

Appendix D

TSM/TDM AND ARTERIAL CONGESTION RELIEF

INTERSECTION IMPROVEMENT LOS ANALYSIS WORKSHEETS

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I-710 Corridor PA-ED

TSM/TDM Analysis

ID	Main Street	Cross Street	City	Traffic Control	2035 Alt 1 (No Build) Analysis						TSM/TDM Analysis						TSM/TDM Analysis
					AM Peak		PM Peak		MD Peak		AM Peak		PM Peak		MD Peak		
					Delay	LOS	Delay	LOS	Delay	LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	
2	Ocean Blvd	Magnolia Ave	Long Beach	Signalized	60.8	E	58.8	E	--	--	54.5	D	31.0	C	--	--	Change EBL and WBL from Perm to Perm+Prot; NBR & SBR from Perm to Perm+Overlap
23	PCH	Cherry Ave	Long Beach	Signalized	220.0	F	206.3	F	--	--	97.3	F	160.7	F	--	--	No feasible Mitigation. To reduce delay, Change EBL and WBL from Perm to Perm+Prot and NBR & SBR from Perm to Perm+Overiap
24	Alameda St	Sepulveda Blvd (Ramp)	Carson	Signalized	39.0	D	105.3	F	31.8	C	37.4	D	47.8	D	31.0	C	Change WBR to pm+ov. Change Cycle Length to CL=100s for PM.
25	Sepulveda Blvd	Alameda St (Ramp)	Carson	Signalized	65.6	E	147.5	F	37.5	D	52.9	D	107.9	F	36.0	D	No feasible phasing/timing mitigation available for PM, to improve delay change SBR to pm+ov.
27	Willow St	Pacific Ave	Long Beach	Signalized	42.8	D	62.2	E	25.0	C	38.0	D	53.0	D	23.0	C	Reduce Cycle Length to 80 sec; change NBL from Perm to Perm+Prot
39	Artesia Blvd	Long Beach Blvd	Long Beach	Signalized	98.6	F	70.6	E	30.9	C	64.8	E	57.2	E	31.2	C	No feasible mitigation. To reduce delay change EBL and WBL from Perm to Perm+Prot; NBR & SBR from Perm to Perm+Overlap
42	Alondra Blvd	Long Beach Blvd	Compton	Signalized	35.3	D	68.1	E	32.1	C	35.3	D	54.7	D	32.0	C	Optimize timing for PM.
43	Alondra Blvd	Atlantic Ave	Compton	Signalized	59.9	E	47.9	D	34.8	C	52.4	D	44.7	D	30.8	C	Optimize timing.
44	Alondra Blvd	Garfield Ave	Paramount	Signalized	86.6	F	86.0	F	42.4	D	79.5	E	79.3	E	42.5	D	No feasible phasing/timing mitigation available, to improve delay change all left-turns to Lag phase for AM & PM.
45	Alondra Blvd	Paramount Blvd	Paramount	Signalized	35.3	D	73.7	E	40.6	D	32.9	C	70.2	E	40.7	D	No feasible phasing/timing mitigation available, to improve delay change all left-turns to Lag phase.
48	Rosecrans Ave	Santa Fe Ave	Compton	Signalized	39.2	D	80.1	F	32.1	C	39.2	D	76.5	E	32.1	C	No feasible phasing/timing mitigation available, to improve delay change all left-turns to Lag phase for PM.
49	Rosecrans Ave	Long Beach Blvd	Compton	Signalized	48.4	D	113.6	F	50.2	D	46.2	D	114.4	F	45.6	D	No feasible phasing/timing mitigation available, to improve delay change all left-turns to Lag phase.
50	Rosecrans Ave	Atlantic Ave	Compton/LA.CO	Signalized	190.2	F	181.7	F	60.5	E	189.7	F	176.9	F	58.6	E	No feasible phasing/timing mitigation available, to improve delay change NB, EB, & WB left-turns to Lag phase.
51	Rosecrans Ave	Garfield Ave	Paramount	Signalized	100.5	F	108.6	F	33.8	C	96.7	F	101.4	F	33.8	C	No feasible phasing/timing mitigation available, to improve delay change all left-turns to Lag phase.
52	Rosecrans Ave	Paramount Blvd	Paramount	Signalized	39.7	D	70.5	E	37.1	D	39.9	D	62.3	E	37.2	D	No feasible phasing/timing mitigation available for PM, to improve delay change all left-turns to Lag phase.
54	Imperial Highway	Long Beach Blvd	Lynwood	Signalized	65.3	E	70.9	E	55.7	E	64.0	E	65.2	E	53.7	D	No feasible phasing/timing mitigation available, to improve delay change SB left-turns to Lag phase.
55	Imperial Highway	Atlantic Ave	Lynwood	Signalized	79.9	E	69.7	E	38.9	D	71.6	E	67.1	E	41.7	D	No feasible phasing/timing mitigation available, to improve delay change SB left-turn to Lag phase for AM & PM.
57	Imperial Highway	Paramount Blvd	Downey	Signalized	58.6	E	131.0	F	43.7	D	50.3	D	120.1	F	43.7	D	No feasible phasing/timing mitigation available, to improve delay change NB, SB, & EB left to Lag phase for AM & PM.
59	Firestone Blvd	California Ave	South Gate	Signalized	90.3	F	82.9	F	43.3	D	87.4	F	78.4	E	43.0	D	No feasible phasing/timing mitigation available, to improve delay change NB & WB left-turns to Lag phase.
61	Firestone Blvd	Garfield Ave	South Gate	Signalized	64.9	E	47.1	D	46.4	D	62.7	E	47.1	D	46.4	D	No feasible phasing/timing mitigation available, to improve delay change SB & WB left-turns to Lag phase for AM.
62	Firestone Blvd	Paramount Blvd	Downey	Signalized	153.0	F	124.0	F	41.8	D	143.1	F	122.8	F	41.8	D	No feasible phasing/timing mitigation available, to improve delay change EB left-turn to Lag phase for AM & PM.
63	Florence Ave	Alameda St (West Link)	Huntington Park	Signalized	79.1	E	107.6	F	50.9	D	78.6	E	105.1	F	50.9	D	No feasible phasing/timing mitigation available, to improve delay change SB & EB left-turns to Lag phase for AM & PM.
64	Florence Ave	Atlantic Ave	Bell/Cudahy	Signalized	41.4	D	63.3	E	83.3	F	41.2	D	62.5	E	78.5	E	No feasible phasing/timing mitigation available, to improve delay change WB left-turn to Lag phase for MD & PM.
68	Slauson Ave	Alameda St (West Link)	Huntington Park	Signalized	37.2	D	58.4	E	38.7	D	37.2	D	57.6	E	38.7	D	No feasible phasing/timing mitigation available, to improve delay change NB, SB, &WB left-turns to Lag phase for PM.
69	Slauson Ave	Soto St	Huntington Park	Signalized	61.7	E	86.7	F	41.5	D	53.5	D	81.4	F	41.5	D	No feasible phasing/timing mitigation available, to improve delay change SB, EB, &WB left-turns to Lag phase for PM.
74	Bandini Blvd	Atlantic Blvd	Vernon	Signalized	55.4	E	80.3	F	54.5	D	53.4	D	80.3	F	54.5	D	No feasible phasing/timing mitigation. To improve delay in the AM, Change cycle length to CL=130 s and SB left-turn to lag phase.
126	I-710 SB	Washington Blvd (On/Off)	E. LA (unincorp.)	Signalized	20.4	C	38.8	D	72.8	E	20.4	C	38.8	D	71.9	E	No feasible phasing/timing mitigation available, to improve delay change WB left-turn to Lag phase for AM & MD.
148	Wardlow	Cherry Ave	Long Beach	Signalized	36.8	D	88.7	F	34.7	C	35.7	D	80.8	F	36.2	D	No feasible mitigation. To reduce delay change Cycle length to 130 sec.
151	Slauson Ave	Santa Fe Ave	Huntington Park	Signalized	72.7	E	116.0	F	36.8	D	70.3	E	114.8	F	36.8	D	No feasible phasing/timing mitigation available, to improve delay change SB & WB left-turns to Lag phase for AM & PM.
152	Pacific	Gage Ave	Huntington Park	Signalized	72.1	E	37.4	D	32.7	C	59.3	E	45.0	D	32.0	C	No feasible phasing/timing Improvements available for AM.
153	Santa Fe Ave	Gage Ave	Huntington Park	Signalized	61.1	E	94.2	F	31.9	C	60.9	E	91.7	F	31.8	C	No feasible phasing/timing mitigation available, to improve delay change NB, SB & EB left-turns to Lag phase for AM & PM.
155	Wilmington	223rd	Carson	Signalized	50.1	D	170.2	F	50.9	D	50.1	D	148.2	F	50.9	D	No feasible phasing/timing mitigation available, to improve delay change SB left-turns to Lag phase for PM.
156	Alameda St Ramp	223rd	Carson	Signalized	19.4	B	95.2	F	27.0	C	19.3	B	52.0	D	27.0	C	Change cycle length to 100 sec for PM.

**I-710 Corridor PA-ED
Arterial Highway
Congestion Relief Improvement Analysis**




























ID	Main Street	Cross Street	Traffic Control	City	2035 Alt 1 (No Build) Analysis						TSM/TDM Analysis						Congestion Relief Improvement Analysis						Description of Congestion Relief Improvements
					AM Peak		PM Peak		MD Peak		AM Peak		PM Peak		MD Peak		AM Peak		PM Peak		MD Peak		
					Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	
13	Anaheim St	Magnolia Ave	Signalized	Long Beach	90.8	F	80.1	F	19.7	B	90.8	F	80.1	F	19.7	B	35.6	D	39.3	D	17.0	B	Add an extra left-turn lane (change from single to dual) on NB approach.
14	Anaheim St	Pacific Ave	Signalized	Long Beach	144.5	F	93.9	F	26.1	C	144.5	F	93.9	F	26.1	C	67.8	E	48.4	D	25.4	C	Add separate Right-turn lanes on the EB & WB approaches. Add an extra Left-turn lane (change from single to dual) on NB & SB approaches.
16	Anaheim St	Cherry Ave	Signalized	Long Beach	42.4	D	106.7	F	44.4	D	42.4	D	106.7	F	44.4	D	39.9	D	91.2	F	41.7	D	No feasible mitigation. Add EBR turn lane to reduce delay.
18	Alameda Street	O Street	Signalized	Los Angeles (Wilmington)	20.0	B	132.9	F	19.9	B	20.0	B	132.9	F	19.9	B	22.5	C	47.2	D	22.0	C	Restripe to add WBR turn lane; increase CL to 110 sec
20	PCH	Pacific Ave	Signalized	Long Beach	64.7	E	40.5	D	28.4	C	64.7	E	40.5	D	28.4	C	52.5	D	34.1	C	26.9	C	Add EBR and WBR turn lanes
21	PCH	Long Beach Blvd	Signalized	Long Beach	77.0	E	111.2	F	52.1	D	77.0	E	111.2	F	52.1	D	60.3	E	91.5	F	41.4	D	No feasible congestion relief mitigation during AM & PM. To significantly reduce delay add an extra Left-Turn Lane (change from single to dual) on EB & WB approaches.
25	Sepulveda Blvd	Alameda St (Ramp)	Signalized	Carson	65.6	E	147.5	F	37.5	D	52.9	D	107.9	F	36.0	D	32.6	C	38.6	D	24.3	C	Add a WB right-turn and a SB through lane. Re-stripe NB through-left to NB left and SB through-left to SB left; Change NB & SB left-turn to pm+pt.
28	Willow St	Long Beach Blvd	Signalized	Long Beach	96.3	F	107.3	F	75.7	E	96.3	F	107.3	F	75.7	E	66.4	E	75.1	E	51.1	D	No feasible congestion relief mitigation. To significantly reduce delay Add EBL and WBL turn lanes; increase CL to 110 sec; Blue line track in N-S direction
29	Willow St	Atlantic Ave	Signalized	Long Beach	70.5	E	91.8	F	38.6	D	70.5	E	91.8	F	38.6	D	40.7	D	47.4	D	29.5	C	Add NBL, NBR, SBL, and SBR turn lanes; reduce CL to 90 sec
30	Willow St	Cherry Ave	Signalized	Signal Hill	71.2	E	127.5	F	78.5	E	71.2	E	127.5	F	78.5	E	47.3	D	70.4	E	47.2	D	Add EBR, WBR and NBL turn lanes, reduce CL to 90 sec.
35	Del Amo Blvd	Long Beach Blvd	Signalized	Long Beach	72.2	E	64.0	E	41.6	D	72.2	E	64.0	E	41.6	D	53.6	D	46.7	D	33.7	C	Add NBL and SBL turn lanes; reduce CL to 90 sec
36	Del Amo Blvd	Atlantic Ave	Signalized	Long Beach	73.8	E	111.8	F	37.3	D	73.8	E	111.8	F	37.3	D	52.3	D	84.7	F	31.6	C	No feasible congestion relief mitigation during PM. To significantly reduce delay add NBL and SBL turn lanes.
37	Del Amo Blvd	Cherry Ave	Signalized	Long Beach	88.1	F	88.3	F	37.9	D	88.1	F	88.3	F	37.9	D	51.5	D	52.5	D	31.4	C	Add EBL, WBL, and SBL turn lanes
38	Del Amo Blvd	Lakewood Blvd	Signalized	Lakewood	83.1	F	314.1	F	67.3	E	83.1	F	314.1	F	67.3	E	49.2	D	193.1	F	40.9	D	Add NBL, SBL, EBL, and WBL turn lanes.
39	Artesia Blvd	Long Beach Blvd	Signalized	Long Beach	98.6	F	70.6	E	30.9	C	64.8	E	57.2	E	31.2	C	48.4	D	52.9	D	28.9	C	Add an additional WBL turn lane (from single to dual left-turn).
41	Alondra Blvd	Santa Fe Ave	Signalized	Compton	50.8	D	63.8	E	33.1	C	50.8	D	63.8	E	33.1	C	40.5	D	42.5	D	29.2	C	Add a NB right-turn lane.
44	Alondra Blvd	Garfield Ave	Signalized	Paramount	86.6	F	86.0	F	42.4	D	79.5	E	79.3	E	42.5	D	57.7	E	53.4	D	35.7	D	Add an additional left-turn lane (change from single to dual left) on both NB & SB approaches.
45	Alondra Blvd	Paramount Blvd	Signalized	Paramount	35.3	D	73.7	E	40.6	D	32.9	C	70.2	E	40.7	D	29.5	C	50.1	D	38.3	D	Add a left-turn lane (change from single to dual left) on WB approach.
48	Rosecrans Ave	Santa Fe Ave	Signalized	Compton	39.2	D	80.1	F	32.1	C	39.2	D	76.5	E	32.1	C	36.6	D	46.8	D	30.5	C	Add a left-turn lane (change from single to dual left) on WB approach.
49	Rosecrans Ave	Long Beach Blvd	Signalized	Compton	48.4	D	113.6	F	50.2	D	46.2	D	114.4	F	45.6	D	28.6	C	46.1	D	28.7	C	Add separate right-turn lanes on EB and WB approaches. Add an additional left-turn lane (change from single to dual left) on both NB & SB approaches.
50	Rosecrans Ave	Atlantic Ave	Signalized	Compton/LA.CO	190.2	F	181.7	F	60.5	E	189.7	F	176.9	F	58.6	E	69.6	E	68.5	E	31.9	C	No feasible congestion relief mitigation during AM & PM Peak hour. However, to significantly reduce delay, following improvements are assumed: Add separate right-turn lanes on all-four approaches. Add an additional left-turn lane (change from single to dual left) on all-four approaches.
51	Rosecrans Ave	Garfield Ave	Signalized	Paramount	100.5	F	108.6	F	33.8	C	96.7	F	101.4	F	33.8	C	48.7	D	47.7	D	30.1	C	Add an additional left-turn lane (change from single to dual left) on NB, SB, & EB approaches.
52	Rosecrans Ave	Paramount Blvd	Signalized	Paramount	39.7	D	70.5	E	37.1	D	39.9	D	62.3	E	37.2	D	37.7	D	50.9	D	34.4	C	Add a separate right-turn lane on NB approach.
54	Imperial Highway	Long Beach Blvd	Signalized	Lynwood	65.3	E	70.9	E	55.7	E	64.0	E	65.2	E	53.7	D	52.9	D	46.0	D	37.2	D	Add an additional left-turn lane (change from single to dual left) on WB approach.
55	Imperial Highway	Atlantic Ave	Signalized	Lynwood	79.9	E	69.7	E	38.9	D	71.6	E	67.1	E	41.7	D	40.5	D	38.0	D	31.1	C	Add an additional left-turn lane (change from single to dual left) on NB & SB approaches.
57	Imperial Highway	Paramount Blvd	Signalized	Downey	58.6	E	131.0	F	43.7	D	50.3	D	120.1	F	43.7	D	43.6	D	77.9	E	34.8	C	No feasible congestion relief mitigation during PM. To significantly reduce delay add additional left-turn lane (change from single to dual left) on both WB & SB approaches.
59	Firestone Blvd	California Ave	Signalized	South Gate	90.3	F	82.9	F	43.3	D	87.4	F	78.4	E	43.0	D	50.0	D	51.2	D	32.6	C	Add separate right-turn lanes on NB and SB approaches. Add an additional left-turn lane (change from single to dual left) on NB & SB approaches.
60	Firestone Blvd	Atlantic Ave	Signalized	South Gate	78.7	E	246.5	F	80.5	F	78.7	E	246.5	F	80.5	F	64.2	E	224.5	F	75.5	E	No feasible congestion relief mitigation. To significantly reduce delay, add a separate right-turn lane on EB approach. Add an additional left-turn lane (change from single to dual left) on both WB & NB approaches. (Note that, City is currently implementing a separate SBR & dual EBL turn lane.)
61	Firestone Blvd	Garfield Ave	Signalized	South Gate	64.9	E	47.1	D	46.4	D	62.7	E	47.1	D	46.4	D	53.5	D	35.6	D	38.4	D	Add an extra left-turn lane (change from dual to tripple) on the EB approach. Add a separate right-turn lane on NB approach.
62	Firestone Blvd	Paramount Blvd	Signalized	Downey	153.0	F	124.0	F	41.8	D	143.1	F	122.8	F	41.8	D	52.5	D	55.1	E	31.5	C	No feasible congestion relief mitigation during PM. To significantly reduce delay add an additional left-turn lane (change from single to dual left) on all-four approaches. (Note that, city is currently implementing a separate right-turn lane on EB approach.)
63	Florence Ave	Alameda St (West Link)	Signalized	Huntington Park	79.1	E	107.6	F	50.9	D	78.6	E	105.1	F	50.9	D	36.6	D	52.0	D	32.8	C	Add separate right-turn lanes on NB, SB, & WB approaches. Add an additional left-turn lane (change from single to dual left) on WB approach.
64	Florence Ave	Atlantic Ave	Signalized	Bell/Cudahy	41.4	D	63.3	E	83.3	F	41.2	D	62.5	E	78.5	E	37.0	D	43.1	D	58.6	E	No congestion relief mitigation for MD Peak Hour. To significantly reduce delay, add a separate right-turn lane on SB approach and an additional left-turn lane (change from single to dual left) on NB approach.

**I-710 Corridor PA-ED
Arterial Highway
Congestion Relief Improvement Analysis**

	Main Street	Cross Street	Traffic Control	City	2035 Alt 1 (No Build) Analysis						TSM/TDM Analysis						Congestion Relief Improvement Analysis						Description of Congestion Relief Improvements
					AM Peak		PM Peak		MD Peak		AM Peak		PM Peak		MD Peak		AM Peak		PM Peak		MD Peak		
					Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	Mitigated Delay	Mitigated LOS	
68	Slauson Ave	Alameda St (West Link)	Signalized	Huntington Park/City of LA/ Vernon	37.2	D	58.4	E	38.7	D	37.2	D	57.6	E	38.7	D	35.8	D	52.3	D	33.1	C	Add a separate right-turn lane on SB approach.
69	Slauson Ave	Soto St	Signalized	Huntington Park	61.7	E	86.7	F	41.5	D	53.5	D	81.4	F	41.5	D	36.2	D	54.3	D	32.9	C	Add a separate right-turn lanes on NB & SB approaches.
71	Slauson Ave	Eastern Ave	Signalized	Commerce	35.3	D	93.0	F	33.8	C	35.3	D	93.0	F	33.8	C	28.4	C	53.0	D	27.1	C	Add an additional left-turn lane (change from single to dual left) on NB & SB approaches.
73	Garfield Ave	Slauson Ave	Signalized	Commerce	56.6	E	57.1	E	28.1	C	56.6	E	57.1	E	28.1	C	46.0	D	43.8	D	27.4	C	Add separate right-turn lane on NB & SB approaches.
106	Humphreys Avenue	Cesar Chavez Avenue	Unsignalized	E. LA (unincorp.)	471.6	F	258.3	F	311.0	F	471.6	F	258.3	F	311.0	F	35.4	E	26.2	D	30.4	D	Re-stripe to provide a two-way left-turn lane on Cesar Chavez Avenue
146	Santa Fe Ave	223rd	Signalized	Long Beach	30.5	C	121.0	F	28.4	C	30.5	C	121.0	F	28.4	C	27.1	C	59.4	E	25.9	C	Add WBL and SBR turn lanes.
151	Slauson Ave	Santa Fe Ave	Signalized	Huntington Park	72.7	E	116.0	F	36.8	D	70.3	E	114.8	F	36.8	D	35.2	D	41.8	D	33.1	C	Add an additional left-turn lane (change from single to dual left) on EB & WB approaches. Add separate right-turn lane on NB & SB approaches.
152	Pacific	Gage Ave	Signalized	Huntington Park	72.1	E	37.4	D	32.7	C	59.3	E	45.0	D	32.0	C	43.8	D	35.0	C	25.8	C	Add a separate right-turn lane on NB approach.
153	Santa Fe Ave	Gage Ave	Signalized	Huntington Park	61.1	E	94.2	F	31.9	C	60.9	E	91.7	F	31.8	C	43.0	D	53.6	D	27.2	C	Add an additional left-turn lane (change from single to dual left) on NB & SB approaches. Add separate right-turn lanes on EB & WB approaches.
161	Del Amo Blvd	Susana Road	Signalized	Carson	76.2	E	65.3	E	53.9	D	76.2	E	65.3	E	53.9	D	53.8	D	36.9	D	34.7	C	Add an additional left-turn lane (change from single to dual left) on SB approach. Add a separate left-turn lane on NB approach. Re-stripe SB through-left to SB through.

