.95	1.00	0.97	0.95			0.95	
Frt				1.00	1.00	0.85	1.00	1.00			0.92	
Flt Protected				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1681	1698	1583	3433	3539			3246	
Flt Permitted				0.95	0.96	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1681	1698	1583	3433	3539			3246	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.42	0.88	0.75	0.94	0.92	0.92	0.94	0.95
Adj. Flow (vph)	0	0	0	136	12	247	68	555	0	0	552	682
RTOR Reduction (vph)	0	0	0	0	0	216	0	0	0	0	78	0
Lane Group Flow (vph)	0	0	0	73	75	31	68	555	0	0	1156	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				4	4	4	5	2			6	
Permitted Phases												
Actuated Green, G (s)				7.8	7.8	7.8	5.0	44.7			38.0	
Effective Green, g (s)				7.8	7.8	7.8	5.0	44.7			38.0	
Actuated g/C Ratio				0.13	0.13	0.13	0.08	0.72			0.61	
Clearance Time (s)				4.5	4.5	4.5	3.5	5.0			3.2	
Vehicle Extension (s)				2.0	2.0	2.0	2.0	2.0			2.0	
Lane Grp Cap (vph)				211	213	199	276	2551			1989	
v/s Ratio Prot				0.04	c0.04	0.02	0.02	c0.16			c0.36	
v/s Ratio Perm												
v/c Ratio				0.35	0.35	0.16	0.25	0.22			0.58	
Uniform Delay, d1				24.8	24.8	24.2	26.7	2.9			7.2	
Progression Factor				1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2				0.4	0.4	0.1	0.2	0.0			0.3	
Delay (s)				25.1	25.2	24.3	26.9	2.9			7.5	
Level of Service				C	C	C	C	A			A	
Approach Delay (s)		0.0			24.6			5.5			7.5	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Great America Parkway & SR 237 EB Ramps

11/19/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕↕	↗	↘	↕↕	
Volume (vph)	429	8	179	0	0	0	0	152	220	315	313	0
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	3.5	4.0	
Lane Util. Factor		1.00	1.00					0.86	0.86	1.00	0.95	
Frt		1.00	0.85					0.94	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1776	1583					4499	1362	1770	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1776	1583					4499	1362	1770	3539	
Peak-hour factor, PHF	0.85	0.67	0.93	0.92	0.92	0.92	0.92	0.83	0.81	0.96	0.88	0.92
Adj. Flow (vph)	505	12	192	0	0	0	0	183	272	328	356	0
RTOR Reduction (vph)	0	0	111	0	0	0	0	116	116	0	0	0
Lane Group Flow (vph)	0	517	81	0	0	0	0	203	20	328	356	0
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		28.0	28.0					10.0	10.0	17.1	30.6	
Effective Green, g (s)		28.0	28.0					10.0	10.0	17.1	30.6	
Actuated g/C Ratio		0.42	0.42					0.15	0.15	0.26	0.46	
Clearance Time (s)		4.0	4.0					4.0	4.0	3.5	4.0	
Vehicle Extension (s)		2.0	2.0					4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		746	665					675	204	454	1626	
v/s Ratio Prot		c0.29						c0.05		c0.19	0.10	
v/s Ratio Perm			0.05						0.01			
v/c Ratio		0.69	0.12					0.30	0.10	0.72	0.22	
Uniform Delay, d1		15.8	11.8					25.2	24.4	22.6	10.8	
Progression Factor		1.00	1.00					1.00	1.00	1.00	1.00	
Incremental Delay, d2		2.3	0.0					0.3	0.3	4.8	0.1	
Delay (s)		18.0	11.8					25.5	24.7	27.4	10.9	
Level of Service		B	B					C	C	C	B	
Approach Delay (s)		16.4			0.0			25.3			18.8	
Approach LOS		B			A			C			B	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	66.6	Sum of lost time (s)	11.5
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: N Shoreline Boulevard & 101 NB Off Ramp & La Avenida Street

11/19/2014



Movement	WBL2	WBL	WBR	NBT	SBT	NWL2	NWL	NWR
Lane Configurations								
Volume (vph)	330	132	5	450	2089	432	4	484
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Lane Util. Factor	0.95	0.95	1.00	0.95	0.91	0.95	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1681	1681	1583	3539	5085	1681	1681	2787
Flt Permitted	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	1681	1681	1583	3539	5085	1681	1681	2787
Peak-hour factor, PHF	0.89	0.85	0.63	0.88	0.95	0.92	0.50	0.93
Adj. Flow (vph)	371	155	8	511	2199	470	8	520
RTOR Reduction (vph)	0	0	7	0	0	0	0	0
Lane Group Flow (vph)	263	263	1	511	2199	240	238	520
Turn Type	Prot	Prot	Prot	NA	NA	Prot	Prot	Prot
Protected Phases	7	7	7	2	6	8	8	8
Permitted Phases								
Actuated Green, G (s)	15.0	15.0	15.0	69.4	70.6	27.4	27.4	27.4
Effective Green, g (s)	15.0	15.0	15.0	69.4	70.6	27.4	27.4	27.4
Actuated g/C Ratio	0.12	0.12	0.12	0.56	0.56	0.22	0.22	0.22
Clearance Time (s)	3.5	3.5	3.5	6.2	5.0	3.5	3.5	3.5
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lane Grp Cap (vph)	201	201	189	1964	2872	368	368	610
v/s Ratio Prot	c0.16	0.16	0.00	0.14	c0.43	0.14	0.14	c0.19
v/s Ratio Perm								
v/c Ratio	1.31	1.31	0.01	0.26	0.77	0.65	0.65	0.85
Uniform Delay, d1	55.0	55.0	48.4	14.5	20.9	44.5	44.4	46.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	169.9	169.9	0.0	0.3	2.0	3.1	2.9	10.7
Delay (s)	224.9	224.9	48.4	14.8	22.9	47.6	47.3	57.6
Level of Service	F	F	D	B	C	D	D	E
Approach Delay (s)		222.2		14.8	22.9		52.7	
Approach LOS		F		B	C		D	

Intersection Summary

HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: 101 SB Ramps & N Shoreline Boulevard

11/19/2014



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	106	276	123	680	1277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5	3.0	4.0	4.0	
Lane Util. Factor	0.97	0.88	1.00	0.91	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	2787	1770	5085	3539	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	2787	1770	5085	3539	
Peak-hour factor, PHF	0.92	0.90	0.79	0.85	0.94	0.92
Adj. Flow (vph)	115	307	156	800	1359	0
RTOR Reduction (vph)	0	286	0	0	0	0
Lane Group Flow (vph)	115	21	156	800	1359	0
Turn Type	Prot	Prot	Prot	NA	NA	
Protected Phases	4	4	5	2	6	
Permitted Phases						
Actuated Green, G (s)	8.6	8.6	17.0	109.9	89.9	
Effective Green, g (s)	8.6	8.6	17.0	109.9	89.9	
Actuated g/C Ratio	0.07	0.07	0.13	0.87	0.71	
Clearance Time (s)	3.5	3.5	3.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0	2.0	4.0	4.0	
Lane Grp Cap (vph)	234	190	238	4435	2525	
v/s Ratio Prot	c0.03	0.01	c0.09	0.16	c0.38	
v/s Ratio Perm						
v/c Ratio	0.49	0.11	0.66	0.18	0.54	
Uniform Delay, d1	56.6	55.1	51.7	1.2	8.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.1	4.9	0.1	0.8	
Delay (s)	57.2	55.2	56.6	1.3	9.2	
Level of Service	E	E	E	A	A	
Approach Delay (s)	55.7			10.3	9.2	
Approach LOS	E			B	A	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	126.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: San Antonio Rd & 101 NB Off Ramp

11/19/2014

	↑	↖	↙	↓	↘	↗
Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑			↑	↘	↗
Volume (vph)	336	0	0	714	301	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			3.5	3.0	3.0
Lane Util. Factor	0.95			1.00	1.00	1.00
Fr _t	1.00			1.00	1.00	0.85
Fl _t Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			1863	1770	1583
Fl _t Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			1863	1770	1583
Peak-hour factor, PHF	0.81	0.92	0.92	0.85	0.92	0.82
Adj. Flow (vph)	415	0	0	840	327	207
RTOR Reduction (vph)	0	0	0	0	0	150
Lane Group Flow (vph)	415	0	0	840	327	57
Turn Type	NA			NA	Prot	Prot
Protected Phases	2			6	4	4
Permitted Phases						
Actuated Green, G (s)	27.7			28.7	13.4	13.4
Effective Green, g (s)	27.7			28.7	13.4	13.4
Actuated g/C Ratio	0.57			0.59	0.28	0.28
Clearance Time (s)	4.5			3.5	3.0	3.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	2017			1100	488	436
v/s Ratio Prot	0.12			c0.45	c0.18	0.04
v/s Ratio Perm						
v/c Ratio	0.21			0.76	0.67	0.13
Uniform Delay, d ₁	5.1			7.4	15.6	13.2
Progression Factor	1.00			1.00	1.00	1.00
Incremental Delay, d ₂	0.0			2.9	2.8	0.0
Delay (s)	5.1			10.3	18.5	13.3
Level of Service	A			B	B	B
Approach Delay (s)	5.1			10.3	16.5	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			48.6		Sum of lost time (s)	7.5
Intersection Capacity Utilization			97.4%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