HCM Signalized Intersection Capacity Analysis
2: E Ocean Blvd & Magnolia Avenue

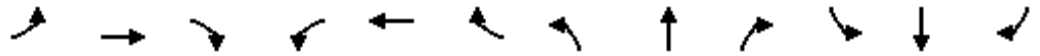
2035 AM Peak_Alt 2
7/24/2011

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr _t	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Fl _t Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1407	3897		1421	4044	1333	1505	2576	1193	1490	2815	1106	
Fl _t Permitted	0.07	1.00		0.27	1.00	1.00	0.61	1.00	1.00	0.74	1.00	1.00	
Satd. Flow (perm)	97	3897		401	4044	1333	972	2576	1193	1153	2815	1106	
Volume (vph)	140	920	50	130	2370	360	40	30	40	200	170	410	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	147	968	53	137	2495	379	42	32	42	211	179	432	
RTOR Reduction (vph)	0	6	0	0	0	101	0	0	32	0	0	1	
Lane Group Flow (vph)	147	1015	0	137	2495	278	42	32	10	211	179	431	
Heavy Vehicles (%)	8%	11%	15%	7%	8%	2%	1%	18%	14%	2%	8%	23%	
Turn Type	pm+pt			pm+pt		Perm	Perm		pm+ov	Perm		pm+ov	
Protected Phases	5	2		1	6			8	1		4	5	
Permitted Phases	2			6		6	8		8	4		4	
Actuated Green, G (s)	76.0	64.5		64.5	57.0	57.0	16.0	16.0	23.5	16.0	16.0	31.0	
Effective Green, g (s)	76.0	64.5		64.5	57.0	57.0	16.0	16.0	23.5	16.0	16.0	31.0	
Actuated g/C Ratio	0.76	0.64		0.64	0.57	0.57	0.16	0.16	0.24	0.16	0.16	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	270	2514		335	2305	760	156	412	328	184	450	387	
v/s Ratio Prot	0.08	0.26		0.03	c0.62			0.01	0.00		0.06	c0.17	
v/s Ratio Perm	0.33			0.23		0.21	0.04		0.01	0.18		0.22	
v/c Ratio	0.54	0.40		0.41	1.08	0.37	0.27	0.08	0.03	1.15	0.40	1.11	
Uniform Delay, d ₁	24.3	8.5		7.0	21.5	11.7	36.9	35.7	29.5	42.0	37.7	34.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂	2.2	0.5		0.8	45.5	1.4	0.9	0.1	0.0	111.4	2.6	79.9	
Delay (s)	26.5	9.0		7.8	67.0	13.0	37.8	35.8	29.5	153.4	40.3	114.4	
Level of Service	C	A		A	E	B	D	D	C	F	D	F	
Approach Delay (s)		11.2			57.5			34.2			108.3		
Approach LOS		B			E			C			F		
Intersection Summary													
HCM Average Control Delay			54.5									HCM Level of Service	D
HCM Volume to Capacity ratio			1.09										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			97.9%									ICU Level of Service	F
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 23: Pacific Coast Hwy & Cherry Ave

2035 AM Peak_Alt 2
 7/27/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗↗		↘	↗↗↗		↘	↗	↗	↘	↗	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	4181		1476	4095		1505	1584	1347	1476	1553	1320
Flt Permitted	0.09	1.00		0.13	1.00		0.18	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	133	4181		196	4095		288	1584	1347	345	1553	1320
Volume (vph)	360	1390	50	100	1680	270	240	400	20	130	290	190
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	379	1463	53	105	1768	284	253	421	21	137	305	200
RTOR Reduction (vph)	0	3	0	0	22	0	0	0	15	0	0	6
Lane Group Flow (vph)	379	1513	0	105	2030	0	253	421	6	137	305	194
Heavy Vehicles (%)	3%	4%	2%	3%	5%	1%	1%	1%	1%	3%	3%	3%
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.8	51.7		49.9	42.8		30.0	22.0	29.1	22.0	18.0	34.0
Effective Green, g (s)	62.8	51.7		49.9	42.8		30.0	22.0	29.1	22.0	18.0	34.0
Actuated g/C Ratio	0.62	0.51		0.50	0.42		0.30	0.22	0.29	0.22	0.18	0.34
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	296	2144		187	1739		182	346	442	120	277	498
v/s Ratio Prot	c0.20	0.36		0.04	0.50		c0.11	0.27	0.00	0.05	0.20	0.06
v/s Ratio Perm	c0.60			0.24			c0.30		0.00	0.20		0.09
v/c Ratio	1.28	0.71		0.56	1.17		1.39	1.22	0.01	1.14	1.10	0.39
Uniform Delay, d1	32.3	18.7		14.5	29.0		32.5	39.4	25.6	40.1	41.4	25.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	149.6	2.0		3.8	82.0		205.6	121.1	0.0	125.3	83.9	0.5
Delay (s)	181.9	20.7		18.4	111.0		238.1	160.5	25.6	165.4	125.3	26.0
Level of Service	F	C		B	F		F	F	C	F	F	C
Approach Delay (s)		53.0			106.5			184.7			102.9	
Approach LOS		D			F			F			F	

Intersection Summary

HCM Average Control Delay	97.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	100.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 24: Sepulveda Blvd Ramp & Alameda St

2035 AM Peak_Alt 2
 6/30/2009



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔	↕↕
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	1.00	0.95
Frt	0.93	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1686	741	2082	1007	1126	2269
Flt Permitted	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1686	741	2082	1007	1126	2269
Volume (vph)	120	270	700	200	320	980
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	284	737	211	337	1032
RTOR Reduction (vph)	86	25	0	72	0	0
Lane Group Flow (vph)	144	155	737	139	337	1032
Heavy Vehicles (%)	67%	67%	46%	35%	35%	34%
Turn Type		pm+ov		pm+ov	Prot	
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	10.2	29.0	19.0	29.2	18.8	41.8
Effective Green, g (s)	10.2	29.0	19.0	29.2	18.8	41.8
Actuated g/C Ratio	0.17	0.48	0.32	0.49	0.31	0.70
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	287	408	659	557	353	1581
v/s Ratio Prot	c0.09	0.12	c0.35	0.04	c0.30	0.45
v/s Ratio Perm		0.09		0.10		
v/c Ratio	0.50	0.38	1.12	0.25	0.95	0.65
Uniform Delay, d1	22.6	9.8	20.5	9.0	20.2	5.1
Progression Factor	1.00	1.00	1.00	1.00	1.36	0.89
Incremental Delay, d2	1.4	0.6	72.3	0.2	27.1	1.4
Delay (s)	24.0	10.4	92.8	9.2	54.5	5.8
Level of Service	C	B	F	A	D	A
Approach Delay (s)	18.0		74.2			17.8
Approach LOS	B		E			B

Intersection Summary

HCM Average Control Delay	37.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 25: Sepulveda Blvd & Alameda St Ramp

2035 AM Peak_Alt 2
 6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.96			1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	0.96	1.00
Satd. Flow (prot)	1267	2525		1267	2444			1573		760	768	716
Flt Permitted	0.95	1.00		0.95	1.00			0.98		0.95	0.96	1.00
Satd. Flow (perm)	1267	2525		1267	2444			1573		760	768	716
Volume (vph)	180	480	10	10	620	190	10	20	0	320	30	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	505	11	11	653	200	11	21	0	337	32	179
RTOR Reduction (vph)	0	2	0	0	28	0	0	0	0	0	0	104
Lane Group Flow (vph)	189	514	0	11	825	0	0	32	0	180	189	75
Heavy Vehicles (%)	20%	20%	20%	20%	20%	20%	90%	90%	90%	90%	90%	90%
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	16.0	49.0		1.2	34.2			7.8		26.0	26.0	42.0
Effective Green, g (s)	16.0	49.0		1.2	34.2			7.8		26.0	26.0	42.0
Actuated g/C Ratio	0.16	0.49		0.01	0.34			0.08		0.26	0.26	0.42
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	203	1237		15	836			123		198	200	329
v/s Ratio Prot	c0.15	0.20		0.01	c0.34			c0.02		0.24	c0.25	0.04
v/s Ratio Perm												0.07
v/c Ratio	0.93	0.42		0.73	0.99			0.26		0.91	0.94	0.23
Uniform Delay, d1	41.5	16.3		49.2	32.7			43.4		35.9	36.3	18.6
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	44.0	0.2		103.2	27.7			5.1		43.9	50.7	0.4
Delay (s)	85.4	16.6		152.5	60.4			48.5		79.7	87.0	19.0
Level of Service	F	B		F	E			D		E	F	B
Approach Delay (s)		35.0			61.6			48.5			62.4	
Approach LOS		D			E			D			E	

Intersection Summary

HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
27: Willow St & Pacific Ave

2035 AM Peak_Alt 2
12/4/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕↕↕		↖	↕↕↕		↖	↕↕		↖	↕↕	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.97		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	4255		1169	4202		1520	2700		1490	2883	
Flt Permitted	0.19	1.00		0.19	1.00		0.13	1.00		0.31	1.00	
Satd. Flow (perm)	302	4255		234	4202		213	2700		488	2883	
Volume (vph)	130	990	120	140	1140	230	160	620	210	90	690	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1042	126	147	1200	242	168	653	221	95	726	221
RTOR Reduction (vph)	0	19	0	0	38	0	0	42	0	0	36	0
Lane Group Flow (vph)	137	1149	0	147	1404	0	168	832	0	95	911	0
Heavy Vehicles (%)	1%	1%	1%	30%	1%	3%	0%	2%	27%	2%	2%	1%
Turn Type	pm+pt		pm+pt		pm+pt		Perm					
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		28.0	28.0		36.0	36.0		26.0	26.0	
Effective Green, g (s)	25.0	25.0		28.0	28.0		36.0	36.0		26.0	26.0	
Actuated g/C Ratio	0.31	0.31		0.35	0.35		0.45	0.45		0.32	0.32	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	155	1330		164	1471		194	1215		159	937	
v/s Ratio Prot	0.04	c0.27		0.08	c0.33		c0.06	0.31			c0.32	
v/s Ratio Perm	0.23			0.24			0.32			0.19		
v/c Ratio	0.88	0.86		0.90	0.95		0.87	0.68		0.60	0.97	
Uniform Delay, d1	29.9	25.9		22.2	25.4		17.1	17.5		22.6	26.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	40.3	7.7		41.4	14.0		30.8	1.6		5.9	22.8	
Delay (s)	70.2	33.6		63.6	39.4		47.9	19.1		28.5	49.4	
Level of Service	E	C		E	D		D	B		C	D	
Approach Delay (s)		37.4			41.6			23.8			47.5	
Approach LOS		D			D			C			D	

Intersection Summary

HCM Average Control Delay	38.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd

























2035 AM Peak_Alt 2
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	2923	1320	1505	2895	1283	2863	2951	1333	1476	2951	1347
Flt Permitted	0.23	1.00	1.00	0.15	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	352	2923	1320	235	2895	1283	2863	2951	1333	1476	2951	1347
Volume (vph)	80	700	90	490	1090	150	230	520	200	110	780	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	737	95	516	1147	158	242	547	211	116	821	158
RTOR Reduction (vph)	0	0	48	0	0	45	0	0	42	0	0	22
Lane Group Flow (vph)	84	737	47	516	1147	113	242	547	169	116	821	136
Heavy Vehicles (%)	4%	4%	3%	1%	5%	6%	3%	3%	2%	3%	3%	1%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	28.0	23.0	31.0	54.0	45.0	57.3	8.0	21.7	48.7	12.3	26.0	31.0
Effective Green, g (s)	28.0	23.0	31.0	54.0	45.0	57.3	8.0	21.7	48.7	12.3	26.0	31.0
Actuated g/C Ratio	0.28	0.23	0.31	0.54	0.45	0.57	0.08	0.22	0.49	0.12	0.26	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	154	672	409	470	1303	735	229	640	649	182	767	418
v/s Ratio Prot	0.03	0.25	0.01	c0.30	0.40	0.02	c0.08	0.19	0.07	0.08	c0.28	0.02
v/s Ratio Perm	0.13		0.03	c0.30		0.07			0.06			0.08
v/c Ratio	0.55	1.10	0.12	1.10	0.88	0.15	1.06	0.85	0.26	0.64	1.07	0.33
Uniform Delay, d1	27.5	38.5	24.7	28.1	25.0	10.0	46.0	37.6	15.1	41.7	37.0	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	64.1	0.1	70.8	7.2	0.1	75.2	10.8	0.2	7.1	53.0	0.5
Delay (s)	31.4	102.6	24.8	98.9	32.3	10.1	121.2	48.4	15.3	48.9	90.0	26.9
Level of Service	C	F	C	F	C	B	F	D	B	D	F	C
Approach Delay (s)		88.0			49.2			59.1			76.5	
Approach LOS		F			D			E			E	
Intersection Summary												
HCM Average Control Delay			64.8				HCM Level of Service				E	
HCM Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			101.9%				ICU Level of Service			G		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
42: Alondra Blvd & Long Beach Blvd

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2868	1333	1520	2951	1320	1490	2923	1320	1476	2951	1360
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2868	1333	1520	2951	1320	1490	2923	1320	1476	2951	1360
Volume (vph)	130	680	80	160	920	200	140	490	50	140	540	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	716	84	168	968	211	147	516	53	147	568	126
RTOR Reduction (vph)	0	0	46	0	0	89	0	0	32	0	0	46
Lane Group Flow (vph)	137	716	38	168	968	122	147	516	21	147	568	80
Heavy Vehicles (%)	0%	6%	2%	0%	3%	3%	2%	4%	3%	3%	3%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	12.8	33.5	45.2	13.7	34.4	46.1	11.7	25.1	38.8	11.7	25.1	37.9
Effective Green, g (s)	12.8	33.5	45.2	13.7	34.4	46.1	11.7	25.1	38.8	11.7	25.1	37.9
Actuated g/C Ratio	0.13	0.34	0.45	0.14	0.34	0.46	0.12	0.25	0.39	0.12	0.25	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	195	961	656	208	1015	661	174	734	565	173	741	570
v/s Ratio Prot	0.09	0.25	0.01	c0.11	c0.33	0.02	0.10	0.18	0.00	c0.10	c0.19	0.02
v/s Ratio Perm			0.02			0.07			0.01			0.04
v/c Ratio	0.70	0.75	0.06	0.81	0.95	0.18	0.84	0.70	0.04	0.85	0.77	0.14
Uniform Delay, d1	41.8	29.5	15.4	41.9	32.0	15.9	43.3	34.1	19.0	43.3	34.7	20.4
Progression Factor	0.78	0.98	3.56	1.39	0.58	0.20	1.00	1.00	1.00	1.40	0.63	0.10
Incremental Delay, d2	8.9	2.6	0.0	15.7	14.8	0.1	29.5	5.6	0.0	19.4	4.4	0.1
Delay (s)	41.6	31.4	54.9	74.1	33.4	3.3	72.7	39.6	19.0	79.9	26.4	2.2
Level of Service	D	C	D	E	C	A	E	D	B	E	C	A
Approach Delay (s)		35.0			33.8			44.9			32.1	
Approach LOS		D			C			D			C	

























Intersection Summary

HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Alondra Blvd & Atlantic Ave

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2951	1333	1476	2951	1283	1490	2980	1347	1382	3010	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2951	1333	1476	2951	1283	1490	2980	1347	1382	3010	1347
Volume (vph)	80	840	100	110	850	260	150	340	270	370	590	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	884	105	116	895	274	158	358	284	389	621	63
RTOR Reduction (vph)	0	0	54	0	0	96	0	0	29	0	0	42
Lane Group Flow (vph)	84	884	51	116	895	178	158	358	255	389	621	21
Heavy Vehicles (%)	1%	3%	2%	3%	3%	6%	2%	2%	1%	10%	1%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	8.2	33.5	48.2	10.5	35.8	55.5	14.7	20.3	30.8	19.7	25.3	33.5
Effective Green, g (s)	8.2	33.5	48.2	10.5	35.8	55.5	14.7	20.3	30.8	19.7	25.3	33.5
Actuated g/C Ratio	0.08	0.34	0.48	0.10	0.36	0.56	0.15	0.20	0.31	0.20	0.25	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	123	989	696	155	1056	763	219	605	469	272	762	505
v/s Ratio Prot	0.06	0.30	0.01	c0.08	c0.30	0.05	0.11	0.12	0.06	c0.28	c0.21	0.00
v/s Ratio Perm			0.03			0.09			0.13			0.01
v/c Ratio	0.68	0.89	0.07	0.75	0.85	0.23	0.72	0.59	0.54	1.43	0.81	0.04
Uniform Delay, d1	44.6	31.6	13.9	43.5	29.6	11.4	40.7	36.1	28.8	40.1	35.1	22.4
Progression Factor	0.68	0.87	3.88	1.19	0.77	0.32	1.00	1.00	1.00	1.16	0.52	0.25
Incremental Delay, d2	11.6	8.4	0.0	16.9	6.1	0.1	11.1	4.2	1.3	207.5	6.5	0.0
Delay (s)	41.8	36.0	54.0	68.8	28.8	3.8	51.8	40.3	30.0	254.0	24.7	5.6
Level of Service	D	D	D	E	C	A	D	D	C	F	C	A
Approach Delay (s)		38.2			27.1			38.9			106.7	
Approach LOS		D			C			D			F	
























Intersection Summary

HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Alondra Blvd & Garfield Ave
























2035 AM Peak_Alt 2
5/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	2951	1320	1505	2895		1476	2951	1333	1462	2846	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	2951	1320	1505	2895		1476	2951	1333	1462	2846	
Volume (vph)	150	680	120	390	680	100	300	500	140	310	610	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	716	126	411	716	105	316	526	147	326	642	147
RTOR Reduction (vph)	0	0	34	0	12	0	0	0	45	0	20	0
Lane Group Flow (vph)	158	716	92	411	809	0	316	526	102	326	770	0
Heavy Vehicles (%)	2%	3%	3%	1%	3%	3%	3%	3%	2%	4%	4%	3%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	12.0	21.0	38.0	21.0	30.0		17.0	20.0	41.0	22.0	25.0	
Effective Green, g (s)	12.0	21.0	38.0	21.0	30.0		17.0	20.0	41.0	22.0	25.0	
Actuated g/C Ratio	0.12	0.21	0.38	0.21	0.30		0.17	0.20	0.41	0.22	0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	179	620	554	316	869		251	590	600	322	712	
v/s Ratio Prot	0.11	c0.24	0.03	c0.27	0.28		c0.21	0.18	0.04	0.22	c0.27	
v/s Ratio Perm			0.04						0.04			
v/c Ratio	0.88	1.15	0.17	1.30	0.93		1.26	0.89	0.17	1.01	1.08	
Uniform Delay, d1	43.3	39.5	20.5	39.5	34.0		41.5	38.9	18.7	39.0	37.5	
Progression Factor	0.86	0.79	0.72	0.62	0.52		1.00	1.00	1.00	0.97	0.46	
Incremental Delay, d2	34.4	86.0	0.1	146.9	9.7		144.6	18.3	0.1	18.2	39.2	
Delay (s)	71.8	117.2	14.9	171.3	27.4		186.1	57.2	18.8	56.1	56.5	
Level of Service	E	F	B	F	C		F	E	B	E	E	
Approach Delay (s)		97.2			75.4			92.7			56.4	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM Average Control Delay			79.5			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			106.4%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 AM Peak_Alt 2
6/30/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1320	1490	2951	1320	1476	2951	1333	1476	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2951	1320	1490	2951	1320	1476	2951	1333	1476	2980	1333
Volume (vph)	90	870	130	130	860	190	200	440	70	100	500	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	916	137	137	905	200	211	463	74	105	526	116
RTOR Reduction (vph)	0	0	51	0	0	104	0	0	44	0	0	65
Lane Group Flow (vph)	95	916	86	137	905	96	211	463	30	105	526	51
Heavy Vehicles (%)	2%	3%	3%	2%	3%	3%	3%	3%	2%	3%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	9.9	32.2	49.4	10.8	33.1	44.6	17.2	29.5	40.3	11.5	23.8	33.7
Effective Green, g (s)	9.9	32.2	49.4	10.8	33.1	44.6	17.2	29.5	40.3	11.5	23.8	33.7
Actuated g/C Ratio	0.10	0.32	0.49	0.11	0.33	0.45	0.17	0.29	0.40	0.12	0.24	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	148	950	705	161	977	642	254	871	591	170	709	503
v/s Ratio Prot	0.06	c0.31	0.02	c0.09	0.31	0.02	c0.14	0.16	0.01	0.07	c0.18	0.01
v/s Ratio Perm			0.04			0.06			0.02			0.03
v/c Ratio	0.64	0.96	0.12	0.85	0.93	0.15	0.83	0.53	0.05	0.62	0.74	0.10
Uniform Delay, d1	43.3	33.3	13.6	43.8	32.3	16.4	40.0	29.5	18.2	42.2	35.3	22.8
Progression Factor	1.24	0.40	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.30	0.67	0.40
Incremental Delay, d2	0.9	3.5	0.0	32.6	14.2	0.1	20.0	2.3	0.0	4.0	4.2	0.1
Delay (s)	54.7	16.8	6.8	76.4	46.4	16.5	60.0	31.8	18.2	58.8	27.9	9.3
Level of Service	D	B	A	E	D	B	E	C	B	E	C	A
Approach Delay (s)		18.7			44.9			38.4			29.4	
Approach LOS		B			D			D			C	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2980	1333	1382	2980	1320	1490	2714	1259	1476	2841	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2980	1333	1382	2980	1320	1490	2714	1259	1476	2841	1347
Volume (vph)	40	730	130	240	1020	100	180	370	40	180	570	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	768	137	253	1074	105	189	389	42	189	600	95
RTOR Reduction (vph)	0	0	66	0	0	43	0	0	25	0	0	49
Lane Group Flow (vph)	42	768	71	253	1074	62	189	389	17	189	600	46
Heavy Vehicles (%)	2%	2%	2%	10%	2%	3%	2%	12%	8%	3%	7%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	4.0	27.7	41.3	19.5	43.2	58.8	13.6	21.2	40.7	15.6	23.2	27.2
Effective Green, g (s)	4.0	27.7	41.3	19.5	43.2	58.8	13.6	21.2	40.7	15.6	23.2	27.2
Actuated g/C Ratio	0.04	0.28	0.41	0.20	0.43	0.59	0.14	0.21	0.41	0.16	0.23	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	60	825	604	269	1287	829	203	575	563	230	659	420
v/s Ratio Prot	0.03	c0.26	0.02	c0.18	0.36	0.01	c0.13	0.14	0.01	0.13	c0.21	0.00
v/s Ratio Perm			0.04			0.04			0.01			0.03
v/c Ratio	0.70	0.93	0.12	0.94	0.83	0.07	0.93	0.68	0.03	0.82	0.91	0.11
Uniform Delay, d1	47.4	35.2	18.1	39.7	25.2	8.9	42.7	36.2	17.8	40.9	37.4	27.3
Progression Factor	1.00	1.00	1.00	1.14	0.52	0.15	0.79	0.89	2.73	1.00	1.00	1.00
Incremental Delay, d2	30.0	16.9	0.1	6.9	0.5	0.0	39.4	5.3	0.0	20.5	18.9	0.1
Delay (s)	77.4	52.1	18.2	51.9	13.5	1.3	73.2	37.5	48.5	61.3	56.3	27.4
Level of Service	E	D	B	D	B	A	E	D	D	E	E	C
Approach Delay (s)		48.3			19.4			49.2			54.3	
Approach LOS		D			B			D			D	

























Intersection Summary

HCM Average Control Delay	39.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: Rosecrans Ave & Long Beach Blvd

























2035 AM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.98		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2833		1394	2932		1333	2858		1490	2912	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2833		1394	2932		1333	2858		1490	2912	
Volume (vph)	120	630	130	80	1080	130	190	430	100	170	510	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	663	137	84	1137	137	200	453	105	179	537	105
RTOR Reduction (vph)	0	16	0	0	9	0	0	20	0	0	17	0
Lane Group Flow (vph)	126	784	0	84	1265	0	200	538	0	179	625	0
Heavy Vehicles (%)	2%	3%	12%	9%	2%	2%	14%	3%	5%	2%	2%	1%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.0	41.6		7.2	40.8		14.0	22.2		13.0	21.2	
Effective Green, g (s)	8.0	41.6		7.2	40.8		14.0	22.2		13.0	21.2	
Actuated g/C Ratio	0.08	0.42		0.07	0.41		0.14	0.22		0.13	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	119	1179		100	1196		187	634		194	617	
v/s Ratio Prot	c0.08	0.28		0.06	c0.43		c0.15	0.19		0.12	c0.21	
v/s Ratio Perm												
v/c Ratio	1.06	0.66		0.84	1.06		1.07	0.85		0.92	1.01	
Uniform Delay, d1	46.0	23.6		45.8	29.6		43.0	37.3		43.0	39.4	
Progression Factor	1.32	0.45		1.35	0.21		1.42	0.72		0.73	1.15	
Incremental Delay, d2	70.2	0.6		5.7	28.3		78.5	10.9		20.8	24.7	
Delay (s)	131.0	11.1		67.4	34.5		139.4	37.6		52.2	70.2	
Level of Service	F	B		E	C		F	D		D	E	
Approach Delay (s)		27.4			36.5			64.5			66.3	
Approach LOS		C			D			E			E	
Intersection Summary												
HCM Average Control Delay			46.2			HCM Level of Service				D		
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			94.6%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2881		1490	2917		1407	2937		1490	2887	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2881		1490	2917		1407	2937		1490	2887	
Volume (vph)	70	1370	90	60	1340	240	180	750	80	370	600	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1442	95	63	1411	253	189	789	84	389	632	116
RTOR Reduction (vph)	0	5	0	0	15	0	0	8	0	0	15	0
Lane Group Flow (vph)	74	1532	0	63	1649	0	189	865	0	389	733	0
Heavy Vehicles (%)	2%	4%	13%	2%	2%	1%	8%	2%	2%	2%	3%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	4.0	38.0		4.0	38.0		14.0	25.0		17.0	28.0	
Effective Green, g (s)	4.0	38.0		4.0	38.0		14.0	25.0		17.0	28.0	
Actuated g/C Ratio	0.04	0.38		0.04	0.38		0.14	0.25		0.17	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	60	1095		60	1108		197	734		253	808	
v/s Ratio Prot	c0.05	0.53		0.04	c0.57		0.13	c0.29		c0.26	0.25	
v/s Ratio Perm												
v/c Ratio	1.23	1.40		1.05	1.49		0.96	1.18		1.54	0.91	
Uniform Delay, d1	48.0	31.0		48.0	31.0		42.7	37.5		41.5	34.7	
Progression Factor	0.96	0.88		1.00	1.00		0.78	0.75		0.89	0.93	
Incremental Delay, d2	186.8	184.7		130.8	224.6		50.7	93.5		257.7	13.6	
Delay (s)	232.9	212.0		178.8	255.6		84.1	121.6		294.5	45.9	
Level of Service	F	F		F	F		F	F		F	D	
Approach Delay (s)		212.9			252.8			114.9			131.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay	189.7		HCM Level of Service				F					
HCM Volume to Capacity ratio	1.39											
Actuated Cycle Length (s)	100.0				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	123.0%		ICU Level of Service				H					
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
51: Rosecrans Ave & Garfield Ave

2035 AM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	3948		1476	2923	1320	1462	2951	1295	1476	2923	1320
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	3948		1476	2923	1320	1462	2951	1295	1476	2923	1320
Volume (vph)	290	790	410	140	820	140	310	670	180	390	820	400
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	832	432	147	863	147	326	705	189	411	863	421
RTOR Reduction (vph)	0	94	0	0	0	23	0	0	31	0	0	23
Lane Group Flow (vph)	305	1170	0	147	863	124	326	705	158	411	863	398
Heavy Vehicles (%)	3%	6%	3%	3%	4%	3%	4%	3%	5%	3%	4%	3%
Turn Type	Prot		Prot		pm+ov		Prot		pm+ov		Prot	
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	16.0	30.0		10.0	24.0	45.0	17.0	23.0	33.0	21.0	27.0	43.0
Effective Green, g (s)	16.0	30.0		10.0	24.0	45.0	17.0	23.0	33.0	21.0	27.0	43.0
Actuated g/C Ratio	0.16	0.30		0.10	0.24	0.45	0.17	0.23	0.33	0.21	0.27	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	236	1184		148	702	647	249	679	479	310	789	620
v/s Ratio Prot	c0.21	0.30		0.10	c0.30	0.04	0.22	0.24	0.03	c0.28	c0.30	0.10
v/s Ratio Perm						0.05			0.09			0.20
v/c Ratio	1.29	0.99		0.99	1.23	0.19	1.31	1.04	0.33	1.33	1.09	0.64
Uniform Delay, d1	42.0	34.8		45.0	38.0	16.6	41.5	38.5	25.2	39.5	36.5	22.4
Progression Factor	1.00	1.00		0.80	0.68	0.55	0.91	0.52	0.31	0.95	0.83	0.73
Incremental Delay, d2	159.4	23.1		51.0	109.9	0.1	160.6	41.4	0.3	167.2	60.6	2.3
Delay (s)	201.4	57.9		86.9	135.7	9.2	198.3	61.3	8.1	204.6	90.9	18.7
Level of Service	F	E		F	F	A	F	E	A	F	F	B
Approach Delay (s)		85.8			113.5			89.6			100.5	
Approach LOS		F			F			F			F	































Intersection Summary

HCM Average Control Delay	96.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Imperial Hwy & Long Beach Blvd

































2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1520	2980	1320	1490	2980	1347	1476	4200	1333	1505	4210	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1520	2980	1320	1490	2980	1347	1476	4200	1333	1505	4210	
Volume (vph)	60	570	190	390	1160	40	280	940	380	90	950	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	600	200	411	1221	42	295	989	400	95	1000	63
RTOR Reduction (vph)	0	0	38	0	0	19	0	0	33	0	7	0
Lane Group Flow (vph)	63	600	162	411	1221	23	295	989	367	95	1056	0
Heavy Vehicles (%)	0%	2%	3%	2%	2%	1%	3%	4%	2%	1%	3%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	4.0	18.0	34.0	24.0	38.0	46.0	16.0	34.0	58.0	8.0	26.0	
Effective Green, g (s)	4.0	18.0	34.0	24.0	38.0	46.0	16.0	34.0	58.0	8.0	26.0	
Actuated g/C Ratio	0.04	0.18	0.34	0.24	0.38	0.46	0.16	0.34	0.58	0.08	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	61	536	502	358	1132	620	236	1428	773	120	1095	
v/s Ratio Prot	0.04	0.20	0.05	c0.28	c0.41	0.00	c0.20	0.24	0.11	0.06	c0.25	
v/s Ratio Perm			0.07			0.01			0.16			
v/c Ratio	1.03	1.12	0.32	1.15	1.08	0.04	1.25	0.69	0.47	0.79	0.96	
Uniform Delay, d1	48.0	41.0	24.5	38.0	31.0	14.8	42.0	28.5	12.2	45.2	36.5	
Progression Factor	1.28	0.84	0.79	0.71	0.61	0.36	0.89	0.96	1.74	0.78	0.73	
Incremental Delay, d2	122.1	75.2	0.4	80.1	42.8	0.0	141.0	2.6	0.4	24.5	17.4	
Delay (s)	183.8	109.6	19.6	106.9	61.8	5.3	178.2	29.9	21.7	59.7	44.1	
Level of Service	F	F	B	F	E	A	F	C	C	E	D	
Approach Delay (s)		94.2			71.4			53.9			45.4	
Approach LOS		F			E			D			D	
Intersection Summary												
HCM Average Control Delay			64.0			HCM Level of Service			E			
HCM Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)			12.0					
Intersection Capacity Utilization			99.5%	ICU Level of Service			F					
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2863	4191		1505	4134		2891	2923	1347	1490	2895	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2863	4191		1505	4134		2891	2923	1347	1490	2895	1333
Volume (vph)	440	900	150	140	970	230	290	720	160	210	800	260
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	463	947	158	147	1021	242	305	758	168	221	842	274
RTOR Reduction (vph)	0	23	0	0	40	0	0	0	29	0	0	5
Lane Group Flow (vph)	463	1082	0	147	1223	0	305	758	139	221	842	269
Heavy Vehicles (%)	3%	2%	2%	1%	3%	1%	2%	4%	1%	2%	5%	2%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	15.0	30.7		12.3	28.0		10.0	27.0	39.3	14.0	31.0	46.0
Effective Green, g (s)	15.0	30.7		12.3	28.0		10.0	27.0	39.3	14.0	31.0	46.0
Actuated g/C Ratio	0.15	0.31		0.12	0.28		0.10	0.27	0.39	0.14	0.31	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1287		185	1158		289	789	529	209	897	667
v/s Ratio Prot	c0.16	0.26		0.10	c0.30		0.11	0.26	0.03	c0.15	c0.29	0.06
v/s Ratio Perm								0.07				0.14
v/c Ratio	1.08	0.84		0.79	1.06		1.06	0.96	0.26	1.06	0.94	0.40
Uniform Delay, d1	42.5	32.4		42.6	36.0		45.0	36.0	20.5	43.0	33.6	17.9
Progression Factor	0.58	0.45		1.00	1.00		0.85	0.98	0.62	0.78	0.64	0.45
Incremental Delay, d2	54.8	2.7		20.5	42.7		63.8	21.2	0.2	36.1	2.5	0.0
Delay (s)	79.6	17.3		63.1	78.7		101.9	56.5	13.0	69.7	24.2	8.1
Level of Service	E	B		E	E		F	E	B	E	C	A
Approach Delay (s)		35.7			77.1			61.8			28.4	
Approach LOS		D			E			E			C	

Intersection Summary

HCM Average Control Delay	50.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 AM Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑		↘	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1394	2951	1308	1490	2951	1320	1476	2825		1505	2868	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1394	2951	1308	1490	2951	1320	1476	2825		1505	2868	1308
Volume (vph)	170	750	350	140	720	80	220	570	250	90	640	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	789	368	147	758	84	232	600	263	95	674	221
RTOR Reduction (vph)	0	0	42	0	0	54	0	49	0	0	0	46
Lane Group Flow (vph)	179	789	326	147	758	30	232	814	0	95	674	175
Heavy Vehicles (%)	9%	3%	4%	2%	3%	3%	3%	3%	2%	1%	6%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	30.0	46.9	11.0	27.0	35.7	16.9	34.3		8.7	26.1	40.1
Effective Green, g (s)	14.0	30.0	46.9	11.0	27.0	35.7	16.9	34.3		8.7	26.1	40.1
Actuated g/C Ratio	0.14	0.30	0.47	0.11	0.27	0.36	0.17	0.34		0.09	0.26	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	195	885	666	164	797	524	249	969		131	749	577
v/s Ratio Prot	c0.13	c0.27	0.08	0.10	0.26	0.00	c0.16	c0.29		0.06	0.24	0.04
v/s Ratio Perm			0.17			0.02						0.09
v/c Ratio	0.92	0.89	0.49	0.90	0.95	0.06	0.93	0.84		0.73	0.90	0.30
Uniform Delay, d1	42.4	33.4	18.3	43.9	35.9	21.1	41.0	30.3		44.5	35.7	20.4
Progression Factor	1.25	0.87	0.23	1.00	1.00	1.00	1.24	0.84		1.16	0.87	0.28
Incremental Delay, d2	6.7	1.2	0.1	41.4	20.8	0.0	37.7	8.4		7.8	7.4	0.1
Delay (s)	59.8	30.3	4.2	85.4	56.6	21.1	88.5	33.9		59.2	38.5	5.9
Level of Service	E	C	A	F	E	C	F	C		E	D	A
Approach Delay (s)		27.1			57.9			45.5			33.2	
Approach LOS		C			E			D			C	

Intersection Summary

HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave

2035 AM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕		↙	↕	↙	↙	↕	↙
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2913		1490	2933		1520	2980	1347	1505	2815	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2913		1490	2933		1520	2980	1347	1505	2815	1333
Volume (vph)	110	770	160	140	1070	110	160	360	300	430	480	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	811	168	147	1126	116	168	379	316	453	505	189
RTOR Reduction (vph)	0	18	0	0	8	0	0	0	50	0	0	68
Lane Group Flow (vph)	116	961	0	147	1234	0	168	379	266	453	505	121
Heavy Vehicles (%)	3%	2%	0%	2%	2%	4%	0%	2%	1%	1%	8%	2%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	6.0	32.0		10.0	36.0		14.4	16.0	26.0	26.0	27.6	33.6
Effective Green, g (s)	6.0	32.0		10.0	36.0		14.4	16.0	26.0	26.0	27.6	33.6
Actuated g/C Ratio	0.06	0.32		0.10	0.36		0.14	0.16	0.26	0.26	0.28	0.34
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	89	932		149	1056		219	477	350	391	777	501
v/s Ratio Prot	c0.08	0.33		0.10	c0.42		0.11	c0.13	0.08	c0.30	0.18	0.01
v/s Ratio Perm									0.12			0.08
v/c Ratio	1.30	1.03		0.99	1.17		0.77	0.79	0.76	1.16	0.65	0.24
Uniform Delay, d1	47.0	34.0		44.9	32.0		41.2	40.4	34.1	37.0	31.9	24.0
Progression Factor	0.71	1.14		1.35	0.46		0.61	0.62	0.83	0.79	0.75	0.48
Incremental Delay, d2	169.8	28.9		48.9	81.7		1.5	1.3	0.9	94.7	3.9	0.2
Delay (s)	203.0	67.5		109.8	96.4		26.8	26.6	29.3	123.9	27.9	11.8
Level of Service	F	E		F	F		C	C	C	F	C	B
Approach Delay (s)		81.9			97.8			27.6			63.1	
Approach LOS		F			F			C			E	

Intersection Summary

HCM Average Control Delay	71.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 59: Firestone Blvd & California Ave

2035 AM Peak_Alt 2
 6/30/2009


































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2980	1333	1476	2980	1333	1505	2948		1505	2936	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1505	2980	1333	1476	2980	1333	1505	2948		1505	2936	
Volume (vph)	60	1310	120	50	1100	90	220	690	110	180	840	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	1379	126	53	1158	95	232	726	116	189	884	105
RTOR Reduction (vph)	0	0	22	0	0	35	0	13	0	0	9	0
Lane Group Flow (vph)	63	1379	105	53	1158	60	232	829	0	189	980	0
Heavy Vehicles (%)	1%	2%	2%	3%	2%	2%	1%	1%	1%	1%	2%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	5.0	38.0	50.0	4.0	37.0	49.0	12.0	30.0		12.0	30.0	
Effective Green, g (s)	5.0	38.0	50.0	4.0	37.0	49.0	12.0	30.0		12.0	30.0	
Actuated g/C Ratio	0.05	0.38	0.50	0.04	0.37	0.49	0.12	0.30		0.12	0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	75	1132	720	59	1103	706	181	884		181	881	
v/s Ratio Prot	0.04	c0.46	0.02	0.04	c0.39	0.01	c0.15	0.28		0.13	c0.33	
v/s Ratio Perm			0.06			0.03						
v/c Ratio	0.84	1.22	0.15	0.90	1.05	0.08	1.28	0.94		1.04	1.11	
Uniform Delay, d1	47.1	31.0	13.5	47.8	31.5	13.6	44.0	34.1		44.0	35.0	
Progression Factor	0.84	0.78	0.17	0.69	0.50	0.26	1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.2	104.3	0.1	15.0	25.2	0.0	162.2	18.6		79.0	66.0	
Delay (s)	81.8	128.3	2.4	47.8	41.0	3.6	206.2	52.6		123.0	101.0	
Level of Service	F	F	A	D	D	A	F	D		F	F	
Approach Delay (s)		116.3			38.6			85.8			104.5	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM Average Control Delay	87.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
61: Firestone Blvd & Garfield Ave

2035 AM Peak_Alt 2
5/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2681	4282	1308	2949	4200	1320	2863	2917		2863	2951	1204
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2681	4282	1308	2949	4200	1320	2863	2917		2863	2951	1204
Volume (vph)	620	990	340	50	1030	100	760	750	80	130	370	460
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	653	1042	358	53	1084	105	800	789	84	137	389	484
RTOR Reduction (vph)	0	0	28	0	0	26	0	8	0	0	0	4
Lane Group Flow (vph)	653	1042	330	53	1084	79	800	865	0	137	389	480
Heavy Vehicles (%)	10%	2%	4%	0%	4%	3%	3%	3%	0%	3%	3%	13%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	20.0	40.8	64.8	3.2	24.0	29.0	24.0	35.0		5.0	16.0	36.0
Effective Green, g (s)	20.0	40.8	64.8	3.2	24.0	29.0	24.0	35.0		5.0	16.0	36.0
Actuated g/C Ratio	0.20	0.41	0.65	0.03	0.24	0.29	0.24	0.35		0.05	0.16	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	536	1747	848	94	1008	383	687	1021		143	472	482
v/s Ratio Prot	c0.24	0.24	0.09	0.02	c0.26	0.01	c0.28	0.30		0.05	0.13	c0.20
v/s Ratio Perm			0.16			0.05						0.20
v/c Ratio	1.22	0.60	0.39	0.56	1.08	0.21	1.16	0.85		0.96	0.82	0.99
Uniform Delay, d1	40.0	23.2	8.3	47.7	38.0	26.8	38.0	30.0		47.4	40.6	31.9
Progression Factor	0.85	1.05	0.48	0.66	0.57	0.30	0.80	0.81		0.84	0.82	0.85
Incremental Delay, d2	110.3	1.1	0.2	0.7	36.1	0.0	88.5	8.2		61.2	14.8	39.1
Delay (s)	144.2	25.4	4.2	32.0	57.6	8.1	118.9	32.4		101.1	48.0	66.1
Level of Service	F	C	A	C	E	A	F	C		F	D	E
Approach Delay (s)		59.5			52.3			73.8			63.9	
Approach LOS		E			D			E			E	

























Intersection Summary

HCM Average Control Delay	62.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group























HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd

2035 AM Peak_Alt 2
5/25/2011

																									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Lane Configurations																									
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600													
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0													
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00													
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85													
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00													
Satd. Flow (prot)	1462	4146		1476	4069		1505	2923	1333	1490	2895	1295													
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00													
Satd. Flow (perm)	1462	4146		1476	4069		1505	2923	1333	1490	2895	1295													
Volume (vph)	370	750	220	380	840	240	230	810	240	450	740	160													
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95													
Adj. Flow (vph)	389	789	232	400	884	253	242	853	253	474	779	168													
RTOR Reduction (vph)	0	53	0	0	52	0	0	0	17	0	0	45													
Lane Group Flow (vph)	389	968	0	400	1085	0	242	853	236	474	779	123													
Heavy Vehicles (%)	4%	2%	1%	3%	4%	3%	1%	4%	2%	2%	5%	5%													
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov														
Protected Phases	7	4		3	8		5	2	3	1	6	7													
Permitted Phases									2			6													
Actuated Green, G (s)	17.0	20.0		18.0	21.0		17.0	25.0	43.0	21.0	29.0	46.0													
Effective Green, g (s)	17.0	20.0		18.0	21.0		17.0	25.0	43.0	21.0	29.0	46.0													
Actuated g/C Ratio	0.17	0.20		0.18	0.21		0.17	0.25	0.43	0.21	0.29	0.46													
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0													
Lane Grp Cap (vph)	249	829		266	854		256	731	627	313	840	596													
v/s Ratio Prot	c0.27	c0.23		c0.27	0.27		0.16	c0.29	0.07	c0.32	c0.27	0.04													
v/s Ratio Perm									0.11			0.06													
v/c Ratio	1.56	1.17		1.50	1.27		0.95	1.17	0.38	1.51	0.93	0.21													
Uniform Delay, d1	41.5	40.0		41.0	39.5		41.0	37.5	19.4	39.5	34.5	16.1													
Progression Factor	0.53	0.47		1.00	1.00		1.32	0.89	0.22	1.00	1.00	1.00													
Incremental Delay, d2	268.6	86.4		245.4	130.9		7.6	76.6	0.0	247.3	17.7	0.2													
Delay (s)	290.5	105.2		286.4	170.4		61.9	109.9	4.2	286.8	52.2	16.3													
Level of Service	F	F		F	F		E	F	A	F	D	B													
Approach Delay (s)		156.3			200.5			81.5			126.2														
Approach LOS		F			F			F			F														
Intersection Summary																									
HCM Average Control Delay			143.1			HCM Level of Service				F															
HCM Volume to Capacity ratio			1.49																						
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				24.0																	
Intersection Capacity Utilization			119.5%	ICU Level of Service				H																	
Analysis Period (min)			15																						
c Critical Lane Group																									

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St

























2035 AM Peak_Alt 2
6/30/2009

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95		
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1476	2980	1333	1462	2905		1490	2891		1490	2860		
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1476	2980	1333	1462	2905		1490	2891		1490	2860		
Volume (vph)	80	710	110	210	1000	220	130	950	220	60	540	60	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	84	747	116	221	1053	232	137	1000	232	63	568	63	
RTOR Reduction (vph)	0	0	67	0	19	0	0	20	0	0	9	0	
Lane Group Flow (vph)	84	747	49	221	1266	0	137	1212	0	63	622	0	
Heavy Vehicles (%)	3%	2%	2%	4%	2%	1%	2%	2%	3%	2%	5%	2%	
Turn Type	Prot	pm+ov		Prot				Prot			Prot		
Protected Phases	7	4	5	3	8			5	2			1	6
Permitted Phases	4												
Actuated Green, G (s)	5.0	28.0	40.1	16.0	39.0			12.1	36.0			4.0	27.9
Effective Green, g (s)	5.0	28.0	40.1	16.0	39.0			12.1	36.0			4.0	27.9
Actuated g/C Ratio	0.05	0.28	0.40	0.16	0.39			0.12	0.36			0.04	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	74	834	588	234	1133			180	1041			60	798
v/s Ratio Prot	0.06	c0.25	0.01	0.15	c0.44			0.09	c0.42			0.04	c0.22
v/s Ratio Perm	0.03												
v/c Ratio	1.14	0.90	0.08	0.94	1.12			0.76	1.16			1.05	0.78
Uniform Delay, d1	47.5	34.6	18.6	41.6	30.5			42.6	32.0			48.0	33.2
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.93	0.50			0.83	0.76
Incremental Delay, d2	145.9	14.2	0.1	43.3	65.1			13.3	82.2			120.4	6.3
Delay (s)	193.4	48.8	18.6	84.8	95.6			52.8	98.3			160.4	31.5
Level of Service	F	D	B	F	F			D	F			F	C
Approach Delay (s)	57.9					94.0		93.7		43.2			
Approach LOS	E					F		F		D			
Intersection Summary													
HCM Average Control Delay	78.6		HCM Level of Service					E					
HCM Volume to Capacity ratio	1.06												
Actuated Cycle Length (s)	100.0				Sum of lost time (s)				8.0				
Intersection Capacity Utilization	103.2%			ICU Level of Service					G				
Analysis Period (min)	15												

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave

























2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	2980	1347	1505	2951	1333	1505	2980	1347	2891	2865	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	2980	1347	1505	2951	1333	1505	2980	1347	2891	2865	
Volume (vph)	100	950	110	140	1260	130	170	640	130	140	430	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1000	116	147	1326	137	179	674	137	147	453	74
RTOR Reduction (vph)	0	0	53	0	0	36	0	0	24	0	13	0
Lane Group Flow (vph)	105	1000	63	147	1326	101	179	674	113	147	514	0
Heavy Vehicles (%)	2%	2%	1%	1%	3%	2%	1%	2%	1%	2%	4%	3%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	8.0	40.7	52.7	12.3	45.0	51.0	12.0	25.0	37.3	6.0	19.0	
Effective Green, g (s)	8.0	40.7	52.7	12.3	45.0	51.0	12.0	25.0	37.3	6.0	19.0	
Actuated g/C Ratio	0.08	0.41	0.53	0.12	0.45	0.51	0.12	0.25	0.37	0.06	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	119	1213	764	185	1328	733	181	745	556	173	544	
v/s Ratio Prot	0.07	0.34	0.01	c0.10	c0.45	0.01	c0.12	c0.23	0.03	0.05	0.18	
v/s Ratio Perm			0.04			0.07			0.06			
v/c Ratio	0.88	0.82	0.08	0.79	1.00	0.14	0.99	0.90	0.20	0.85	0.94	
Uniform Delay, d1	45.5	26.5	11.7	42.6	27.5	12.9	43.9	36.3	21.3	46.6	40.0	
Progression Factor	0.81	1.34	4.50	1.30	0.65	0.17	1.20	0.65	0.35	0.63	0.92	
Incremental Delay, d2	46.3	4.4	0.0	7.3	13.4	0.0	40.3	8.2	0.1	26.1	23.9	
Delay (s)	83.4	40.0	52.6	62.8	31.3	2.3	93.2	32.0	7.5	55.6	60.5	
Level of Service	F	D	D	E	C	A	F	C	A	E	E	
Approach Delay (s)		44.9			31.7			39.7			59.5	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM Average Control Delay			41.2				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			89.2%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St

2035 AM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1476	2942		1448	2870		1490	2937		1462	2810	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1476	2942		1448	2870		1490	2937		1462	2810	
Volume (vph)	150	1160	30	50	990	70	40	470	50	80	340	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1221	32	53	1042	74	42	495	53	84	358	95
RTOR Reduction (vph)	0	2	0	0	5	0	0	8	0	0	23	0
Lane Group Flow (vph)	158	1251	0	53	1111	0	42	540	0	84	430	0
Heavy Vehicles (%)	3%	3%	1%	5%	5%	3%	2%	2%	2%	4%	5%	4%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	12.6	49.6		4.8	41.8		3.0	22.6		7.0	26.6	
Effective Green, g (s)	12.6	49.6		4.8	41.8		3.0	22.6		7.0	26.6	
Actuated g/C Ratio	0.13	0.50		0.05	0.42		0.03	0.23		0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	186	1459		70	1200		45	664		102	747	
v/s Ratio Prot	c0.11	0.43		0.04	c0.39		0.03	c0.18		c0.06	c0.15	
v/s Ratio Perm												
v/c Ratio	0.85	0.86		0.76	0.93		0.93	0.81		0.82	0.58	
Uniform Delay, d1	42.8	22.1		47.0	27.6		48.4	36.7		45.9	31.8	
Progression Factor	1.00	1.00		1.00	1.00		1.36	0.33		1.00	1.00	
Incremental Delay, d2	28.6	6.7		36.6	13.3		89.4	7.7		39.2	3.2	
Delay (s)	71.3	28.8		83.7	41.0		155.3	20.0		85.1	35.0	
Level of Service	E	C		F	D		F	B		F	D	
Approach Delay (s)		33.6			42.9			29.6			42.9	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay			37.2			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			80.9%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 AM Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↑↑		↙	↑↑	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1448	2951	1333	1505	2923	1333	1490	2884		1476	2767	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1448	2951	1333	1505	2923	1333	1490	2884		1476	2767	
Volume (vph)	220	950	50	60	860	250	100	700	210	140	280	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1000	53	63	905	263	105	737	221	147	295	137
RTOR Reduction (vph)	0	0	27	0	0	52	0	28	0	0	53	0
Lane Group Flow (vph)	232	1000	26	63	905	211	105	930	0	147	379	0
Heavy Vehicles (%)	5%	3%	2%	1%	4%	2%	2%	2%	1%	3%	4%	6%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	15.0	38.0	48.4	5.0	28.0	37.0	10.4	32.0		9.0	30.6	
Effective Green, g (s)	15.0	38.0	48.4	5.0	28.0	37.0	10.4	32.0		9.0	30.6	
Actuated g/C Ratio	0.15	0.38	0.48	0.05	0.28	0.37	0.10	0.32		0.09	0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	217	1121	645	75	818	493	155	923		133	847	
v/s Ratio Prot	c0.16	0.34	0.00	0.04	c0.31	0.04	0.07	c0.32		c0.10	0.14	
v/s Ratio Perm			0.02			0.12						
v/c Ratio	1.07	0.89	0.04	0.84	1.11	0.43	0.68	1.01		1.11	0.45	
Uniform Delay, d1	42.5	29.1	13.6	47.1	36.0	23.6	43.2	34.0		45.5	27.9	
Progression Factor	0.56	0.37	0.04	1.32	0.67	0.29	1.00	1.00		1.00	1.00	
Incremental Delay, d2	66.5	5.8	0.0	30.3	56.9	0.3	11.1	31.5		109.1	1.7	
Delay (s)	90.4	16.5	0.6	92.7	80.9	7.1	54.3	65.5		154.6	29.6	
Level of Service	F	B	A	F	F	A	D	E		F	C	
Approach Delay (s)		29.2			65.7			64.4			61.3	
Approach LOS		C			E			E			E	