6: 101 NB Off Ramp & Marsh Road

11/19/2014



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	545	319	2051	0	0	733
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	3.2	4.1			4.1
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.87	0.93	0.97	0.92	0.92	0.95
Adj. Flow (vph)	626	343	2114	0	0	772
RTOR Reduction (vph)	0	8	0	0	0	0
Lane Group Flow (vph)	626	335	2114	0	0	772
Turn Type	Prot	custom	NA			NA
Protected Phases	8	1 8	2			6
Permitted Phases						
Actuated Green, G (s)	19.7	28.9	63.8			72.0
Effective Green, g (s)	19.7	24.7	63.8			72.0
Actuated g/C Ratio	0.20	0.25	0.64			0.72
Clearance Time (s)	4.2		4.1			4.1
Vehicle Extension (s)	2.0		3.0			3.0
Lane Grp Cap (vph)	676	391	2257			2548
v/s Ratio Prot	c0.18	c0.21	c0.60			0.22
v/s Ratio Perm						
v/c Ratio	0.93	0.86	0.94			0.30
Uniform Delay, d1	39.4	36.0	16.3			5.0
Progression Factor	1.00	1.00	1.03			1.00
Incremental Delay, d2	18.4	16.0	5.5			0.3
Delay (s)	57.8	52.0	22.3			5.3
Level of Service	E	D	C			A
Approach Delay (s)	55.7		22.3			5.3
Approach LOS	E		C			A

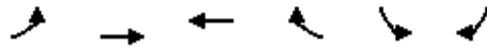
Intersection Summary

HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Marsh Road & 101 SB Off Ramp

11/19/2014



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	920	848	0	1501	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.1	4.1		4.1	4.1
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1583
Peak-hour factor, PHF	0.92	0.82	0.91	0.92	0.96	0.91
Adj. Flow (vph)	0	1122	932	0	1564	407
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1122	932	0	1564	407
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		32.9	24.6		58.9	68.2
Effective Green, g (s)		32.9	24.6		58.9	68.2
Actuated g/C Ratio		0.33	0.25		0.59	0.68
Clearance Time (s)		4.1	4.1		4.1	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1164	870		2022	1079
v/s Ratio Prot		c0.32	c0.26		c0.46	0.26
v/s Ratio Perm						
v/c Ratio		0.96	1.07		0.77	0.38
Uniform Delay, d1		33.0	37.7		15.5	6.8
Progression Factor		1.00	1.43		1.00	1.00
Incremental Delay, d2		19.0	49.3		1.7	0.1
Delay (s)		52.0	103.3		17.2	6.9
Level of Service		D	F		B	A
Approach Delay (s)		52.0	103.3		15.1	
Approach LOS		D	F		B	

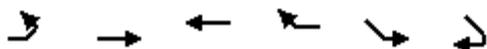
Intersection Summary

HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

7: Marsh Road & 101 SB Off Ramp

12/22/2014



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations		↑↑	↑↑		↑↑	↑
Volume (vph)	0	857	1741	0	1002	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.1	4.1		4.1	4.1
Lane Util. Factor		0.95	0.95		0.97	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	1583
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	1583
Peak-hour factor, PHF	0.92	0.89	0.95	0.92	0.94	0.84
Adj. Flow (vph)	0	963	1833	0	1066	449
RTOR Reduction (vph)	0	0	0	0	0	1
Lane Group Flow (vph)	0	963	1833	0	1066	448
Turn Type		NA	NA		Prot	custom
Protected Phases		2	6		4	4 5
Permitted Phases						
Actuated Green, G (s)		43.6	35.5		28.2	37.3
Effective Green, g (s)		43.6	35.5		28.2	37.3
Actuated g/C Ratio		0.55	0.44		0.35	0.47
Clearance Time (s)		4.1	4.1		4.1	
Vehicle Extension (s)		2.0	2.0		2.0	
Lane Grp Cap (vph)		1928	1570		1210	738
v/s Ratio Prot		0.27	c0.52		c0.31	c0.28
v/s Ratio Perm						
v/c Ratio		0.50	1.17		0.88	0.61
Uniform Delay, d1		11.4	22.2		24.3	15.9
Progression Factor		1.00	0.98		1.00	1.00
Incremental Delay, d2		0.9	80.4		7.6	1.0
Delay (s)		12.3	102.2		31.9	16.9
Level of Service		B	F		C	B
Approach Delay (s)		12.3	102.2		27.4	
Approach LOS		B	F		C	

Intersection Summary

HCM 2000 Control Delay	55.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	110.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			