Intersection Summary

HCM Average Control Delay	53.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: Bandini Blvd & Atlantic Ave

2035 AM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.86	0.86		1.00	1.00	1.00	1.00	0.81		1.00	0.86	0.86
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	0.98	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1178	3012		1407	1391	1097	1505	6084		1434	3920	1114
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1178	3012		1407	1391	1097	1505	6084		1434	3920	1114
Volume (vph)	280	650	250	140	260	160	60	1500	340	60	750	900
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	684	263	147	274	168	63	1579	358	63	789	947
RTOR Reduction (vph)	0	54	0	0	0	125	0	31	0	0	14	0
Lane Group Flow (vph)	295	893	0	147	274	43	63	1906	0	63	892	830
Heavy Vehicles (%)	11%	8%	92%	8%	15%	24%	1%	3%	6%	6%	3%	5%
Turn Type	Split			Split		pm+ov	Prot			Prot		Free
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8						Free
Actuated Green, G (s)	37.8	37.8		24.0	24.0	29.2	4.8	39.0		5.2	39.4	130.0
Effective Green, g (s)	39.8	39.8		26.0	26.0	33.2	6.8	41.0		7.2	41.4	130.0
Actuated g/C Ratio	0.31	0.31		0.20	0.20	0.26	0.05	0.32		0.06	0.32	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	361	922		281	278	280	79	1919		79	1248	1114
v/s Ratio Prot	0.25	c0.30		0.10	c0.20	0.01	0.04	c0.31		0.04	0.23	
v/s Ratio Perm						0.03						c0.75
v/c Ratio	0.82	0.99dr		0.52	0.99	0.15	0.80	0.99		0.80	0.72	0.75
Uniform Delay, d1	41.7	44.5		46.5	51.8	37.5	60.9	44.4		60.7	39.1	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.2	22.9		1.8	49.6	0.3	41.2	19.0		41.2	3.5	4.5
Delay (s)	60.0	67.4		48.2	101.4	37.8	102.1	63.3		101.8	42.6	4.5
Level of Service	E	E		D	F	D	F	E		F	D	A
Approach Delay (s)		65.6			70.0			64.5			27.1	
Approach LOS		E			E			E			C	
Intersection Summary												
HCM Average Control Delay			53.4	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			80.8%	ICU Level of Service				D				
Analysis Period (min)			15									
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 126: Washington Blvd & I 710 SB

2035 AM Peak_Alt 2
 6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↑		↖	↕	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0			4.0					4.0	4.0	4.0
Lane Util. Factor	1.00	0.91			0.91					0.95	0.91	0.95
Frt	1.00	1.00			0.98					1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00					0.95	0.95	1.00
Satd. Flow (prot)	993	4007			3928					1362	1305	1219
Flt Permitted	0.95	1.00			1.00					0.76	0.76	1.00
Satd. Flow (perm)	993	4007			3928					1086	1040	1219
Volume (vph)	90	590	0	0	1250	220	0	0	0	370	0	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	621	0	0	1316	232	0	0	0	389	0	211
RTOR Reduction (vph)	0	0	0	0	39	0	0	0	0	0	0	155
Lane Group Flow (vph)	95	621	0	0	1509	0	0	0	0	195	194	56
Heavy Vehicles (%)	53%	9%	12%	12%	9%	7%	12%	0%	12%	6%	12%	6%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	8.3	36.0			23.7					16.0	16.0	16.0
Effective Green, g (s)	8.3	36.0			23.7					16.0	16.0	16.0
Actuated g/C Ratio	0.14	0.60			0.39					0.27	0.27	0.27
Clearance Time (s)	4.0	4.0			4.0					4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0					3.0	3.0	3.0
Lane Grp Cap (vph)	137	2404			1552					290	277	325
v/s Ratio Prot	c0.10	0.15			c0.38							
v/s Ratio Perm										0.18	c0.19	0.05
v/c Ratio	0.69	0.26			0.97					0.67	0.70	0.17
Uniform Delay, d1	24.6	5.7			17.8					19.7	19.8	16.9
Progression Factor	1.00	1.00			0.52					1.00	1.00	1.00
Incremental Delay, d2	14.1	0.3			13.1					11.8	13.8	1.2
Delay (s)	38.8	5.9			22.4					31.5	33.6	18.1
Level of Service	D	A			C					C	C	B
Approach Delay (s)		10.3			22.4			0.0			27.4	
Approach LOS		B			C			A			C	



























Intersection Summary

HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group
























HCM Signalized Intersection Capacity Analysis
 148: Wardlow Rd & Cherry Ave

2035 AM Peak_Alt 2
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91		0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.91		1.00	0.95		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	0.98		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1356	2565		1356	2655		1490	2980	1333	1490	4203	
Flt Permitted	0.95	0.98		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1356	2565		1356	2655		1490	2980	1333	1490	4203	
Volume (vph)	370	40	290	90	20	30	130	1070	390	40	1570	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	389	42	305	95	21	32	137	1126	411	42	1653	232
RTOR Reduction (vph)	0	188	0	0	29	0	0	0	111	0	13	0
Lane Group Flow (vph)	203	345	0	48	71	0	137	1126	300	42	1872	0
Turn Type	Split			Split			Prot		pm+ov	Prot		
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			
Actuated Green, G (s)	21.5	21.5		10.2	10.2		14.2	68.4	78.6	7.0	61.2	
Effective Green, g (s)	21.5	21.5		10.2	10.2		14.2	68.4	78.6	7.0	61.2	
Actuated g/C Ratio	0.17	0.17		0.08	0.08		0.12	0.56	0.64	0.06	0.50	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	237	448		112	220		172	1656	851	85	2090	
v/s Ratio Prot	c0.15	0.13		c0.04	0.03		0.09	c0.38	0.03	0.03	c0.45	
v/s Ratio Perm									0.20			
v/c Ratio	0.86	0.77		0.43	0.32		0.80	0.68	0.35	0.49	0.90	
Uniform Delay, d1	49.3	48.4		53.7	53.2		53.0	19.5	10.4	56.3	28.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.9	7.8		2.6	0.8		22.0	2.3	0.3	4.5	6.5	
Delay (s)	74.2	56.2		56.3	54.0		75.0	21.8	10.6	60.8	34.6	
Level of Service	E	E		E	D		E	C	B	E	C	
Approach Delay (s)		61.2			54.8			23.4			35.1	
Approach LOS		E			D			C			D	
Intersection Summary												
HCM Average Control Delay			35.7	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			123.1	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			83.8%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 AM Peak_Alt 2
 1/11/2010

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1462	2951	1333	1476	2895	1333	1490	2891		1369	2654	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1462	2951	1333	1476	2895	1333	1490	2891		1369	2654	
Volume (vph)	300	870	30	110	830	120	120	1080	90	50	350	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	316	916	32	116	874	126	126	1137	95	53	368	158
RTOR Reduction (vph)	0	0	21	0	0	89	0	6	0	0	48	0
Lane Group Flow (vph)	316	916	11	116	874	37	126	1226	0	53	478	0
Heavy Vehicles (%)	4%	3%	2%	3%	5%	2%	2%	4%	3%	11%	7%	15%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	17.0	33.6	33.6	9.4	26.0	26.0	12.0	37.0		4.0	29.0	
Effective Green, g (s)	17.0	33.6	33.6	9.4	26.0	26.0	12.0	37.0		4.0	29.0	
Actuated g/C Ratio	0.17	0.34	0.34	0.09	0.26	0.26	0.12	0.37		0.04	0.29	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	249	992	448	139	753	347	179	1070		55	770	
v/s Ratio Prot	c0.22	0.31		0.08	c0.30		c0.08	c0.42		0.04	0.18	
v/s Ratio Perm			0.01			0.03						
v/c Ratio	1.27	0.92	0.02	0.83	1.16	0.11	0.70	1.15		0.96	0.62	
Uniform Delay, d1	41.5	32.0	22.2	44.5	37.0	28.2	42.3	31.5		47.9	30.7	
Progression Factor	1.00	1.00	1.00	0.52	0.41	0.15	0.67	0.30		0.70	0.72	
Incremental Delay, d2	148.8	13.7	0.0	10.7	76.5	0.0	1.2	66.7		82.2	2.3	
Delay (s)	190.3	45.6	22.2	33.7	91.8	4.2	29.3	76.1		116.0	24.3	
Level of Service	F	D	C	C	F	A	C	E		F	C	
Approach Delay (s)		81.2			75.9			71.7			32.7	
Approach LOS		F			E			E			C	



















Intersection Summary

HCM Average Control Delay	70.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave

2035 AM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.99			0.99		1.00	0.98		1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2902			2900		1490	2854		1448	2823	
Flt Permitted		1.00			1.00		0.57	1.00		0.12	1.00	
Satd. Flow (perm)		2902			2900		892	2854		190	2823	
Volume (vph)	30	740	30	70	730	80	40	820	120	20	200	40
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	779	32	74	768	84	42	863	126	21	211	42
RTOR Reduction (vph)	0	3	0	0	8	0	0	12	0	0	16	0
Lane Group Flow (vph)	0	840	0	0	918	0	42	977	0	21	237	0
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	2%	5%	1%	5%	5%	5%
Turn Type	Split		Split				Perm		Perm			
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		27.0			29.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		27.0			29.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.27			0.29		0.32	0.32		0.32	0.32	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		784			841		285	913		61	903	
v/s Ratio Prot		c0.29			c0.32			c0.34			0.08	
v/s Ratio Perm							0.05			0.11		
v/c Ratio		1.07			1.09		0.15	1.07		0.34	0.26	
Uniform Delay, d1		36.5			35.5		24.3	34.0		26.0	25.2	
Progression Factor		0.22			0.55		0.45	0.60		1.00	1.00	
Incremental Delay, d2		35.0			56.9		0.9	47.8		14.8	0.7	
Delay (s)		42.9			76.5		11.8	68.2		40.7	25.9	
Level of Service		D			E		B	E		D	C	
Approach Delay (s)		42.9			76.5			65.9			27.1	
Approach LOS		D			E			E			C	
Intersection Summary												
HCM Average Control Delay		59.3		HCM Level of Service				E				
HCM Volume to Capacity ratio		1.08										
Actuated Cycle Length (s)		100.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		104.0%		ICU Level of Service				G				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 153: Gage Ave & Santa Fe Ave

2035 AM Peak_Alt 2
 6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2889		1476	2882		1462	2841	1333	1462	2739	1193
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2889		1476	2882		1462	2841	1333	1462	2739	1193
Volume (vph)	120	810	50	90	670	80	200	1170	70	100	620	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	853	53	95	705	84	211	1232	74	105	653	95
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	25	0	0	58
Lane Group Flow (vph)	126	902	0	95	780	0	211	1232	49	105	653	37
Heavy Vehicles (%)	1%	4%	9%	3%	4%	2%	4%	7%	2%	4%	11%	14%
Turn Type	Prot			Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	9.0	29.0		6.0	26.0		19.0	42.0	48.0	7.0	30.0	39.0
Effective Green, g (s)	9.0	29.0		6.0	26.0		19.0	42.0	48.0	7.0	30.0	39.0
Actuated g/C Ratio	0.09	0.29		0.06	0.26		0.19	0.42	0.48	0.07	0.30	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	135	838		89	749		278	1193	640	102	822	513
v/s Ratio Prot	0.08	c0.31		0.06	c0.27		c0.14	c0.43	0.00	0.07	0.24	0.01
v/s Ratio Perm									0.03			0.02
v/c Ratio	0.93	1.08		1.07	1.04		0.76	1.03	0.08	1.03	0.79	0.07
Uniform Delay, d1	45.2	35.5		47.0	37.0		38.3	29.0	14.0	46.5	32.2	19.1
Progression Factor	1.00	1.00		0.99	0.33		1.00	1.00	1.00	0.84	0.65	0.59
Incremental Delay, d2	57.1	53.6		70.1	29.6		11.3	34.8	0.1	93.4	7.2	0.1
Delay (s)	102.3	89.1		116.7	41.7		49.6	63.8	14.1	132.2	28.1	11.4
Level of Service	F	F		F	D		D	E	B	F	C	B
Approach Delay (s)		90.7			49.8			59.4			39.0	
Approach LOS		F			D			E			D	

































Intersection Summary

HCM Average Control Delay	60.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

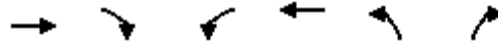
HCM Signalized Intersection Capacity Analysis
 155: 223rd St & Wilmington Blvd

2035 AM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  		 	  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2891	2942		2863	2923	1062	1476	4160	1320	1603	3834	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2891	2942		2863	2923	1062	1476	4160	1320	1603	3834	
Volume (vph)	550	440	10	170	410	210	30	1390	230	110	970	530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	579	463	11	179	432	221	32	1463	242	116	1021	558
RTOR Reduction (vph)	0	1	0	0	0	17	0	0	64	0	91	0
Lane Group Flow (vph)	579	473	0	179	432	204	32	1463	178	116	1488	0
Heavy Vehicles (%)	2%	3%	2%	3%	4%	28%	3%	5%	3%	84%	10%	4%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	23.4	29.0		11.6	17.2	25.6	4.7	35.0	46.6	8.4	38.7	
Effective Green, g (s)	23.4	29.0		11.6	17.2	25.6	4.7	35.0	46.6	8.4	38.7	
Actuated g/C Ratio	0.23	0.29		0.12	0.17	0.26	0.05	0.35	0.47	0.08	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	676	853		332	503	314	69	1456	668	135	1484	
v/s Ratio Prot	c0.20	0.16		0.06	c0.15	c0.05	0.02	0.35	0.03	0.07	c0.39	
v/s Ratio Perm						0.14			0.10			
v/c Ratio	0.86	0.55		0.54	0.86	0.65	0.46	1.00	0.27	0.86	1.00	
Uniform Delay, d1	36.7	30.0		41.7	40.2	33.2	46.4	32.5	16.3	45.2	30.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.4	0.8		1.7	13.6	4.6	4.9	24.7	0.2	38.5	24.0	
Delay (s)	47.1	30.8		43.4	53.8	37.8	51.3	57.2	16.5	83.7	54.6	
Level of Service	D	C		D	D	D	D	E	B	F	D	
Approach Delay (s)		39.8			47.3			51.5			56.6	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	50.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑↑↑	↑	↑
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	2951	739	2457	4241	844	883
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	2951	739	2457	4241	844	883
Volume (vph)	610	70	220	540	220	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	642	74	232	568	232	232
RTOR Reduction (vph)	0	53	0	0	0	25
Lane Group Flow (vph)	642	21	232	568	232	207
Heavy Vehicles (%)	3%	84%	20%	3%	80%	54%
Turn Type		Perm	Prot			pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4				2
Actuated Green, G (s)	17.1	17.1	7.9	29.0	23.0	30.9
Effective Green, g (s)	17.1	17.1	7.9	29.0	23.0	30.9
Actuated g/C Ratio	0.29	0.29	0.13	0.48	0.38	0.51
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	841	211	324	2050	324	514
v/s Ratio Prot	c0.22		c0.09	0.13	c0.27	0.05
v/s Ratio Perm		0.03				0.18
v/c Ratio	0.76	0.10	0.72	0.28	0.72	0.40
Uniform Delay, d1	19.6	15.8	25.0	9.2	15.7	8.9
Progression Factor	1.00	1.00	1.00	1.00	0.77	0.98
Incremental Delay, d2	6.5	0.9	7.3	0.3	10.2	0.4
Delay (s)	26.1	16.7	32.3	9.6	22.3	9.2
Level of Service	C	B	C	A	C	A
Approach Delay (s)	25.1			16.2	15.7	
Approach LOS	C			B	B	

Intersection Summary

HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: E Ocean Blvd & Magnolia Avenue

2035 PM Peak_Alt 2
 7/24/2011

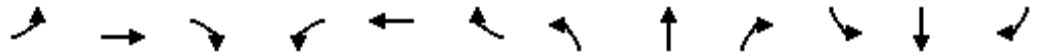
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1357	3931		1382	4160	1333	1505	2895	1295	1505	2841	1271
Flt Permitted	0.08	1.00		0.09	1.00	1.00	0.67	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	117	3931		130	4160	1333	1065	2895	1295	984	2841	1271
Volume (vph)	280	1870	30	80	1610	270	100	180	80	200	120	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	1968	32	84	1695	284	105	189	84	211	126	221
RTOR Reduction (vph)	0	2	0	0	0	110	0	0	7	0	0	3
Lane Group Flow (vph)	295	1998	0	84	1695	174	105	189	77	211	126	218
Heavy Vehicles (%)	12%	11%	1%	10%	5%	2%	1%	5%	5%	1%	7%	7%
Turn Type	pm+pt			pm+pt		Perm	Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)	68.0	58.0		50.9	44.9	44.9	24.0	24.0	30.0	24.0	24.0	43.1
Effective Green, g (s)	68.0	58.0		50.9	44.9	44.9	24.0	24.0	30.0	24.0	24.0	43.1
Actuated g/C Ratio	0.68	0.58		0.51	0.45	0.45	0.24	0.24	0.30	0.24	0.24	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	316	2280		141	1868	599	256	695	440	236	682	599
v/s Ratio Prot	c0.18	0.51		0.04	0.41			0.07	0.01		0.04	0.07
v/s Ratio Perm	c0.46			0.27		0.13	0.10		0.05	c0.21		0.10
v/c Ratio	0.93	0.88		0.60	0.91	0.29	0.41	0.27	0.17	0.89	0.18	0.36
Uniform Delay, d1	29.9	17.9		14.2	25.6	17.5	32.0	30.9	25.9	36.8	30.2	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.5	5.1		6.6	7.9	1.2	1.1	0.2	0.2	36.5	0.6	0.4
Delay (s)	63.4	23.1		20.8	33.5	18.7	33.1	31.1	26.0	73.2	30.8	19.6
Level of Service	E	C		C	C	B	C	C	C	E	C	B
Approach Delay (s)		28.2			31.0			30.5			42.4	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 23: Pacific Coast Hwy & Cherry Ave

2035 PM Peak_Alt 2
 7/27/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗↗		↘	↗↗↗		↘	↗	↗	↘	↗	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	4142		1505	4125		1505	1569	1333	1505	1584	1333
Flt Permitted	0.11	1.00		0.12	1.00		0.12	1.00	1.00	0.12	1.00	1.00
Satd. Flow (perm)	173	4142		186	4125		198	1569	1333	198	1584	1333
Volume (vph)	240	1980	80	200	1210	190	120	680	160	210	810	700
Peak-hour factor, PHF	0.95	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	1980	80	211	1274	200	126	716	168	221	853	737
RTOR Reduction (vph)	0	4	0	0	21	0	0	0	5	0	0	11
Lane Group Flow (vph)	253	2056	0	211	1453	0	126	716	163	221	853	726
Heavy Vehicles (%)	3%	5%	1%	1%	4%	2%	1%	2%	2%	1%	1%	2%
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	44.0	36.0		40.0	34.0		36.0	36.0	42.0	38.0	38.0	46.0
Effective Green, g (s)	44.0	36.0		40.0	34.0		36.0	36.0	42.0	38.0	38.0	46.0
Actuated g/C Ratio	0.44	0.36		0.40	0.34		0.36	0.36	0.42	0.38	0.38	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	1491		154	1403		124	565	560	154	602	667
v/s Ratio Prot	c0.11	0.50		0.08	0.35		0.04	c0.46	0.02	0.09	c0.54	c0.09
v/s Ratio Perm	c0.51			0.47			0.33		0.10	c0.46		0.46
v/c Ratio	1.41	1.38		1.37	1.04		1.02	1.27	0.29	1.44	1.42	1.09
Uniform Delay, d1	23.6	32.0		49.2	33.0		50.2	32.0	19.2	43.9	31.0	27.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	212.3	174.7		202.2	33.7		85.2	133.8	0.3	228.8	197.3	61.2
Delay (s)	235.9	206.7		251.4	66.7		135.4	165.8	19.4	272.7	228.3	88.2
Level of Service	F	F		F	E		F	F	B	F	F	F
Approach Delay (s)		209.9			89.9			137.7			176.7	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	160.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	132.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 24: Sepulveda Blvd Ramp & Alameda St

2035 PM Peak_Alt 2
 6/30/2009



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑	↔	↔	↑↑
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	1.00	0.95
Frt	0.89	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.99	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1742	788	2303	1046	1169	2598
Flt Permitted	0.99	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1742	788	2303	1046	1169	2598
Volume (vph)	90	430	1340	690	210	1260
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	453	1411	726	221	1326
RTOR Reduction (vph)	191	25	0	51	0	0
Lane Group Flow (vph)	130	202	1411	675	221	1326
Heavy Vehicles (%)	57%	57%	32%	30%	30%	17%
Turn Type		pm+ov		pm+ov		Prot
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	15.3	32.0	56.0	71.3	16.7	76.7
Effective Green, g (s)	15.3	32.0	56.0	71.3	16.7	76.7
Actuated g/C Ratio	0.15	0.32	0.56	0.71	0.17	0.77
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	267	284	1290	788	195	1993
v/s Ratio Prot	0.07	0.12	c0.61	c0.13	c0.19	0.51
v/s Ratio Perm		0.14		0.51		
v/c Ratio	0.49	0.71	1.09	0.86	1.13	0.67
Uniform Delay, d1	38.7	29.9	22.0	10.6	41.6	5.5
Progression Factor	2.47	0.95	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.8	54.8	9.1	104.9	1.8
Delay (s)	95.9	29.3	76.8	19.7	146.5	7.3
Level of Service	F	C	E	B	F	A
Approach Delay (s)	68.3		57.4			27.2
Approach LOS	E		E			C

Intersection Summary

HCM Average Control Delay	47.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 25: Sepulveda Blvd & Alameda St Ramp

2035 PM Peak_Alt 2
 6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95			0.95		0.95	0.95	1.00
Frt	1.00	1.00			0.94			0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95	0.95	1.00
Satd. Flow (prot)	1216	2432			2296			1875		963	968	907
Flt Permitted	0.95	1.00			1.00			1.00		0.95	0.95	1.00
Satd. Flow (perm)	1216	2432			2296			1875		963	968	907
Volume (vph)	220	770	0	0	490	290	0	10	10	690	20	190
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	811	0	0	516	305	0	11	11	726	21	200
RTOR Reduction (vph)	0	0	0	0	87	0	0	10	0	0	0	106
Lane Group Flow (vph)	232	811	0	0	734	0	0	12	0	364	383	94
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	50%	50%	50%	50%	50%	50%
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	16.0	46.0			26.0			11.0		31.0	31.0	47.0
Effective Green, g (s)	16.0	46.0			26.0			11.0		31.0	31.0	47.0
Actuated g/C Ratio	0.16	0.46			0.26			0.11		0.31	0.31	0.47
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	195	1119			597			206		299	300	463
v/s Ratio Prot	c0.19	0.33			c0.32			c0.01		0.38	c0.40	0.03
v/s Ratio Perm												0.07
v/c Ratio	1.19	0.72			1.23			0.06		1.22	1.28	0.20
Uniform Delay, d1	42.0	21.9			37.0			39.9		34.5	34.5	15.5
Progression Factor	1.00	1.00			1.00			1.00		1.00	1.00	0.89
Incremental Delay, d2	124.9	2.4			117.8			0.5		108.6	133.6	0.1
Delay (s)	166.9	24.2			154.8			40.4		143.1	168.2	14.0
Level of Service	F	C			F			D		F	F	B
Approach Delay (s)		56.0			154.8			40.4			126.0	
Approach LOS		E			F			D			F	

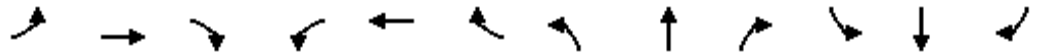
Intersection Summary

HCM Average Control Delay	107.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
27: Willow St & Pacific Ave

2035 PM Peak_Alt 2
12/4/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙	↑↑↑		↙	↑↑		↙	↑↑	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	4260		1310	4242		1520	2800		1490	2906	
Flt Permitted	0.18	1.00		0.18	1.00		0.20	1.00		0.35	1.00	
Satd. Flow (perm)	288	4260		251	4242		324	2800		548	2906	
Volume (vph)	110	1250	140	180	1180	160	300	630	130	170	510	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	1316	147	189	1242	168	316	663	137	179	537	116
RTOR Reduction (vph)	0	17	0	0	21	0	0	21	0	0	23	0
Lane Group Flow (vph)	116	1446	0	189	1389	0	316	779	0	179	630	0
Heavy Vehicles (%)	1%	1%	1%	16%	1%	2%	0%	2%	24%	2%	2%	1%
Turn Type	pm+pt		pm+pt		pm+pt		Perm					
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	26.0	26.0		28.0	28.0		36.0	36.0		23.0	23.0	
Effective Green, g (s)	26.0	26.0		28.0	28.0		36.0	36.0		23.0	23.0	
Actuated g/C Ratio	0.32	0.32		0.35	0.35		0.45	0.45		0.29	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	1385		167	1485		280	1260		158	835	
v/s Ratio Prot	0.04	c0.34		c0.08	0.33		c0.13	0.28			0.22	
v/s Ratio Perm	0.21			c0.31			c0.38			0.33		
v/c Ratio	0.75	1.04		1.13	0.94		1.13	0.62		1.13	0.75	
Uniform Delay, d1	29.3	27.0		39.2	25.1		18.1	16.8		28.5	25.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.6	36.6		109.4	11.2		93.0	0.9		111.8	3.9	
Delay (s)	47.9	63.6		148.7	36.3		111.1	17.7		140.3	29.8	
Level of Service	D	E		F	D		F	B		F	C	
Approach Delay (s)		62.4			49.6			44.1			53.6	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	53.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd

2035 PM Peak_Alt 2
 6/9/2011

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1347	1490	2951	1308	2756	2951	1347	1490	2980	1320
Flt Permitted	0.47	1.00	1.00	0.12	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	738	2951	1347	187	2951	1308	2756	2951	1347	1490	2980	1320
Volume (vph)	180	970	130	220	340	130	120	830	250	180	600	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1021	137	232	358	137	126	874	263	189	632	63
RTOR Reduction (vph)	0	0	50	0	0	75	0	0	31	0	0	37
Lane Group Flow (vph)	189	1021	87	232	358	62	126	874	232	189	632	26
Heavy Vehicles (%)	2%	3%	1%	2%	3%	4%	7%	3%	1%	2%	2%	3%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	44.5	34.0	42.5	43.5	33.5	45.5	8.5	28.0	38.0	12.0	31.5	42.0
Effective Green, g (s)	44.5	34.0	42.5	43.5	33.5	45.5	8.5	28.0	38.0	12.0	31.5	42.0
Actuated g/C Ratio	0.44	0.34	0.42	0.44	0.34	0.46	0.08	0.28	0.38	0.12	0.32	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	1003	626	212	989	595	234	826	512	179	939	607
v/s Ratio Prot	0.05	0.35	0.01	c0.11	0.12	0.01	0.05	c0.30	0.05	c0.13	0.21	0.00
v/s Ratio Perm	0.16		0.05	c0.37		0.04			0.13			0.02
v/c Ratio	0.46	1.02	0.14	1.09	0.36	0.10	0.54	1.06	0.45	1.06	0.67	0.04
Uniform Delay, d1	17.8	33.0	17.6	25.3	25.2	15.6	43.9	36.0	23.2	44.0	29.8	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	33.0	0.1	89.3	0.2	0.1	2.4	47.8	0.6	82.8	1.9	0.0
Delay (s)	18.6	66.0	17.7	114.6	25.4	15.7	46.2	83.8	23.9	126.8	31.7	17.2
Level of Service	B	E	B	F	C	B	D	F	C	F	C	B
Approach Delay (s)		54.4			52.0			67.6			51.0	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	57.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
42: Alondra Blvd & Long Beach Blvd

2035 PM Peak_Alt 2
6/30/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2951	1347	1520	2951	1320	1490	2923	1320	1490	2980	1360
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2951	1347	1520	2951	1320	1490	2923	1320	1490	2980	1360
Volume (vph)	170	830	120	170	560	250	80	890	110	270	690	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	874	126	179	589	263	84	937	116	284	726	105
RTOR Reduction (vph)	0	0	46	0	0	34	0	0	24	0	0	52
Lane Group Flow (vph)	179	874	80	179	589	229	84	937	92	284	726	53
Heavy Vehicles (%)	0%	3%	1%	0%	3%	3%	2%	4%	3%	2%	2%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	13.0	29.0	38.1	8.0	24.0	39.0	9.1	32.0	40.0	15.0	37.9	50.9
Effective Green, g (s)	13.0	29.0	38.1	8.0	24.0	39.0	9.1	32.0	40.0	15.0	37.9	50.9
Actuated g/C Ratio	0.13	0.29	0.38	0.08	0.24	0.39	0.09	0.32	0.40	0.15	0.38	0.51
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	856	567	122	708	568	136	935	581	224	1129	747
v/s Ratio Prot	c0.12	c0.30	0.01	c0.12	0.20	0.06	0.06	c0.32	0.01	c0.19	0.24	0.01
v/s Ratio Perm			0.05			0.11			0.06			0.03
v/c Ratio	0.90	1.02	0.14	1.47	0.83	0.40	0.62	1.00	0.16	1.27	0.64	0.07
Uniform Delay, d1	42.9	35.5	20.2	46.0	36.1	22.1	43.8	34.0	19.2	42.5	25.5	12.5
Progression Factor	1.55	0.54	0.01	0.99	0.56	0.90	1.00	1.00	1.00	1.29	0.59	0.00
Incremental Delay, d2	5.7	15.2	0.0	234.9	5.1	0.3	8.1	29.9	0.1	131.6	0.9	0.0
Delay (s)	72.2	34.2	0.2	280.3	25.3	20.1	51.9	63.9	19.3	186.5	16.0	0.0
Level of Service	E	C	A	F	C	C	D	E	B	F	B	A
Approach Delay (s)		36.3			68.2			58.5			57.9	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM Average Control Delay	54.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Alondra Blvd & Atlantic Ave

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2951	1333	1490	2951	1308	1490	3010	1347	1421	3010	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2951	1333	1490	2951	1308	1490	3010	1347	1421	3010	1347
Volume (vph)	90	940	160	140	810	340	130	480	160	360	360	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	989	168	147	853	358	137	505	168	379	379	84
RTOR Reduction (vph)	0	0	82	0	0	44	0	0	56	0	0	53
Lane Group Flow (vph)	95	989	86	147	853	314	137	505	113	379	379	31
Heavy Vehicles (%)	1%	3%	2%	2%	3%	4%	2%	1%	1%	7%	1%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	8.6	32.0	45.5	10.0	33.4	59.4	13.5	16.0	26.0	26.0	28.5	37.1
Effective Green, g (s)	8.6	32.0	45.5	10.0	33.4	59.4	13.5	16.0	26.0	26.0	28.5	37.1
Actuated g/C Ratio	0.09	0.32	0.46	0.10	0.33	0.59	0.14	0.16	0.26	0.26	0.28	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	944	660	149	986	829	201	482	404	369	858	554
v/s Ratio Prot	0.06	c0.34	0.02	c0.10	0.29	0.10	0.09	c0.17	0.03	c0.27	0.13	0.00
v/s Ratio Perm			0.05			0.14			0.06			0.02
v/c Ratio	0.74	1.05	0.13	0.99	0.87	0.38	0.68	1.05	0.28	1.03	0.44	0.06
Uniform Delay, d1	44.6	34.0	15.8	44.9	31.2	10.6	41.2	42.0	29.5	37.0	29.2	20.2
Progression Factor	1.17	0.49	1.29	1.19	0.84	0.36	1.00	1.00	1.00	0.62	0.66	0.46
Incremental Delay, d2	2.0	24.7	0.0	59.1	6.1	0.2	9.2	54.0	0.4	46.8	1.2	0.0
Delay (s)	54.4	41.5	20.3	112.6	32.5	4.1	50.4	96.0	29.9	69.8	20.4	9.2
Level of Service	D	D	C	F	C	A	D	F	C	E	C	A
Approach Delay (s)		39.6			33.6			74.6			41.5	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM Average Control Delay	44.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 44: Alondra Blvd & Garfield Ave

























2035 PM Peak_Alt 2
 5/27/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1476	2923	1333	1505	2864		1476	2923	1333	1476	2891	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1476	2923	1333	1505	2864		1476	2923	1333	1476	2891	
Volume (vph)	120	1100	100	210	810	200	210	500	200	340	640	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	1158	105	221	853	211	221	526	211	358	674	116
RTOR Reduction (vph)	0	0	30	0	22	0	0	0	27	0	14	0
Lane Group Flow (vph)	126	1158	75	221	1042	0	221	526	184	358	776	0
Heavy Vehicles (%)	3%	4%	2%	1%	3%	3%	3%	4%	2%	3%	3%	2%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	9.0	33.0	45.0	12.0	36.0		12.0	19.0	31.0	20.0	27.0	
Effective Green, g (s)	9.0	33.0	45.0	12.0	36.0		12.0	19.0	31.0	20.0	27.0	
Actuated g/C Ratio	0.09	0.33	0.45	0.12	0.36		0.12	0.19	0.31	0.20	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	133	965	653	181	1031		177	555	467	295	781	
v/s Ratio Prot	0.09	c0.40	0.01	c0.15	0.36		0.15	0.18	0.05	c0.24	c0.27	
v/s Ratio Perm			0.04						0.09			
v/c Ratio	0.95	1.20	0.12	1.22	1.01		1.25	0.95	0.39	1.21	0.99	
Uniform Delay, d1	45.3	33.5	16.0	44.0	32.0		44.0	40.0	27.1	40.0	36.4	
Progression Factor	0.86	0.61	0.26	0.86	0.47		1.00	1.00	1.00	0.85	0.41	
Incremental Delay, d2	52.0	97.8	0.1	128.2	25.7		150.0	27.2	0.6	99.1	8.3	
Delay (s)	91.1	118.2	4.1	166.2	40.9		194.0	67.3	27.7	133.1	23.1	
Level of Service	F	F	A	F	D		F	E	C	F	C	
Approach Delay (s)		107.1			62.4			87.8			57.4	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM Average Control Delay			79.3			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			102.2%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2923	1320	1490	2951	1320	1476	2980	1347	1490	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2923	1320	1490	2951	1320	1476	2980	1347	1490	2980	1333
Volume (vph)	140	1150	160	210	760	110	180	710	100	180	690	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	1211	168	221	800	116	189	747	105	189	726	95
RTOR Reduction (vph)	0	0	28	0	0	57	0	0	22	0	0	40
Lane Group Flow (vph)	147	1211	140	221	800	59	189	747	83	189	726	55
Heavy Vehicles (%)	3%	4%	3%	2%	3%	3%	3%	2%	1%	2%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	17.7	36.0	47.0	13.0	31.3	42.3	11.0	24.0	37.0	11.0	24.0	41.7
Effective Green, g (s)	17.7	36.0	47.0	13.0	31.3	42.3	11.0	24.0	37.0	11.0	24.0	41.7
Actuated g/C Ratio	0.18	0.36	0.47	0.13	0.31	0.42	0.11	0.24	0.37	0.11	0.24	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	261	1052	673	194	924	611	162	715	552	164	715	609
v/s Ratio Prot	0.10	c0.41	0.02	c0.15	0.27	0.01	c0.13	c0.25	0.02	0.13	0.24	0.02
v/s Ratio Perm			0.08			0.03			0.04			0.03
v/c Ratio	0.56	1.15	0.21	1.14	0.87	0.10	1.17	1.04	0.15	1.15	1.02	0.09
Uniform Delay, d1	37.6	32.0	15.6	43.5	32.4	17.4	44.5	38.0	21.0	44.5	38.0	17.7
Progression Factor	0.75	0.46	0.20	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.45	0.06
Incremental Delay, d2	0.3	69.2	0.0	107.1	8.5	0.1	122.6	45.9	0.1	102.1	30.0	0.0
Delay (s)	28.3	83.8	3.2	150.6	40.9	17.4	167.1	83.9	21.1	136.6	47.0	1.1
Level of Service	C	F	A	F	D	B	F	F	C	F	D	A
Approach Delay (s)		69.6			59.8			92.7			59.4	
Approach LOS		E			E			F			E	

Intersection Summary

HCM Average Control Delay	70.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 PM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2980	1333	1462	2980	1320	1490	2841	1320	1476	2895	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2980	1333	1462	2980	1320	1490	2841	1320	1476	2895	1347
Volume (vph)	90	1090	100	340	1010	80	220	610	80	170	370	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1147	105	358	1063	84	232	642	84	179	389	74
RTOR Reduction (vph)	0	0	47	0	0	42	0	0	17	0	0	36
Lane Group Flow (vph)	95	1147	58	358	1063	42	232	642	67	179	389	38
Heavy Vehicles (%)	1%	2%	2%	4%	2%	3%	2%	7%	3%	3%	5%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	11.6	32.0	45.0	20.0	40.4	50.4	13.0	22.0	42.0	10.0	19.0	30.6
Effective Green, g (s)	11.6	32.0	45.0	20.0	40.4	50.4	13.0	22.0	42.0	10.0	19.0	30.6
Actuated g/C Ratio	0.12	0.32	0.45	0.20	0.40	0.50	0.13	0.22	0.42	0.10	0.19	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	954	653	292	1204	718	194	625	607	148	550	466
v/s Ratio Prot	0.06	c0.38	0.01	c0.24	0.36	0.01	c0.16	c0.23	0.02	0.12	0.13	0.01
v/s Ratio Perm			0.03			0.03			0.03			0.02
v/c Ratio	0.54	1.20	0.09	1.23	0.88	0.06	1.20	1.03	0.11	1.21	0.71	0.08
Uniform Delay, d1	41.7	34.0	15.8	40.0	27.6	12.7	43.5	39.0	17.6	45.0	37.9	24.7
Progression Factor	1.00	1.00	1.00	0.94	0.46	0.01	0.68	0.51	0.17	1.00	1.00	1.00
Incremental Delay, d2	3.4	101.1	0.1	104.6	0.8	0.0	103.3	27.5	0.0	141.2	7.5	0.1
Delay (s)	45.1	135.1	15.8	142.1	13.6	0.1	132.9	47.2	3.0	186.2	45.4	24.8
Level of Service	D	F	B	F	B	A	F	D	A	F	D	C
Approach Delay (s)		119.5			43.4			64.1			82.3	
Approach LOS		F			D			E			F	





















Intersection Summary

HCM Average Control Delay	76.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: Rosecrans Ave & Long Beach Blvd

























2035 PM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.98		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2862		1434	2905		1357	2855		1505	2887	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2862		1434	2905		1357	2855		1505	2887	
Volume (vph)	160	930	190	90	1070	200	190	790	190	220	700	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	979	200	95	1126	211	200	832	200	232	737	147
RTOR Reduction (vph)	0	17	0	0	15	0	0	21	0	0	17	0
Lane Group Flow (vph)	168	1162	0	95	1322	0	200	1011	0	232	867	0
Heavy Vehicles (%)	2%	3%	6%	6%	2%	3%	12%	3%	5%	1%	3%	1%
Turn Type	Prot		Prot		Prot		Prot		Prot			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.0	37.0		6.0	34.0		11.0	30.0		11.0	30.0	
Effective Green, g (s)	9.0	37.0		6.0	34.0		11.0	30.0		11.0	30.0	
Actuated g/C Ratio	0.09	0.37		0.06	0.34		0.11	0.30		0.11	0.30	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1059		86	988		149	857		166	866	
v/s Ratio Prot	c0.11	0.41		0.07	c0.45		0.15	c0.35		c0.15	0.30	
v/s Ratio Perm												
v/c Ratio	1.25	1.10		1.10	1.34		1.34	1.18		1.40	1.00	
Uniform Delay, d1	45.5	31.5		47.0	33.0		44.5	35.0		44.5	35.0	
Progression Factor	0.82	0.44		1.23	0.98		0.74	0.59		0.75	0.39	
Incremental Delay, d2	119.9	45.4		62.2	152.7		172.8	86.6		190.4	17.7	
Delay (s)	157.0	59.2		119.9	185.0		205.8	107.2		223.9	31.4	
Level of Service	F	E		F	F		F	F		F	C	
Approach Delay (s)		71.4			180.7			123.3			71.4	
Approach LOS		E			F			F			E	
Intersection Summary												
HCM Average Control Delay			114.4			HCM Level of Service		F				
HCM Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		16.0				
Intersection Capacity Utilization			114.2%			ICU Level of Service		H				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2899		1490	2893		1434	2935		1490	2910	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1505	2899		1490	2893		1434	2935		1490	2910	
Volume (vph)	130	1270	140	60	1580	280	150	790	90	230	430	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1337	147	63	1663	295	158	832	95	242	453	84
RTOR Reduction (vph)	0	8	0	0	15	0	0	9	0	0	15	0
Lane Group Flow (vph)	137	1476	0	63	1944	0	158	918	0	242	522	0
Heavy Vehicles (%)	1%	3%	6%	2%	3%	1%	6%	2%	2%	2%	2%	2%
Turn Type	Prot		Prot		Prot		Prot		Prot			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	44.0		4.0	42.0		12.0	26.0		10.0	24.0	
Effective Green, g (s)	6.0	44.0		4.0	42.0		12.0	26.0		10.0	24.0	
Actuated g/C Ratio	0.06	0.44		0.04	0.42		0.12	0.26		0.10	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	1276		60	1215		172	763		149	698	
v/s Ratio Prot	c0.09	0.51		0.04	c0.67		0.11	c0.31		c0.16	0.18	
v/s Ratio Perm												
v/c Ratio	1.52	1.16		1.05	1.60		0.92	1.20		1.62	0.75	
Uniform Delay, d1	47.0	28.0		48.0	29.0		43.5	37.0		45.0	35.2	
Progression Factor	0.82	0.45		1.00	1.00		0.67	0.61		0.64	0.39	
Incremental Delay, d2	240.1	71.3		130.8	273.7		36.3	100.6		283.7	0.7	
Delay (s)	278.6	83.8		178.8	302.7		65.6	123.0		312.4	14.4	
Level of Service	F	F		F	F		E	F		F	B	
Approach Delay (s)		100.3			298.8			114.6			107.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM Average Control Delay			176.9			HCM Level of Service		F				
HCM Volume to Capacity ratio			1.41									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)		12.0						
Intersection Capacity Utilization			128.8%	ICU Level of Service		H						
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
51: Rosecrans Ave & Garfield Ave

2035 PM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑		↙	↑↑	↗	↙	↑↑	↗	↙	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	4122		1462	2951	1333	1476	2951	1320	1490	2951	1333
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	4122		1462	2951	1333	1476	2951	1320	1490	2951	1333
Volume (vph)	240	980	150	170	850	230	490	710	140	270	680	250
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	1032	158	179	895	242	516	747	147	284	716	263
RTOR Reduction (vph)	0	21	0	0	0	25	0	0	41	0	0	24
Lane Group Flow (vph)	253	1169	0	179	895	217	516	747	106	284	716	239
Heavy Vehicles (%)	3%	4%	3%	4%	3%	2%	3%	3%	3%	2%	3%	2%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	13.0	26.0		12.0	25.0	44.0	25.0	27.0	39.0	19.0	21.0	34.0
Effective Green, g (s)	13.0	26.0		12.0	25.0	44.0	25.0	27.0	39.0	19.0	21.0	34.0
Actuated g/C Ratio	0.13	0.26		0.12	0.25	0.44	0.25	0.27	0.39	0.19	0.21	0.34
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	1072		175	738	640	369	797	568	283	620	507
v/s Ratio Prot	c0.17	0.28		0.12	c0.30	0.06	c0.35	0.25	0.02	0.19	c0.24	0.06
v/s Ratio Perm						0.10			0.06			0.12
v/c Ratio	1.32	1.09		1.02	1.21	0.34	1.40	0.94	0.19	1.00	1.15	0.47
Uniform Delay, d1	43.5	37.0		44.0	37.5	18.4	37.5	35.7	20.1	40.5	39.5	25.9
Progression Factor	1.00	1.00		0.77	0.44	0.17	1.00	0.60	0.27	0.89	0.83	0.75
Incremental Delay, d2	174.8	55.6		51.1	101.5	0.1	192.3	17.2	0.1	52.8	86.1	0.7
Delay (s)	218.3	92.6		84.9	118.2	3.2	229.8	38.6	5.5	89.0	118.7	20.2
Level of Service	F	F		F	F	A	F	D	A	F	F	C
Approach Delay (s)		114.7			92.5			105.1			91.5	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	101.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 PM Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↗	↙	↑↑	↗	↙	↑↑		↙	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1434	2951	1308	1476	2951	1347	1476	2845		1490	2980	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1434	2951	1308	1476	2951	1347	1476	2845		1490	2980	1320
Volume (vph)	320	880	240	200	760	170	210	650	240	170	590	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	337	926	253	211	800	179	221	684	253	179	621	189
RTOR Reduction (vph)	0	0	41	0	0	51	0	38	0	0	0	38
Lane Group Flow (vph)	337	926	212	211	800	128	221	899	0	179	621	151
Heavy Vehicles (%)	6%	3%	4%	3%	3%	1%	3%	2%	4%	2%	2%	3%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	20.0	30.0	46.0	14.0	24.0	34.0	16.0	30.0		10.0	24.0	44.0
Effective Green, g (s)	20.0	30.0	46.0	14.0	24.0	34.0	16.0	30.0		10.0	24.0	44.0
Actuated g/C Ratio	0.20	0.30	0.46	0.14	0.24	0.34	0.16	0.30		0.10	0.24	0.44
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	287	885	654	207	708	512	236	854		149	715	634
v/s Ratio Prot	c0.24	c0.31	0.05	0.14	c0.27	0.03	0.15	c0.32		c0.12	0.21	0.05
v/s Ratio Perm			0.11			0.07						0.07
v/c Ratio	1.17	1.05	0.32	1.02	1.13	0.25	0.94	1.05		1.20	0.87	0.24
Uniform Delay, d1	40.0	35.0	17.1	43.0	38.0	23.8	41.5	35.0		45.0	36.5	17.5
Progression Factor	0.73	0.29	0.02	1.00	1.00	1.00	0.69	0.31		0.81	0.78	0.90
Incremental Delay, d2	90.1	30.7	0.1	67.7	75.6	0.3	30.3	39.6		96.7	1.5	0.0
Delay (s)	119.4	40.8	0.5	110.7	113.6	24.1	58.9	50.4		133.3	30.0	15.8
Level of Service	F	D	A	F	F	C	E	D		F	C	B
Approach Delay (s)		51.6			99.6			52.0			46.0	
Approach LOS		D			F			D			D	































Intersection Summary

HCM Average Control Delay	62.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 54: Imperial Hwy & Long Beach Blvd

2035 PM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2980	1320	1448	2980	1347	1476	4200	1333	1505	4204	1600
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2980	1320	1448	2980	1347	1476	4200	1333	1505	4204	1600
Volume (vph)	180	980	250	300	800	90	270	1230	410	100	900	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1032	263	316	842	95	284	1295	432	105	947	74
RTOR Reduction (vph)	0	0	19	0	0	56	0	0	19	0	9	0
Lane Group Flow (vph)	189	1032	244	316	842	39	284	1295	413	105	1012	0
Heavy Vehicles (%)	0%	2%	3%	5%	2%	1%	3%	4%	2%	1%	3%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		Prot
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	16.0	30.0	43.0	16.0	30.0	37.0	13.0	31.0	47.0	7.0	25.0	
Effective Green, g (s)	16.0	30.0	43.0	16.0	30.0	37.0	13.0	31.0	47.0	7.0	25.0	
Actuated g/C Ratio	0.16	0.30	0.43	0.16	0.30	0.37	0.13	0.31	0.47	0.07	0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	243	894	620	232	894	552	192	1302	680	105	1051	
v/s Ratio Prot	0.12	c0.35	0.05	c0.22	0.28	0.00	c0.19	c0.31	0.10	0.07	0.24	
v/s Ratio Perm			0.13			0.02			0.21			
v/c Ratio	0.78	1.15	0.39	1.36	0.94	0.07	1.48	0.99	0.61	1.00	0.96	
Uniform Delay, d1	40.3	35.0	19.5	42.0	34.1	20.4	43.5	34.4	19.7	46.5	37.0	
Progression Factor	0.95	0.55	0.15	0.66	0.84	1.14	0.97	0.79	0.57	0.69	0.47	
Incremental Delay, d2	9.2	77.6	0.3	165.5	2.4	0.0	233.4	19.1	1.0	60.5	12.2	
Delay (s)	47.5	96.9	3.3	193.4	31.3	23.3	275.5	46.3	12.2	92.4	29.7	
Level of Service	D	F	A	F	C	C	F	D	B	F	C	
Approach Delay (s)		74.0			71.6			71.4			35.6	
Approach LOS		E			E			E			D	
Intersection Summary												
HCM Average Control Delay			65.2				HCM Level of Service			E		
HCM Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		16.0			
Intersection Capacity Utilization			105.5%				ICU Level of Service		G			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave

2035 PM Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕	↖	↖	↕	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2946		1505	2921		1520	2980	1333	1490	2923	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2946		1505	2921		1520	2980	1333	1490	2923	1333
Volume (vph)	130	1120	110	170	1110	160	140	460	230	280	640	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1179	116	179	1168	168	147	484	242	295	674	189
RTOR Reduction (vph)	0	7	0	0	11	0	0	0	31	0	0	40
Lane Group Flow (vph)	137	1288	0	179	1325	0	147	484	211	295	674	149
Heavy Vehicles (%)	2%	2%	0%	1%	2%	3%	0%	2%	2%	2%	4%	2%
Turn Type	Prot			Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	9.0	40.0		9.0	40.0		11.0	19.0	28.0	16.0	24.0	33.0
Effective Green, g (s)	9.0	40.0		9.0	40.0		11.0	19.0	28.0	16.0	24.0	33.0
Actuated g/C Ratio	0.09	0.40		0.09	0.40		0.11	0.19	0.28	0.16	0.24	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1178		135	1168		167	566	373	238	702	440
v/s Ratio Prot	0.09	c0.44		0.12	c0.45		0.10	c0.16	0.05	c0.20	0.23	0.03
v/s Ratio Perm									0.11			0.08
v/c Ratio	1.02	1.09		1.33	1.13		0.88	0.86	0.57	1.24	0.96	0.34
Uniform Delay, d1	45.5	30.0		45.5	30.0		43.9	39.2	30.8	42.0	37.5	25.3
Progression Factor	0.63	0.44		1.36	0.39		0.95	1.03	1.96	0.66	0.62	0.64
Incremental Delay, d2	43.1	45.7		166.3	65.3		5.2	1.6	0.2	111.2	4.5	0.0
Delay (s)	71.9	58.9		228.2	76.9		46.8	42.0	60.6	138.8	27.5	16.2
Level of Service	E	E		F	E		D	D	E	F	C	B
Approach Delay (s)		60.2			94.8			48.0			54.0	
Approach LOS		E			F			D			D	

Intersection Summary

HCM Average Control Delay	67.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd

2035 PM Peak_Alt 2
6/30/2009



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	4193		1505	4198		2920	2923	1347	1490	2923	1347
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	4193		1505	4198		2920	2923	1347	1490	2923	1347
Volume (vph)	490	1320	230	240	990	150	320	990	110	280	770	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	516	1389	242	253	1042	158	337	1042	116	295	811	221
RTOR Reduction (vph)	0	25	0	0	20	0	0	0	10	0	0	7
Lane Group Flow (vph)	516	1606	0	253	1180	0	337	1042	106	295	811	214
Heavy Vehicles (%)	4%	2%	1%	1%	2%	2%	1%	4%	1%	2%	4%	1%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	13.0	29.0		12.0	28.0		12.0	30.0	42.0	13.0	31.0	44.0
Effective Green, g (s)	13.0	29.0		12.0	28.0		12.0	30.0	42.0	13.0	31.0	44.0
Actuated g/C Ratio	0.13	0.29		0.12	0.28		0.12	0.30	0.42	0.13	0.31	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	369	1216		181	1175		350	877	566	194	906	647
v/s Ratio Prot	0.18	c0.38		c0.17	0.28		0.12	c0.36	0.02	c0.20	0.28	0.04
v/s Ratio Perm									0.06			0.12
v/c Ratio	1.40	1.32		1.40	1.00		0.96	1.19	0.19	1.52	0.90	0.33
Uniform Delay, d1	43.5	35.5		44.0	36.0		43.8	35.0	18.2	43.5	32.9	18.4
Progression Factor	0.64	0.55		1.00	1.00		0.69	0.93	0.65	0.78	0.63	0.45
Incremental Delay, d2	185.3	146.6		208.9	27.3		27.9	91.8	0.1	236.7	1.5	0.0
Delay (s)	213.3	166.2		252.9	63.3		57.9	124.3	12.0	270.5	22.3	8.3
Level of Service	F	F		F	E		E	F	B	F	C	A
Approach Delay (s)		177.5			96.3			100.6			75.2	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	120.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: Firestone Blvd & California Ave

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	2980	1347	1505	2980	1347	1505	2944		1505	2880	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1505	2980	1347	1505	2980	1347	1505	2944		1505	2880	
Volume (vph)	70	1350	130	110	1570	90	80	670	60	130	430	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1421	137	116	1653	95	84	705	63	137	453	95
RTOR Reduction (vph)	0	0	49	0	0	16	0	7	0	0	18	0
Lane Group Flow (vph)	74	1421	88	116	1653	79	84	761	0	137	530	0
Heavy Vehicles (%)	1%	2%	1%	1%	2%	1%	1%	2%	2%	1%	3%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	4.0	44.0	52.0	7.0	47.0	55.0	8.0	25.0		8.0	25.0	
Effective Green, g (s)	4.0	44.0	52.0	7.0	47.0	55.0	8.0	25.0		8.0	25.0	
Actuated g/C Ratio	0.04	0.44	0.52	0.07	0.47	0.55	0.08	0.25		0.08	0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	60	1311	754	105	1401	741	120	736		120	720	
v/s Ratio Prot	0.05	0.48	0.01	c0.08	c0.55	0.01	0.06	c0.26		c0.09	0.18	
v/s Ratio Perm			0.06			0.05						
v/c Ratio	1.23	1.08	0.12	1.10	1.18	0.11	0.70	1.03		1.14	0.74	
Uniform Delay, d1	48.0	28.0	12.3	46.5	26.5	10.8	44.8	37.5		46.0	34.5	
Progression Factor	1.07	0.92	0.26	0.68	0.36	0.15	1.00	1.00		1.00	1.00	
Incremental Delay, d2	170.0	47.2	0.0	59.9	81.7	0.0	16.4	42.3		125.3	6.6	
Delay (s)	221.5	72.9	3.2	91.8	91.3	1.6	61.2	79.8		171.3	41.1	
Level of Service	F	E	A	F	F	A	E	E		F	D	
Approach Delay (s)		73.8			86.8			78.0			67.1	
Approach LOS		E			F			E			E	
Intersection Summary												
HCM Average Control Delay			78.4				HCM Level of Service				E	
HCM Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			102.3%				ICU Level of Service			G		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd

2035 PM Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘	↑↑	↗	↘	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1347	1490	4122		1505	2923	1333	1490	2923	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2951	1347	1490	4122		1505	2923	1333	1490	2923	1320
Volume (vph)	380	920	270	210	1000	230	360	850	110	180	840	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	400	968	284	221	1053	242	379	895	116	189	884	211
RTOR Reduction (vph)	0	0	12	0	38	0	0	0	32	0	0	11
Lane Group Flow (vph)	400	968	272	221	1257	0	379	895	84	189	884	200
Heavy Vehicles (%)	2%	3%	1%	2%	3%	3%	1%	4%	2%	2%	4%	3%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases			4						2			6
Actuated Green, G (s)	16.0	32.0	48.0	10.0	26.0		16.0	30.0	40.0	12.0	26.0	42.0
Effective Green, g (s)	16.0	32.0	48.0	10.0	26.0		16.0	30.0	40.0	12.0	26.0	42.0
Actuated g/C Ratio	0.16	0.32	0.48	0.10	0.26		0.16	0.30	0.40	0.12	0.26	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	944	700	149	1072		241	877	587	179	760	554
v/s Ratio Prot	c0.27	0.33	0.06	c0.15	c0.31		c0.25	c0.31	0.01	0.13	c0.30	0.06
v/s Ratio Perm			0.14						0.05			0.09
v/c Ratio	1.68	1.03	0.39	1.48	1.17		1.57	1.02	0.14	1.06	1.16	0.36
Uniform Delay, d1	42.0	34.0	16.6	45.0	37.0		42.0	35.0	19.1	44.0	37.0	19.8
Progression Factor	0.68	0.59	0.43	1.00	1.00		1.45	0.93	0.20	1.00	1.00	1.00
Incremental Delay, d2	316.9	29.2	0.2	249.7	87.9		259.5	14.9	0.0	82.8	87.6	0.4
Delay (s)	345.4	49.1	7.3	294.7	124.9		320.3	47.3	3.9	126.8	124.6	20.2
Level of Service	F	D	A	F	F		F	D	A	F	F	C
Approach Delay (s)		113.7			149.6			118.1			107.8	
Approach LOS		F			F			F			F	























Intersection Summary

HCM Average Control Delay	122.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St































2035 PM Peak_Alt 2
6/30/2009

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95		
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.95		1.00	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1505	2980	1320	1476	2931		1476	2764		1505	2901		
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (perm)	1505	2980	1320	1476	2931		1476	2764		1505	2901		
Volume (vph)	70	1040	210	220	890	110	180	720	410	100	870	120	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	74	1095	221	232	937	116	189	758	432	105	916	126	
RTOR Reduction (vph)	0	0	26	0	10	0	0	80	0	0	11	0	
Lane Group Flow (vph)	74	1095	195	232	1043	0	189	1110	0	105	1031	0	
Heavy Vehicles (%)	1%	2%	3%	3%	2%	2%	3%	4%	4%	1%	3%	2%	
Turn Type	Prot		pm+ov	Prot			Prot			Prot			
Protected Phases	7	4	5	3	8		5	2		1	6		
Permitted Phases			4										
Actuated Green, G (s)	5.0	32.0	42.0	13.0	40.0		10.0	33.0		6.0	29.0		
Effective Green, g (s)	5.0	32.0	42.0	13.0	40.0		10.0	33.0		6.0	29.0		
Actuated g/C Ratio	0.05	0.32	0.42	0.13	0.40		0.10	0.33		0.06	0.29		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	75	954	607	192	1172		148	912		90	841		
v/s Ratio Prot	0.05	c0.37	0.03	c0.16	0.36		0.13	c0.40		0.07	c0.36		
v/s Ratio Perm			0.12										
v/c Ratio	0.99	1.15	0.32	1.21	0.89		1.28	1.22		1.17	1.23		
Uniform Delay, d1	47.5	34.0	19.4	43.5	28.0		45.0	33.5		47.0	35.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.86	0.52		0.67	0.56		
Incremental Delay, d2	98.6	78.9	0.3	132.3	10.3		143.4	101.6		127.5	108.8		
Delay (s)	146.1	112.9	19.8	175.8	38.3		182.0	119.1		158.9	128.8		
Level of Service	F	F	B	F	D		F	F		F	F		
Approach Delay (s)		99.8			63.1			127.7			131.6		
Approach LOS		F			E			F			F		
Intersection Summary													
HCM Average Control Delay			105.1			HCM Level of Service					F		
HCM Volume to Capacity ratio			1.17										
Actuated Cycle Length (s)			100.0			Sum of lost time (s)					12.0		
Intersection Capacity Utilization			107.8%			ICU Level of Service					G		
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave





















2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1490	2923	1347	1505	2980	1333	1505	2951	1333	2891	2914	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1490	2923	1347	1505	2980	1333	1505	2951	1333	2891	2914	
Volume (vph)	150	1110	120	200	1140	210	150	530	150	230	710	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1168	126	211	1200	221	158	558	158	242	747	74
RTOR Reduction (vph)	0	0	24	0	0	40	0	0	15	0	7	0
Lane Group Flow (vph)	158	1168	102	211	1200	181	158	558	143	242	814	0
Heavy Vehicles (%)	2%	4%	1%	1%	2%	2%	1%	3%	2%	2%	3%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	10.0	37.0	46.0	11.0	38.0	48.8	9.0	25.2	36.2	10.8	27.0	
Effective Green, g (s)	10.0	37.0	46.0	11.0	38.0	48.8	9.0	25.2	36.2	10.8	27.0	
Actuated g/C Ratio	0.10	0.37	0.46	0.11	0.38	0.49	0.09	0.25	0.36	0.11	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	149	1082	620	166	1132	704	135	744	483	312	787	
v/s Ratio Prot	0.11	c0.40	0.01	0.14	c0.40	0.03	c0.10	0.19	0.03	0.08	c0.28	
v/s Ratio Perm			0.06			0.11			0.07			
v/c Ratio	1.06	1.08	0.16	1.27	1.06	0.26	1.17	0.75	0.30	0.78	1.03	
Uniform Delay, d1	45.0	31.5	15.8	44.5	31.0	15.0	45.5	34.5	22.8	43.4	36.5	
Progression Factor	0.71	1.00	2.09	0.89	0.84	0.71	1.40	0.63	0.63	0.48	0.92	
Incremental Delay, d2	76.8	47.1	0.1	126.4	29.4	0.0	84.2	0.6	0.0	5.1	30.2	
Delay (s)	108.7	78.5	33.0	166.1	55.5	10.7	148.0	22.5	14.4	26.0	63.9	
Level of Service	F	E	C	F	E	B	F	C	B	C	E	
Approach Delay (s)		77.8			63.8			43.7			55.3	
Approach LOS		E			E			D			E	
Intersection Summary												
HCM Average Control Delay			62.5				HCM Level of Service			E		
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			98.7%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St



























2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1462	2930		1476	2924		1476	2884		1476	2874	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1462	2930		1476	2924		1476	2884		1476	2874	
Volume (vph)	80	1260	70	100	1340	90	70	510	50	90	520	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	1326	74	105	1411	95	74	537	53	95	547	116
RTOR Reduction (vph)	0	4	0	0	5	0	0	7	0	0	18	0
Lane Group Flow (vph)	84	1396	0	105	1501	0	74	583	0	95	645	0
Heavy Vehicles (%)	4%	3%	2%	3%	3%	3%	3%	4%	4%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	49.0		8.0	51.0		5.0	20.0		7.0	22.0	
Effective Green, g (s)	6.0	49.0		8.0	51.0		5.0	20.0		7.0	22.0	
Actuated g/C Ratio	0.06	0.49		0.08	0.51		0.05	0.20		0.07	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	88	1436		118	1491		74	577		103	632	
v/s Ratio Prot	0.06	c0.48		0.07	c0.51		0.05	0.20		c0.06	c0.22	
v/s Ratio Perm												
v/c Ratio	0.95	0.97		0.89	1.01		1.00	1.01		0.92	1.02	
Uniform Delay, d1	46.9	24.8		45.6	24.5		47.5	40.0		46.2	39.0	
Progression Factor	1.00	1.00		1.00	1.00		0.55	0.52		1.00	1.00	
Incremental Delay, d2	80.3	18.0		49.7	25.0		90.2	34.8		64.0	41.1	
Delay (s)	127.1	42.8		95.3	49.5		116.5	55.6		110.2	80.1	
Level of Service	F	D		F	D		F	E		F	F	
Approach Delay (s)		47.6			52.4			62.4			83.9	
Approach LOS		D			D			E			F	
Intersection Summary												
HCM Average Control Delay			57.6			HCM Level of Service		E				
HCM Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		12.0				
Intersection Capacity Utilization			91.8%			ICU Level of Service		F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1434	2951	1333	1505	2980	1333	1505	2802		1490	2876	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1434	2951	1333	1505	2980	1333	1505	2802		1490	2876	
Volume (vph)	200	1070	90	140	1210	100	50	320	180	170	840	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	1126	95	147	1274	105	53	337	189	179	884	232
RTOR Reduction (vph)	0	0	37	0	0	51	0	77	0	0	23	0
Lane Group Flow (vph)	211	1126	58	147	1274	54	53	449	0	179	1093	0
Heavy Vehicles (%)	6%	3%	2%	1%	2%	2%	1%	3%	2%	2%	2%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	12.0	37.0	41.0	10.0	35.0	51.0	4.0	21.0		16.0	33.0	
Effective Green, g (s)	12.0	37.0	41.0	10.0	35.0	51.0	4.0	21.0		16.0	33.0	
Actuated g/C Ratio	0.12	0.37	0.41	0.10	0.35	0.51	0.04	0.21		0.16	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	172	1092	547	151	1043	733	60	588		238	949	
v/s Ratio Prot	c0.15	0.38	0.00	0.10	c0.43	0.01	0.04	c0.16		0.12	c0.38	
v/s Ratio Perm			0.04			0.03						
v/c Ratio	1.23	1.03	0.11	0.97	1.22	0.07	0.88	0.76		0.75	1.15	
Uniform Delay, d1	44.0	31.5	18.2	44.9	32.5	12.5	47.8	37.2		40.1	33.5	
Progression Factor	0.81	0.35	0.06	0.78	0.45	0.02	1.00	1.00		1.00	1.00	
Incremental Delay, d2	106.9	17.9	0.0	45.3	104.4	0.0	75.4	9.1		12.6	80.3	
Delay (s)	142.5	28.8	1.0	80.1	118.9	0.3	123.1	46.2		52.7	113.8	
Level of Service	F	C	A	F	F	A	F	D		D	F	
Approach Delay (s)		43.7			107.0			53.3			105.4	
Approach LOS		D			F			D			F	

Intersection Summary

HCM Average Control Delay	81.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: Bandini Blvd & Atlantic Ave

2035 PM Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.86	0.86		1.00	1.00	1.00	1.00	0.81		1.00	0.86	0.86
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1233	3080		1462	1356	1271	1490	6071		1345	4008	1114
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1233	3080		1462	1356	1271	1490	6071		1345	4008	1114
Volume (vph)	360	680	540	250	190	450	30	1350	310	60	1180	400
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	379	716	568	263	200	474	32	1421	326	63	1242	421
RTOR Reduction (vph)	0	74	0	0	0	123	0	28	0	0	0	0
Lane Group Flow (vph)	379	1210	0	263	200	351	32	1719	0	63	1242	421
Heavy Vehicles (%)	6%	7%	48%	4%	18%	7%	2%	3%	7%	13%	3%	5%
Turn Type	Split			Split		pm+ov	Prot			Prot		Free
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8						Free
Actuated Green, G (s)	51.8	51.8		23.0	23.0	35.0	3.2	39.2		12.0	48.0	150.0
Effective Green, g (s)	53.8	53.8		25.0	25.0	39.0	5.2	41.2		14.0	50.0	150.0
Actuated g/C Ratio	0.36	0.36		0.17	0.17	0.26	0.03	0.27		0.09	0.33	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	442	1105		244	226	364	52	1668		126	1336	1114
v/s Ratio Prot	0.31	c0.39		c0.18	0.15	c0.09	0.02	c0.28		0.05	0.31	
v/s Ratio Perm						0.19						0.38
v/c Ratio	0.86	1.45dr		1.08	0.88	0.96	0.62	1.03		0.50	0.93	0.38
Uniform Delay, d1	44.5	48.1		62.5	61.1	54.8	71.4	54.4		64.7	48.3	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	57.0		79.9	31.0	37.6	19.7	30.4		3.1	12.7	1.0
Delay (s)	63.5	105.1		142.4	92.1	92.4	91.1	84.8		67.8	61.0	1.0
Level of Service	E	F		F	F	F	F	F		E	E	A
Approach Delay (s)		95.6			106.4			84.9			46.6	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	80.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
dr Defacto Right Lane. Recode with 1 though lane as a right lane.			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 126: Washington Blvd & I 710 SB

2035 PM Peak_Alt 2
 6/30/2009





























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↕		↖	↕	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0			4.0			4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91			0.91			1.00		0.95	0.91	0.95
Frt	1.00	1.00			0.96			0.86		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00		0.95	0.95	1.00
Satd. Flow (prot)	1267	4160			3843			1270		1362	1305	1185
Flt Permitted	0.95	1.00			1.00			1.00		0.75	0.75	1.00
Satd. Flow (perm)	1267	4160			3843			1270		1076	1031	1185
Volume (vph)	300	1420	0	0	940	390	0	0	10	170	0	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	316	1495	0	0	989	411	0	0	11	179	0	105
RTOR Reduction (vph)	0	0	0	0	125	0	0	8	0	0	0	77
Lane Group Flow (vph)	316	1495	0	0	1275	0	0	3	0	90	89	28
Heavy Vehicles (%)	20%	5%	9%	9%	11%	3%	9%	0%	9%	6%	9%	9%
Turn Type	Prot		Prot		Perm		Perm		Perm		Perm	
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	14.0	36.0			18.0			16.0		16.0	16.0	16.0
Effective Green, g (s)	14.0	36.0			18.0			16.0		16.0	16.0	16.0
Actuated g/C Ratio	0.23	0.60			0.30			0.27		0.27	0.27	0.27
Clearance Time (s)	4.0	4.0			4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	296	2496			1153			339		287	275	316
v/s Ratio Prot	c0.25	0.36			c0.33			0.00				
v/s Ratio Perm										0.08	c0.09	0.02
v/c Ratio	1.07	0.60			1.11			0.01		0.31	0.32	0.09
Uniform Delay, d1	23.0	7.5			21.0			16.2		17.6	17.7	16.5
Progression Factor	1.00	1.00			0.36			1.00		1.00	1.00	1.00
Incremental Delay, d2	71.3	1.1			55.1			0.0		2.8	3.1	0.6
Delay (s)	94.3	8.6			62.7			16.2		20.4	20.8	17.1
Level of Service	F	A			E			B		C	C	B
Approach Delay (s)		23.5			62.7			16.2			19.3	
Approach LOS		C			E			B			B	

Intersection Summary			
HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 148: Wardlow Rd & Cherry Ave

2035 PM Peak_Alt 2
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91		0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	0.97		0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1356	2647		1356	2695		1476	2951	1320	1490	4151	
Flt Permitted	0.95	0.97		0.95	0.97		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1356	2647		1356	2695		1476	2951	1320	1490	4151	
Volume (vph)	550	60	150	550	90	80	200	1210	110	50	1250	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	579	63	158	579	95	84	211	1274	116	53	1316	337
RTOR Reduction (vph)	0	36	0	0	14	0	0	0	29	0	35	0
Lane Group Flow (vph)	290	474	0	290	454	0	211	1274	87	53	1618	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Split		Split			Prot		pm+ov		Prot		
Protected Phases	4	4		8	8		5	2	8	1	6	
Permitted Phases									2			
Actuated Green, G (s)	25.0	25.0		25.0	25.0		16.0	59.0	84.0	5.0	48.0	
Effective Green, g (s)	25.0	25.0		25.0	25.0		16.0	59.0	84.0	5.0	48.0	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.12	0.45	0.65	0.04	0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	261	509		261	518		182	1339	853	57	1533	
v/s Ratio Prot	c0.21	0.18		c0.21	0.17		c0.14	0.43	0.02	0.04	c0.39	
v/s Ratio Perm									0.05			
v/c Ratio	1.11	0.93		1.11	1.01dl		1.16	0.95	0.10	0.93	1.06	
Uniform Delay, d1	52.5	51.7		52.5	51.0		57.0	34.1	8.7	62.3	41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	88.8	24.1		88.8	15.4		116.1	15.4	0.1	92.7	39.3	
Delay (s)	141.3	75.8		141.3	66.4		173.1	49.6	8.8	155.0	80.3	
Level of Service	F	E		F	E		F	D	A	F	F	
Approach Delay (s)		99.5			95.0			62.9			82.6	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM Average Control Delay			80.8	HCM Level of Service				F				
HCM Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			99.8%	ICU Level of Service				F				
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 PM Peak_Alt 2
 1/11/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1434	2951	1347	1476	2951	1308	1490	2815		1434	2834	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1434	2951	1347	1476	2951	1308	1490	2815		1434	2834	
Volume (vph)	160	1010	140	170	1070	40	90	560	100	90	960	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	1063	147	179	1126	42	95	589	105	95	1011	337
RTOR Reduction (vph)	0	0	101	0	0	28	0	14	0	0	32	0
Lane Group Flow (vph)	168	1063	46	179	1126	14	95	680	0	95	1316	0
Heavy Vehicles (%)	6%	3%	1%	3%	3%	4%	2%	6%	3%	6%	3%	4%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.0	31.0	31.0	9.0	31.0	31.0	5.0	36.0		8.0	39.0	
Effective Green, g (s)	9.0	31.0	31.0	9.0	31.0	31.0	5.0	36.0		8.0	39.0	
Actuated g/C Ratio	0.09	0.31	0.31	0.09	0.31	0.31	0.05	0.36		0.08	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	129	915	418	133	915	405	75	1013		115	1105	
v/s Ratio Prot	0.12	c0.36		0.12	c0.38		c0.06	0.24		0.07	c0.46	
v/s Ratio Perm			0.03			0.01						
v/c Ratio	1.30	1.16	0.11	1.35	1.23	0.03	1.27	0.67		0.83	1.19	
Uniform Delay, d1	45.5	34.5	24.6	45.5	34.5	24.1	47.5	27.0		45.3	30.5	
Progression Factor	1.00	1.00	1.00	0.81	0.75	0.78	1.41	0.76		1.23	1.35	
Incremental Delay, d2	181.2	84.9	0.1	160.2	104.7	0.0	177.5	2.7		4.5	86.7	
Delay (s)	226.7	119.4	24.8	197.1	130.5	18.8	244.4	23.3		60.1	127.9	
Level of Service	F	F	C	F	F	B	F	C		E	F	
Approach Delay (s)		122.4			135.8			49.9			123.4	
Approach LOS		F			F			D			F	



















Intersection Summary

HCM Average Control Delay	114.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave























2035 PM Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.98			0.98		1.00	0.97		1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2900			2899		1476	2832		1476	2890	
Flt Permitted		1.00			1.00		0.17	1.00		0.24	1.00	
Satd. Flow (perm)		2900			2899		269	2832		375	2890	
Volume (vph)	20	880	130	50	540	80	80	460	100	90	560	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	926	137	53	568	84	84	484	105	95	589	95
RTOR Reduction (vph)	0	11	0	0	11	0	0	19	0	0	13	0
Lane Group Flow (vph)	0	1073	0	0	694	0	84	571	0	95	671	0
Heavy Vehicles (%)	3%	3%	1%	1%	3%	1%	3%	5%	2%	3%	3%	3%
Turn Type	Split		Split				Perm		Perm			
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		38.0			24.0		26.0	26.0		26.0	26.0	
Effective Green, g (s)		38.0			24.0		26.0	26.0		26.0	26.0	
Actuated g/C Ratio		0.38			0.24		0.26	0.26		0.26	0.26	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1102			696		70	736		98	751	
v/s Ratio Prot		c0.37			c0.24			0.20			0.23	
v/s Ratio Perm							c0.31			0.25		
v/c Ratio		0.97			1.00		1.20	0.78		0.97	0.89	
Uniform Delay, d1		30.5			38.0		37.0	34.3		36.6	35.7	
Progression Factor		1.01			0.61		0.62	0.61		1.00	1.00	
Incremental Delay, d2		3.9			23.7		142.5	4.3		82.9	15.3	
Delay (s)		34.7			47.0		165.5	25.3		119.5	51.0	
Level of Service		C			D		F	C		F	D	
Approach Delay (s)		34.7			47.0			42.8			59.3	
Approach LOS		C			D			D			E	
Intersection Summary												
HCM Average Control Delay			45.0				HCM Level of Service				D	
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			97.4%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
153: Gage Ave & Santa Fe Ave

2035 PM Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2897		1505	2914		1476	2789	1333	1490	2923	1308
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2897		1505	2914		1476	2789	1333	1490	2923	1308
Volume (vph)	110	920	140	90	540	50	210	650	90	100	1210	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	968	147	95	568	53	221	684	95	105	1274	137
RTOR Reduction (vph)	0	12	0	0	7	0	0	0	49	0	0	34
Lane Group Flow (vph)	116	1103	0	95	614	0	221	684	46	105	1274	103
Heavy Vehicles (%)	2%	3%	2%	1%	3%	3%	3%	9%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	12.4	31.0		5.0	23.6		12.0	38.0	43.0	10.0	36.0	48.4
Effective Green, g (s)	12.4	31.0		5.0	23.6		12.0	38.0	43.0	10.0	36.0	48.4
Actuated g/C Ratio	0.12	0.31		0.05	0.24		0.12	0.38	0.43	0.10	0.36	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	185	898		75	688		177	1060	573	149	1052	685
v/s Ratio Prot	0.08	c0.38		c0.06	0.21		c0.15	0.25	0.00	0.07	c0.44	0.02
v/s Ratio Perm									0.03			0.06
v/c Ratio	0.63	1.23		1.27	0.89		1.25	0.65	0.08	0.70	1.21	0.15
Uniform Delay, d1	41.6	34.5		47.5	37.0		44.0	25.5	16.8	43.6	32.0	14.4
Progression Factor	1.00	1.00		0.66	0.56		1.00	1.00	1.00	0.86	0.50	0.15
Incremental Delay, d2	6.5	112.7		129.5	1.6		150.0	3.0	0.1	1.4	95.8	0.0
Delay (s)	48.1	147.2		160.7	22.1		194.0	28.5	16.9	38.8	111.8	2.2
Level of Service	D	F		F	C		F	C	B	D	F	A
Approach Delay (s)		137.9			40.5			64.0			96.8	
Approach LOS		F			D			E			F	
Intersection Summary												
HCM Average Control Delay			91.7				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			108.3%				ICU Level of Service			G		
Analysis Period (min)			15									

c Critical Lane Group

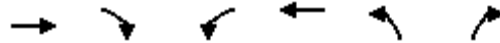
HCM Signalized Intersection Capacity Analysis
 155: 223rd St & Wilmington Blvd

2035 PM Peak_Alt 2
 6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2835	2947		2863	2951	1271	1476	4007	1320	2610	3994	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2835	2947		2863	2951	1271	1476	4007	1320	2610	3994	
Volume (vph)	730	1020	10	160	280	150	40	2060	470	490	680	480
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	768	1074	11	168	295	158	42	2168	495	516	716	505
RTOR Reduction (vph)	0	1	0	0	0	1	0	0	3	0	121	0
Lane Group Flow (vph)	768	1084	0	168	295	157	42	2168	492	516	1100	0
Heavy Vehicles (%)	4%	3%	4%	3%	3%	7%	3%	9%	3%	13%	3%	2%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	17.0	28.0		5.0	16.0	30.6	4.2	36.4	41.4	14.6	46.8	
Effective Green, g (s)	17.0	28.0		5.0	16.0	30.6	4.2	36.4	41.4	14.6	46.8	
Actuated g/C Ratio	0.17	0.28		0.05	0.16	0.31	0.04	0.36	0.41	0.15	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	482	825		143	472	389	62	1459	546	381	1869	
v/s Ratio Prot	c0.27	c0.37		0.06	0.10	0.06	0.03	c0.54	0.05	c0.20	0.28	
v/s Ratio Perm						0.06			0.33			
v/c Ratio	1.59	1.31		1.17	0.62	0.40	0.68	1.49	0.90	1.35	0.59	
Uniform Delay, d1	41.5	36.0		47.5	39.2	27.5	47.2	31.8	27.4	42.7	19.5	
Progression Factor	1.00	1.00		0.93	1.07	1.02	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	276.7	150.0		129.6	2.6	0.7	25.5	222.4	18.0	175.8	1.4	
Delay (s)	318.2	186.0		173.6	44.7	28.7	72.7	254.2	45.4	218.5	20.9	
Level of Service	F	F		F	D	C	E	F	D	F	C	
Approach Delay (s)		240.8			75.5			213.2			79.6	
Approach LOS		F			E			F			E	

Intersection Summary			
HCM Average Control Delay	174.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑↑↑	↑	↑
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	2951	731	2681	4241	1197	986
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	2951	731	2681	4241	1197	986
Volume (vph)	1410	210	140	330	120	500
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1484	221	147	347	126	526
RTOR Reduction (vph)	0	112	0	0	0	9
Lane Group Flow (vph)	1484	109	147	347	126	517
Heavy Vehicles (%)	3%	86%	10%	3%	27%	38%
Turn Type		Perm	Prot			pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4				2
Actuated Green, G (s)	47.0	47.0	25.0	76.0	16.0	41.0
Effective Green, g (s)	47.0	47.0	25.0	76.0	16.0	41.0
Actuated g/C Ratio	0.47	0.47	0.25	0.76	0.16	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1387	344	670	3223	192	444
v/s Ratio Prot	c0.50		0.05	0.08	0.11	c0.29
v/s Ratio Perm		0.15				0.23
v/c Ratio	1.07	0.32	0.22	0.11	0.66	1.16
Uniform Delay, d1	26.5	16.5	29.8	3.1	39.4	29.5
Progression Factor	0.50	0.20	1.00	1.00	1.00	1.00
Incremental Delay, d2	33.2	0.2	0.2	0.1	16.2	96.2
Delay (s)	46.4	3.6	29.9	3.2	55.6	125.7
Level of Service	D	A	C	A	E	F
Approach Delay (s)	40.9			11.2	112.2	
Approach LOS	D			B	F	

Intersection Summary

HCM Average Control Delay	52.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 24: Sepulveda Blvd Ramp & Alameda St

2035 MD Peak_Alt 2
 6/30/2009



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕	↔	↔	↕↕
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	1.00	0.95
Frt	0.99	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.96	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	2551	1076	1961	1183	1322	2054
Flt Permitted	0.96	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	2551	1076	1961	1183	1322	2054
Volume (vph)	230	210	800	140	170	640
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	221	842	147	179	674
RTOR Reduction (vph)	11	40	0	60	0	0
Lane Group Flow (vph)	250	162	842	87	179	674
Heavy Vehicles (%)	15%	15%	55%	15%	15%	48%
Turn Type		pm+ov		pm+ov	Prot	
Protected Phases	8	1	2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	11.1	23.5	24.5	35.6	12.4	40.9
Effective Green, g (s)	11.1	23.5	24.5	35.6	12.4	40.9
Actuated g/C Ratio	0.18	0.39	0.41	0.59	0.21	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	472	493	801	781	273	1400
v/s Ratio Prot	c0.10	0.07	c0.43	0.02	c0.14	0.33
v/s Ratio Perm		0.08		0.05		
v/c Ratio	0.53	0.33	1.05	0.11	0.66	0.48
Uniform Delay, d1	22.1	12.7	17.8	5.3	21.8	4.5
Progression Factor	1.00	1.00	1.00	1.00	1.16	0.66
Incremental Delay, d2	1.1	0.4	46.1	0.1	5.0	1.1
Delay (s)	23.2	13.1	63.8	5.4	30.3	4.1
Level of Service	C	B	E	A	C	A
Approach Delay (s)	18.8		55.2			9.6
Approach LOS	B		E			A

Intersection Summary

HCM Average Control Delay	31.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
25: Sepulveda Blvd & Alameda St Ramp

2035 MD Peak_Alt 2
6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.92			0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	0.96	1.00
Satd. Flow (prot)	1322	2643		1322	2438			2542		1256	1265	1183
Flt Permitted	0.95	1.00		0.95	1.00			1.00		0.95	0.96	1.00
Satd. Flow (perm)	1322	2643		1322	2438			2542		1256	1265	1183
Volume (vph)	110	310	0	10	280	300	0	30	10	190	10	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	326	0	11	295	316	0	32	11	200	11	116
RTOR Reduction (vph)	0	0	0	0	214	0	0	9	0	0	0	71
Lane Group Flow (vph)	116	326	0	11	397	0	0	34	0	103	108	45
Heavy Vehicles (%)	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Turn Type	Prot			Prot			Split			Split		pm+ov
Protected Phases	7	4		3	8		2	2		6	6	7
Permitted Phases												6
Actuated Green, G (s)	13.0	35.4		0.8	23.2			21.8		26.0	26.0	39.0
Effective Green, g (s)	13.0	35.4		0.8	23.2			21.8		26.0	26.0	39.0
Actuated g/C Ratio	0.13	0.35		0.01	0.23			0.22		0.26	0.26	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	172	936		11	566			554		327	329	509
v/s Ratio Prot	c0.09	0.12		0.01	c0.16			c0.01		0.08	c0.09	0.01
v/s Ratio Perm												0.03
v/c Ratio	0.67	0.35		1.00	0.70			0.06		0.31	0.33	0.09
Uniform Delay, d1	41.5	23.8		49.6	35.2			31.0		29.8	29.9	19.3
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00
Incremental Delay, d2	10.0	0.2		271.4	3.9			0.2		2.5	2.7	0.1
Delay (s)	51.5	24.0		321.0	39.1			31.2		32.3	32.6	19.3
Level of Service	D	C		F	D			C		C	C	B
Approach Delay (s)		31.2			44.1			31.2			27.8	
Approach LOS		C			D			C			C	

Intersection Summary

HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 27: Willow St & Pacific Ave

2035 MD Peak_Alt 2
 12/4/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1505	4276		1206	4196		1520	2556		1490	2830	
Flt Permitted	0.24	1.00		0.22	1.00		0.27	1.00		0.46	1.00	
Satd. Flow (perm)	377	4276		281	4196		431	2556		717	2830	
Volume (vph)	140	860	70	180	890	190	100	330	170	140	330	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	905	74	189	937	200	105	347	179	147	347	158
RTOR Reduction (vph)	0	10	0	0	40	0	0	87	0	0	69	0
Lane Group Flow (vph)	147	969	0	189	1097	0	105	439	0	147	436	0
Heavy Vehicles (%)	1%	1%	1%	26%	1%	3%	0%	4%	30%	2%	3%	1%
Turn Type	pm+pt		pm+pt		pm+pt		Perm					
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.0	25.0		27.9	27.9		24.9	24.9		18.0	18.0	
Effective Green, g (s)	25.0	25.0		27.9	27.9		24.9	24.9		18.0	18.0	
Actuated g/C Ratio	0.35	0.35		0.39	0.39		0.35	0.35		0.25	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	240	1491		236	1633		194	888		180	710	
v/s Ratio Prot	0.06	c0.23		c0.11	0.26		0.02	c0.17			0.15	
v/s Ratio Perm	0.15			c0.20			0.17			c0.21		
v/c Ratio	0.61	0.65		0.80	0.67		0.54	0.49		0.82	0.61	
Uniform Delay, d1	21.5	19.7		17.1	18.1		18.3	18.4		25.3	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.6	2.2		17.5	1.1		3.1	0.4		24.0	1.6	
Delay (s)	26.1	21.9		34.6	19.2		21.4	18.9		49.3	25.4	
Level of Service	C	C		C	B		C	B		D	C	
Approach Delay (s)		22.4			21.4			19.3			30.8	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM Average Control Delay			23.0	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			71.7	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			74.5%	ICU Level of Service				D				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd

























2035 MD Peak_Alt 2
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2951	1347	1490	2951	1236	1421	2841	1333	1421	2868	1333
Flt Permitted	0.61	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	943	2951	1347	632	2951	1236	1421	2841	1333	1421	2868	1333
Volume (vph)	100	290	80	280	220	110	110	680	330	100	770	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	305	84	295	232	116	116	716	347	105	811	63
RTOR Reduction (vph)	0	0	57	0	0	63	0	0	105	0	0	39
Lane Group Flow (vph)	105	305	27	295	232	53	116	716	242	105	811	24
Heavy Vehicles (%)	3%	3%	1%	2%	3%	10%	7%	7%	2%	7%	6%	2%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	24.7	19.6	28.5	39.8	30.7	40.6	8.9	27.4	43.6	9.9	28.4	33.5
Effective Green, g (s)	24.7	19.6	28.5	39.8	30.7	40.6	8.9	27.4	43.6	9.9	28.4	33.5
Actuated g/C Ratio	0.28	0.22	0.32	0.45	0.34	0.46	0.10	0.31	0.49	0.11	0.32	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	292	649	491	438	1017	563	142	874	652	158	914	561
v/s Ratio Prot	0.02	0.10	0.01	c0.12	0.08	0.01	0.08	c0.25	0.07	0.07	c0.28	0.00
v/s Ratio Perm	0.08		0.01	c0.18		0.03			0.11			0.02
v/c Ratio	0.36	0.47	0.05	0.67	0.23	0.09	0.82	0.82	0.37	0.66	0.89	0.04
Uniform Delay, d1	25.1	30.2	21.0	17.4	20.8	13.8	39.3	28.6	14.2	38.0	28.8	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	2.4	0.0	4.1	0.1	0.1	29.1	6.0	0.4	10.1	10.4	0.0
Delay (s)	25.8	32.7	21.0	21.5	20.9	13.9	68.4	34.6	14.6	48.1	39.2	17.7
Level of Service	C	C	C	C	C	B	E	C	B	D	D	B
Approach Delay (s)		29.2			19.9			32.0			38.8	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM Average Control Delay			31.2				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			89.1				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			73.8%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
42: Alondra Blvd & Long Beach Blvd

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2895	1308	1520	2868	1295	1448	2789	1308	1434	2841	1360
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2895	1308	1520	2868	1295	1448	2789	1308	1434	2841	1360
Volume (vph)	130	380	60	100	380	230	50	570	90	150	630	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	400	63	105	400	242	53	600	95	158	663	126
RTOR Reduction (vph)	0	0	45	0	0	88	0	0	50	0	0	56
Lane Group Flow (vph)	137	400	18	105	400	154	53	600	45	158	663	70
Heavy Vehicles (%)	0%	5%	4%	0%	6%	5%	5%	9%	4%	6%	7%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	8.0	20.1	28.1	8.0	20.1	37.0	8.0	39.0	47.0	16.9	47.9	55.9
Effective Green, g (s)	8.0	20.1	28.1	8.0	20.1	37.0	8.0	39.0	47.0	16.9	47.9	55.9
Actuated g/C Ratio	0.08	0.20	0.28	0.08	0.20	0.37	0.08	0.39	0.47	0.17	0.48	0.56
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	122	582	420	122	576	531	116	1088	667	242	1361	815
v/s Ratio Prot	c0.09	0.14	0.00	0.07	c0.14	0.05	0.04	c0.22	0.01	c0.11	0.23	0.01
v/s Ratio Perm			0.01			0.07			0.03			0.04
v/c Ratio	1.12	0.69	0.04	0.86	0.69	0.29	0.46	0.55	0.07	0.65	0.49	0.09
Uniform Delay, d1	46.0	37.0	26.2	45.4	37.1	22.2	43.9	23.7	14.5	38.8	17.7	10.2
Progression Factor	1.37	0.66	0.61	0.60	0.65	1.91	1.00	1.00	1.00	1.55	0.39	0.00
Incremental Delay, d2	112.6	2.9	0.0	33.1	2.6	0.2	2.8	2.0	0.0	1.7	0.3	0.0
Delay (s)	175.6	27.4	16.0	60.5	26.7	42.8	46.8	25.7	14.5	61.8	7.2	0.0
Level of Service	F	C	B	E	C	D	D	C	B	E	A	A
Approach Delay (s)		60.0			36.7			25.8			15.4	
Approach LOS		E			D			C			B	





























Intersection Summary

HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
43: Alondra Blvd & Atlantic Ave

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2895	1308	1462	2895	1193	1462	2951	1320	1267	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2895	1308	1462	2895	1193	1462	2951	1320	1267	2951	1333
Volume (vph)	80	560	80	120	570	320	100	230	120	290	270	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	589	84	126	600	337	105	242	126	305	284	74
RTOR Reduction (vph)	0	0	55	0	0	97	0	0	85	0	0	40
Lane Group Flow (vph)	84	589	29	126	600	240	105	242	41	305	284	34
Heavy Vehicles (%)	2%	5%	4%	4%	5%	14%	4%	3%	3%	20%	3%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	7.8	23.4	34.9	11.3	26.9	55.0	11.5	21.2	32.5	28.1	37.8	45.6
Effective Green, g (s)	7.8	23.4	34.9	11.3	26.9	55.0	11.5	21.2	32.5	28.1	37.8	45.6
Actuated g/C Ratio	0.08	0.23	0.35	0.11	0.27	0.55	0.12	0.21	0.32	0.28	0.38	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	677	509	165	779	704	168	626	482	356	1115	661
v/s Ratio Prot	0.06	c0.20	0.01	c0.09	c0.21	0.10	0.07	c0.08	0.01	c0.24	0.10	0.00
v/s Ratio Perm			0.02			0.11			0.02			0.02
v/c Ratio	0.72	0.87	0.06	0.76	0.77	0.34	0.62	0.39	0.08	0.86	0.25	0.05
Uniform Delay, d1	45.0	36.8	21.6	43.1	33.7	12.5	42.2	33.8	23.4	34.0	21.4	15.1
Progression Factor	1.36	0.55	0.57	1.19	1.00	0.39	1.00	1.00	1.00	0.61	0.64	0.41
Incremental Delay, d2	17.6	10.4	0.0	17.0	4.3	0.3	7.1	1.8	0.1	15.1	0.4	0.0
Delay (s)	78.8	30.8	12.4	68.3	38.1	5.1	49.3	35.6	23.5	35.7	14.1	6.3
Level of Service	E	C	B	E	D	A	D	D	C	D	B	A
Approach Delay (s)		34.1			31.2			35.4			23.2	
Approach LOS		C			C			D			C	

Intersection Summary		
HCM Average Control Delay	30.8	HCM Level of Service C
HCM Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 20.0
Intersection Capacity Utilization	66.2%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Alondra Blvd & Garfield Ave

























2035 MD Peak_Alt 2
5/27/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1462	2895	1271	1476	2843		1421	2868	1308	1462	2811	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1462	2895	1271	1476	2843		1421	2868	1308	1462	2811	
Volume (vph)	120	550	80	160	770	160	130	330	150	290	560	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	579	84	168	811	168	137	347	158	305	589	105
RTOR Reduction (vph)	0	0	49	0	18	0	0	0	82	0	14	0
Lane Group Flow (vph)	126	579	35	168	961	0	137	347	76	305	680	0
Heavy Vehicles (%)	4%	5%	7%	3%	4%	5%	7%	6%	4%	4%	6%	4%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	10.0	30.8	41.8	14.1	34.9		11.0	17.2	31.3	21.9	28.1	
Effective Green, g (s)	10.0	30.8	41.8	14.1	34.9		11.0	17.2	31.3	21.9	28.1	
Actuated g/C Ratio	0.10	0.31	0.42	0.14	0.35		0.11	0.17	0.31	0.22	0.28	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	146	892	582	208	992		156	493	462	320	790	
v/s Ratio Prot	0.09	0.20	0.01	c0.11	c0.34		0.10	0.12	0.02	c0.21	c0.24	
v/s Ratio Perm			0.02						0.04			
v/c Ratio	0.86	0.65	0.06	0.81	0.97		0.88	0.70	0.17	0.95	0.86	
Uniform Delay, d1	44.3	29.9	17.4	41.6	32.0		43.8	39.0	24.9	38.5	34.1	
Progression Factor	1.39	0.66	0.24	1.53	0.48		1.00	1.00	1.00	1.24	0.81	
Incremental Delay, d2	36.0	1.6	0.0	13.5	15.8		38.6	8.2	0.2	35.5	10.8	
Delay (s)	97.7	21.3	4.1	77.1	31.0		82.5	47.2	25.1	83.4	38.5	
Level of Service	F	C	A	E	C		F	D	C	F	D	
Approach Delay (s)		31.7			37.8			49.3			52.2	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM Average Control Delay			42.5	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			83.3%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 MD Peak_Alt 2
6/30/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1434	2895	1308	1490	2923	1295	1448	2895	1333	1434	2895	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1434	2895	1308	1490	2923	1295	1448	2895	1333	1434	2895	1308
Volume (vph)	130	690	130	170	740	210	170	540	150	170	580	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	726	137	179	779	221	179	568	158	179	611	105
RTOR Reduction (vph)	0	0	62	0	0	63	0	0	64	0	0	63
Lane Group Flow (vph)	137	726	75	179	779	158	179	568	94	179	611	42
Heavy Vehicles (%)	6%	5%	4%	2%	4%	5%	5%	5%	2%	6%	5%	4%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.6	27.2	41.6	14.3	29.9	44.9	14.4	27.5	41.8	15.0	28.1	39.7
Effective Green, g (s)	11.6	27.2	41.6	14.3	29.9	44.9	14.4	27.5	41.8	15.0	28.1	39.7
Actuated g/C Ratio	0.12	0.27	0.42	0.14	0.30	0.45	0.14	0.28	0.42	0.15	0.28	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	166	787	596	213	874	633	209	796	611	215	813	572
v/s Ratio Prot	0.10	0.25	0.02	c0.12	c0.27	0.04	0.12	0.20	0.02	c0.12	c0.21	0.01
v/s Ratio Perm			0.04			0.08			0.05			0.02
v/c Ratio	0.83	0.92	0.13	0.84	0.89	0.25	0.86	0.71	0.15	0.83	0.75	0.07
Uniform Delay, d1	43.2	35.4	18.0	41.7	33.5	17.1	41.8	32.7	18.1	41.3	32.8	18.7
Progression Factor	1.34	0.80	0.32	1.00	1.00	1.00	1.00	1.00	1.00	1.52	0.77	0.13
Incremental Delay, d2	19.2	11.6	0.1	24.6	11.3	0.2	27.4	5.4	0.1	20.4	5.4	0.0
Delay (s)	77.2	40.1	5.8	66.4	44.8	17.3	69.2	38.1	18.2	83.0	30.7	2.6
Level of Service	E	D	A	E	D	B	E	D	B	F	C	A
Approach Delay (s)		40.4			42.9			40.8			37.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2923	1320	1357	2951	1295	1476	2598	1193	1421	2739	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2923	1320	1357	2951	1295	1476	2598	1193	1421	2739	1320
Volume (vph)	80	570	60	110	590	70	100	270	50	100	260	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	600	63	116	621	74	105	284	53	105	274	63
RTOR Reduction (vph)	0	0	41	0	0	44	0	0	28	0	0	35
Lane Group Flow (vph)	84	600	22	116	621	30	105	284	25	105	274	28
Heavy Vehicles (%)	2%	4%	3%	12%	3%	5%	3%	17%	14%	7%	11%	3%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	9.5	24.8	35.5	13.1	28.4	40.5	10.7	34.0	47.1	12.1	35.4	44.9
Effective Green, g (s)	9.5	24.8	35.5	13.1	28.4	40.5	10.7	34.0	47.1	12.1	35.4	44.9
Actuated g/C Ratio	0.10	0.25	0.36	0.13	0.28	0.40	0.11	0.34	0.47	0.12	0.35	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	142	725	521	178	838	576	158	883	610	172	970	645
v/s Ratio Prot	0.06	c0.21	0.00	c0.09	c0.21	0.01	0.07	c0.11	0.01	c0.07	0.10	0.00
v/s Ratio Perm	0.01			0.02			0.02			0.02		
v/c Ratio	0.59	0.83	0.04	0.65	0.74	0.05	0.66	0.32	0.04	0.61	0.28	0.04
Uniform Delay, d1	43.4	35.6	21.1	41.3	32.5	18.1	42.9	24.5	14.3	41.7	23.2	15.5
Progression Factor	1.00	1.00	1.00	1.53	0.68	0.01	1.23	0.89	0.27	1.00	1.00	1.00
Incremental Delay, d2	6.5	7.7	0.0	0.8	0.3	0.0	8.3	0.8	0.0	6.3	0.7	0.0
Delay (s)	49.8	43.3	21.2	64.0	22.3	0.3	61.2	22.6	3.8	48.0	23.9	15.5
Level of Service	D	D	C	E	C	A	E	C	A	D	C	B
Approach Delay (s)	42.2				26.3				29.5			
Approach LOS	D				C				C			





















Intersection Summary

HCM Average Control Delay	32.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: Rosecrans Ave & Long Beach Blvd

























2035 MD Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1476	2736		1434	2781		1226	2814		1462	2871	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1476	2736		1434	2781		1226	2814		1462	2871	
Volume (vph)	140	510	110	100	590	210	140	750	140	120	830	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	537	116	105	621	221	147	789	147	126	874	137
RTOR Reduction (vph)	0	18	0	0	36	0	0	15	0	0	13	0
Lane Group Flow (vph)	147	635	0	105	806	0	147	921	0	126	998	0
Heavy Vehicles (%)	3%	6%	18%	6%	5%	5%	24%	5%	8%	4%	4%	2%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.0	28.4		9.6	28.0		12.0	37.0		9.0	34.0	
Effective Green, g (s)	10.0	28.4		9.6	28.0		12.0	37.0		9.0	34.0	
Actuated g/C Ratio	0.10	0.28		0.10	0.28		0.12	0.37		0.09	0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	777		138	779		147	1041		132	976	
v/s Ratio Prot	c0.10	0.23		0.07	c0.29		c0.12	c0.33		0.09	c0.35	
v/s Ratio Perm												
v/c Ratio	0.99	0.82		0.76	1.03		1.00	0.88		0.95	1.02	
Uniform Delay, d1	45.0	33.4		44.1	36.0		44.0	29.5		45.3	33.0	
Progression Factor	1.54	0.40		0.87	0.82		1.17	0.77		1.31	0.51	
Incremental Delay, d2	58.3	4.6		6.3	26.2		68.6	9.6		32.1	22.3	
Delay (s)	127.4	17.8		44.6	55.7		119.9	32.4		91.2	39.2	
Level of Service	F	B		D	E		F	C		F	D	
Approach Delay (s)		38.0			54.5			44.3			44.9	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			45.6			HCM Level of Service				D		
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			91.3%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave




























2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1476	2706		1462	2862		1310	2836		1407	2764	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1476	2706		1462	2862		1310	2836		1407	2764	
Volume (vph)	110	840	120	80	950	180	120	580	100	180	320	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	884	126	84	1000	189	126	611	105	189	337	105
RTOR Reduction (vph)	0	12	0	0	16	0	0	14	0	0	30	0
Lane Group Flow (vph)	116	998	0	84	1173	0	126	702	0	189	412	0
Heavy Vehicles (%)	3%	9%	19%	4%	4%	2%	16%	5%	4%	8%	7%	3%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.0	38.7		8.3	39.0		13.0	24.0		13.0	24.0	
Effective Green, g (s)	8.0	38.7		8.3	39.0		13.0	24.0		13.0	24.0	
Actuated g/C Ratio	0.08	0.39		0.08	0.39		0.13	0.24		0.13	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	118	1047		121	1116		170	681		183	663	
v/s Ratio Prot	c0.08	0.37		0.06	c0.41		0.10	c0.25		c0.13	0.15	
v/s Ratio Perm												
v/c Ratio	0.98	0.95		0.69	1.05		0.74	1.03		1.03	0.62	
Uniform Delay, d1	45.9	29.8		44.6	30.5		41.9	38.0		43.5	33.9	
Progression Factor	0.87	0.63		1.00	1.00		0.86	0.85		0.65	0.74	
Incremental Delay, d2	68.1	15.0		15.9	41.4		15.2	41.9		64.0	3.0	
Delay (s)	108.1	33.8		60.5	71.9		51.3	74.4		92.1	28.2	
Level of Service	F	C		E	E		D	E		F	C	
Approach Delay (s)		41.5			71.2			70.9			47.3	
Approach LOS		D			E			E			D	
Intersection Summary												
HCM Average Control Delay			58.6			HCM Level of Service				E		
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			93.2%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 51: Rosecrans Ave & Garfield Ave

2035 MD Peak_Alt 2
 6/30/2009
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	3806		1434	2841	1308	1407	2868	1283	1476	2868	1308
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	3806		1434	2841	1308	1407	2868	1283	1476	2868	1308
Volume (vph)	170	530	100	150	620	190	140	470	110	220	450	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	558	105	158	653	200	147	495	116	232	474	221
RTOR Reduction (vph)	0	28	0	0	0	73	0	0	72	0	0	69
Lane Group Flow (vph)	179	635	0	158	653	127	147	495	44	232	474	152
Heavy Vehicles (%)	4%	13%	7%	6%	7%	4%	8%	6%	6%	3%	6%	4%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	14.9	27.6		13.9	26.6	44.8	13.2	24.3	38.2	18.2	29.3	44.2
Effective Green, g (s)	14.9	27.6		13.9	26.6	44.8	13.2	24.3	38.2	18.2	29.3	44.2
Actuated g/C Ratio	0.15	0.28		0.14	0.27	0.45	0.13	0.24	0.38	0.18	0.29	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	218	1050		199	756	638	186	697	541	269	840	630
v/s Ratio Prot	c0.12	0.17		0.11	c0.23	0.04	0.10	c0.17	0.01	c0.16	0.17	0.04
v/s Ratio Perm						0.06			0.02			0.08
v/c Ratio	0.82	0.61		0.79	0.86	0.20	0.79	0.71	0.08	0.86	0.56	0.24
Uniform Delay, d1	41.3	31.5		41.7	35.0	16.7	42.1	34.6	19.7	39.7	29.9	17.4
Progression Factor	1.00	1.00		1.38	0.64	0.07	1.20	0.82	0.16	1.17	0.80	0.15
Incremental Delay, d2	21.3	1.0		15.2	7.9	0.1	15.1	4.4	0.0	21.9	2.5	0.2
Delay (s)	62.6	32.5		72.9	30.4	1.3	65.5	33.0	3.1	68.3	26.4	2.8
Level of Service	E	C		E	C	A	E	C	A	E	C	A
Approach Delay (s)		38.9			31.3			34.7			31.3	
Approach LOS		D			C			C			C	

Intersection Summary		
HCM Average Control Delay	33.8	HCM Level of Service C
HCM Volume to Capacity ratio	0.81	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	74.8%	ICU Level of Service D
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1310	2868	1283	1476	2895	1295	1434	2721		1434	2895	1248
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1310	2868	1283	1476	2895	1295	1434	2721		1434	2895	1248
Volume (vph)	180	530	140	190	520	120	150	440	250	130	480	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	558	147	200	547	126	158	463	263	137	505	179
RTOR Reduction (vph)	0	0	94	0	0	84	0	76	0	0	0	65
Lane Group Flow (vph)	189	558	53	200	547	42	158	650	0	137	505	114
Heavy Vehicles (%)	16%	6%	6%	3%	5%	5%	6%	6%	5%	6%	5%	9%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	17.2	22.2	36.1	16.4	21.4	33.7	13.9	33.1		12.3	31.5	48.7
Effective Green, g (s)	17.2	22.2	36.1	16.4	21.4	33.7	13.9	33.1		12.3	31.5	48.7
Actuated g/C Ratio	0.17	0.22	0.36	0.16	0.21	0.34	0.14	0.33		0.12	0.32	0.49
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	225	637	514	242	620	488	199	901		176	912	658
v/s Ratio Prot	c0.14	c0.19	0.01	0.14	0.19	0.01	c0.11	c0.24		0.10	0.17	0.03
v/s Ratio Perm			0.03			0.02						0.06
v/c Ratio	0.84	0.88	0.10	0.83	0.88	0.09	0.79	0.72		0.78	0.55	0.17
Uniform Delay, d1	40.1	37.6	21.2	40.4	38.1	22.6	41.7	29.4		42.5	28.4	14.4
Progression Factor	1.61	0.74	0.10	1.00	1.00	1.00	1.40	0.56		1.48	0.72	0.22
Incremental Delay, d2	18.9	10.4	0.1	20.1	13.9	0.1	15.3	3.9		12.3	1.5	0.1
Delay (s)	83.3	38.0	2.2	60.5	52.0	22.7	73.6	20.3		75.3	21.9	3.2
Level of Service	F	D	A	E	D	C	E	C		E	C	A
Approach Delay (s)		41.7			49.7			29.8			26.7	
Approach LOS		D			D			C			C	































Intersection Summary

HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Imperial Hwy & Long Beach Blvd

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1520	2923	1271	1421	2951	1333	1421	4121	1308	1490	4048	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1520	2923	1271	1421	2951	1333	1421	4121	1308	1490	4048	
Volume (vph)	120	620	270	330	610	80	240	800	340	190	830	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	653	284	347	642	84	253	842	358	200	874	95
RTOR Reduction (vph)	0	0	33	0	0	50	0	0	41	0	13	0
Lane Group Flow (vph)	126	653	251	347	642	34	253	842	317	200	956	0
Heavy Vehicles (%)	0%	4%	7%	7%	3%	2%	7%	6%	4%	2%	7%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	17.3	23.0	40.0	21.0	26.7	40.7	17.0	26.0	47.0	14.0	23.0	
Effective Green, g (s)	17.3	23.0	40.0	21.0	26.7	40.7	17.0	26.0	47.0	14.0	23.0	
Actuated g/C Ratio	0.17	0.23	0.40	0.21	0.27	0.41	0.17	0.26	0.47	0.14	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	263	672	559	298	788	596	242	1071	667	209	931	
v/s Ratio Prot	0.08	c0.22	0.08	c0.24	0.22	0.01	c0.18	0.20	0.10	0.13	c0.24	
v/s Ratio Perm			0.12			0.02			0.14			
v/c Ratio	0.48	0.97	0.45	1.16	0.81	0.06	1.05	0.79	0.47	0.96	1.03	
Uniform Delay, d1	37.3	38.2	21.9	39.5	34.3	18.0	41.5	34.4	18.1	42.7	38.5	
Progression Factor	0.68	1.19	1.65	0.65	0.70	0.82	0.95	0.77	0.45	0.81	0.78	
Incremental Delay, d2	1.2	25.1	0.5	96.3	4.5	0.0	59.2	3.9	0.4	48.0	35.8	
Delay (s)	26.6	70.4	36.7	121.9	28.5	14.8	98.7	30.4	8.5	82.6	65.8	
Level of Service	C	E	D	F	C	B	F	C	A	F	E	
Approach Delay (s)		56.2			57.6			36.9			68.7	
Approach LOS		E			E			D			E	




























Intersection Summary

HCM Average Control Delay	53.7	HCM Level of Service	D
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1448	2867		1476	2855		1520	2789	1320	1476	2667	1295
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1448	2867		1476	2855		1520	2789	1320	1476	2667	1295
Volume (vph)	100	750	80	170	710	140	110	310	220	280	440	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	789	84	179	747	147	116	326	232	295	463	147
RTOR Reduction (vph)	0	8	0	0	17	0	0	0	62	0	0	75
Lane Group Flow (vph)	105	865	0	179	877	0	116	326	170	295	463	72
Heavy Vehicles (%)	5%	5%	0%	3%	4%	3%	0%	9%	3%	3%	14%	5%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	8.0	30.3		13.0	35.3		10.4	19.7	32.7	21.0	30.3	38.3
Effective Green, g (s)	8.0	30.3		13.0	35.3		10.4	19.7	32.7	21.0	30.3	38.3
Actuated g/C Ratio	0.08	0.30		0.13	0.35		0.10	0.20	0.33	0.21	0.30	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	869		192	1008		158	549	484	310	808	548
v/s Ratio Prot	0.07	c0.30		c0.12	0.31		0.08	0.12	0.05	c0.20	c0.17	0.01
v/s Ratio Perm								0.08				0.04
v/c Ratio	0.91	0.99		0.93	0.87		0.73	0.59	0.35	0.95	0.57	0.13
Uniform Delay, d1	45.6	34.8		43.1	30.2		43.5	36.5	25.6	39.0	29.4	20.0
Progression Factor	1.11	1.10		1.48	0.34		0.74	1.14	1.76	1.02	0.59	0.23
Incremental Delay, d2	35.6	20.8		35.1	5.7		1.6	0.4	0.0	32.2	2.2	0.1
Delay (s)	86.5	58.9		98.7	15.8		33.7	42.1	45.0	72.1	19.7	4.7
Level of Service	F	E		F	B		C	D	D	E	B	A
Approach Delay (s)		61.9			29.7			41.6			34.3	
Approach LOS		E			C			D			C	
Intersection Summary												
HCM Average Control Delay			41.7			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd

2035 MD Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗↘		↖	↖↗↘		↖↗	↖↗	↖	↖	↖↗	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4083		1505	4036		2891	2714	1320	1476	2764	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4083		1505	4036		2891	2714	1320	1476	2764	1333
Volume (vph)	260	810	200	150	700	130	220	620	130	120	640	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	853	211	158	737	137	232	653	137	126	674	337
RTOR Reduction (vph)	0	43	0	0	28	0	0	0	46	0	0	23
Lane Group Flow (vph)	274	1021	0	158	846	0	232	653	91	126	674	314
Heavy Vehicles (%)	2%	4%	3%	1%	6%	4%	2%	12%	3%	3%	10%	2%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	11.8	26.6		13.2	28.0		10.4	33.0	46.2	11.2	33.8	45.6
Effective Green, g (s)	11.8	26.6		13.2	28.0		10.4	33.0	46.2	11.2	33.8	45.6
Actuated g/C Ratio	0.12	0.27		0.13	0.28		0.10	0.33	0.46	0.11	0.34	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	341	1086		199	1130		301	896	663	165	934	661
v/s Ratio Prot	0.09	c0.25		c0.10	0.21		0.08	0.24	0.02	c0.09	c0.24	0.06
v/s Ratio Perm									0.05			0.18
v/c Ratio	0.80	0.94		0.79	0.75		0.77	0.73	0.14	0.76	0.72	0.48
Uniform Delay, d1	43.0	35.9		42.1	32.8		43.6	29.6	15.4	43.1	29.0	18.9
Progression Factor	1.06	1.63		1.00	1.00		0.93	1.29	1.28	0.99	0.62	0.79
Incremental Delay, d2	8.0	10.0		19.2	2.8		10.1	4.5	0.1	15.9	4.0	0.4
Delay (s)	53.5	68.5		61.3	35.6		50.9	42.5	19.9	58.7	22.1	15.4
Level of Service	D	E		E	D		D	D	B	E	C	B
Approach Delay (s)		65.4			39.5			41.4			24.1	
Approach LOS		E			D			D			C	




























Intersection Summary

HCM Average Control Delay	43.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: Firestone Blvd & California Ave

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2923	1333	1476	2923	1347	1490	2908		1505	2837	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2923	1333	1476	2923	1347	1490	2908		1505	2837	
Volume (vph)	40	1430	70	60	1420	60	70	460	50	110	570	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1505	74	63	1495	63	74	484	53	116	600	63
RTOR Reduction (vph)	0	0	29	0	0	25	0	9	0	0	8	0
Lane Group Flow (vph)	42	1505	45	63	1495	38	74	528	0	116	655	0
Heavy Vehicles (%)	2%	4%	2%	3%	4%	1%	2%	3%	3%	1%	6%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	3.2	50.8	55.8	5.0	52.6	60.6	5.0	20.2		8.0	23.2	
Effective Green, g (s)	3.2	50.8	55.8	5.0	52.6	60.6	5.0	20.2		8.0	23.2	
Actuated g/C Ratio	0.03	0.51	0.56	0.05	0.53	0.61	0.05	0.20		0.08	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	48	1485	797	74	1537	870	75	587		120	658	
v/s Ratio Prot	0.03	c0.51	0.00	c0.04	0.51	0.00	0.05	0.18		c0.08	c0.23	
v/s Ratio Perm			0.03			0.02						
v/c Ratio	0.88	1.01	0.06	0.85	0.97	0.04	0.99	0.90		0.97	1.00	
Uniform Delay, d1	48.2	24.6	10.1	47.1	23.0	8.0	47.5	38.9		45.9	38.4	
Progression Factor	1.08	0.95	0.88	1.45	0.29	0.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.5	23.6	0.0	8.5	2.9	0.0	98.6	19.3		71.0	34.1	
Delay (s)	121.6	46.9	8.9	76.9	9.7	0.0	146.1	58.2		116.9	72.5	
Level of Service	F	D	A	E	A	A	F	E		F	E	
Approach Delay (s)		47.1			11.9			68.9			79.1	
Approach LOS		D			B			E			E	





























Intersection Summary

HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group























HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd

2035 MD Peak_Alt 2
5/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	4071		1476	4054		1505	2714	1320	1490	2789	1295
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	4071		1476	4054		1505	2714	1320	1490	2789	1295
Volume (vph)	200	830	100	200	850	130	130	590	110	130	530	310
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	874	105	211	895	137	137	621	116	137	558	326
RTOR Reduction (vph)	0	14	0	0	20	0	0	0	47	0	0	52
Lane Group Flow (vph)	211	965	0	211	1012	0	137	621	69	137	558	274
Heavy Vehicles (%)	4%	6%	2%	3%	6%	3%	1%	12%	3%	2%	9%	5%
Turn Type	Prot			Prot			Prot	pm+ov	Prot	pm+ov		
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	17.1	28.2		16.8	27.9		12.1	27.5	44.3	11.5	26.9	44.0
Effective Green, g (s)	17.1	28.2		16.8	27.9		12.1	27.5	44.3	11.5	26.9	44.0
Actuated g/C Ratio	0.17	0.28		0.17	0.28		0.12	0.28	0.44	0.12	0.27	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	250	1148		248	1131		182	746	638	171	750	622
v/s Ratio Prot	c0.14	0.24		0.14	c0.25		0.09	c0.23	0.02	c0.09	0.20	0.08
v/s Ratio Perm									0.03			0.14
v/c Ratio	0.84	0.84		0.85	0.89		0.75	0.83	0.11	0.80	0.74	0.44
Uniform Delay, d1	40.2	33.8		40.4	34.6		42.5	34.1	16.3	43.1	33.4	19.4
Progression Factor	1.50	0.61		1.00	1.00		0.98	1.42	1.31	1.00	1.00	1.00
Incremental Delay, d2	16.8	4.2		23.3	9.3		10.7	7.0	0.0	23.0	6.6	0.5
Delay (s)	77.0	24.7		63.7	43.9		52.4	55.3	21.4	66.1	40.0	19.9
Level of Service	E	C		E	D		D	E	C	E	D	B
Approach Delay (s)		33.9			47.3			50.4			37.1	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM Average Control Delay			41.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			77.4%			ICU Level of Service				D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St































2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2923	1308	1434	2901		1476	2763		1476	2815	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2923	1308	1434	2901		1476	2763		1476	2815	
Volume (vph)	70	740	170	170	780	100	160	650	210	90	560	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	779	179	179	821	105	168	684	221	95	589	63
RTOR Reduction (vph)	0	0	50	0	10	0	0	30	0	0	8	0
Lane Group Flow (vph)	74	779	129	179	916	0	168	875	0	95	644	0
Heavy Vehicles (%)	2%	4%	4%	6%	3%	3%	3%	6%	6%	3%	7%	1%
Turn Type	Prot		pm+ov	Prot			Prot			Prot		
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	8.1	32.2	43.2	11.0	35.1		11.0	32.2		8.6	29.8	
Effective Green, g (s)	8.1	32.2	43.2	11.0	35.1		11.0	32.2		8.6	29.8	
Actuated g/C Ratio	0.08	0.32	0.43	0.11	0.35		0.11	0.32		0.09	0.30	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	121	941	617	158	1018		162	890		127	839	
v/s Ratio Prot	0.05	0.27	0.02	c0.12	c0.32		c0.11	c0.32		0.06	0.23	
v/s Ratio Perm			0.08									
v/c Ratio	0.61	0.83	0.21	1.13	0.90		1.04	0.98		0.75	0.77	
Uniform Delay, d1	44.4	31.3	17.7	44.5	30.8		44.5	33.6		44.6	32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.07	0.86		1.26	0.83	
Incremental Delay, d2	8.8	8.3	0.2	111.8	12.5		78.6	25.5		7.6	2.2	
Delay (s)	53.3	39.6	17.9	156.3	43.3		126.3	54.5		64.0	28.7	
Level of Service	D	D	B	F	D		F	D		E	C	
Approach Delay (s)		36.9			61.6			65.8			33.2	
Approach LOS		D			E			E			C	
Intersection Summary												
HCM Average Control Delay			50.9			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			84.0%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1462	2895	1333	1490	2923	1295	1490	2868	1333	2808	2827	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1462	2895	1333	1490	2923	1295	1490	2868	1333	2808	2827	
Volume (vph)	110	1160	130	160	1270	170	150	570	150	290	740	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	1221	137	168	1337	179	158	600	158	305	779	95
RTOR Reduction (vph)	0	0	22	0	0	32	0	0	10	0	9	0
Lane Group Flow (vph)	116	1221	115	168	1337	147	158	600	148	305	865	0
Heavy Vehicles (%)	4%	5%	2%	2%	4%	5%	2%	6%	2%	5%	6%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	7.0	38.0	47.0	9.0	40.0	51.0	9.0	26.0	35.0	11.0	28.0	
Effective Green, g (s)	7.0	38.0	47.0	9.0	40.0	51.0	9.0	26.0	35.0	11.0	28.0	
Actuated g/C Ratio	0.07	0.38	0.47	0.09	0.40	0.51	0.09	0.26	0.35	0.11	0.28	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	1100	627	134	1169	712	134	746	467	309	792	
v/s Ratio Prot	0.08	c0.42	0.02	0.11	c0.46	0.02	c0.11	0.21	0.03	0.11	c0.31	
v/s Ratio Perm			0.07			0.09			0.08			
v/c Ratio	1.14	1.11	0.18	1.25	1.14	0.21	1.18	0.80	0.32	0.99	1.09	
Uniform Delay, d1	46.5	31.0	15.4	45.5	30.0	13.4	45.5	34.6	23.8	44.4	36.0	
Progression Factor	0.77	0.92	0.85	0.76	0.64	0.43	1.38	0.63	0.58	0.69	0.79	
Incremental Delay, d2	96.6	55.0	0.1	136.2	69.2	0.1	126.5	7.5	0.3	40.3	56.0	
Delay (s)	132.4	83.5	13.1	170.9	88.5	5.8	189.4	29.4	14.1	71.0	84.4	
Level of Service	F	F	B	F	F	A	F	C	B	E	F	
Approach Delay (s)		80.8			87.9			54.4			81.0	
Approach LOS		F			F			D			F	

























Intersection Summary

HCM Average Control Delay	78.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St

2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1434	2843		1434	2808		1476	2825		1434	2786	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1434	2843		1434	2808		1476	2825		1434	2786	
Volume (vph)	90	790	60	90	790	70	40	460	50	110	470	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	832	63	95	832	74	42	484	53	116	495	116
RTOR Reduction (vph)	0	6	0	0	7	0	0	8	0	0	19	0
Lane Group Flow (vph)	95	889	0	95	899	0	42	529	0	116	592	0
Heavy Vehicles (%)	6%	6%	3%	6%	7%	6%	3%	6%	6%	6%	6%	6%
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.0	36.4		8.0	36.4		4.8	31.6		8.0	34.8	
Effective Green, g (s)	8.0	36.4		8.0	36.4		4.8	31.6		8.0	34.8	
Actuated g/C Ratio	0.08	0.36		0.08	0.36		0.05	0.32		0.08	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	115	1035		115	1022		71	893		115	970	
v/s Ratio Prot	c0.07	0.31		0.07	c0.32		0.03	0.19		c0.08	c0.21	
v/s Ratio Perm												
v/c Ratio	0.83	0.86		0.83	0.88		0.59	0.59		1.01	0.61	
Uniform Delay, d1	45.3	29.4		45.3	29.8		46.6	28.8		46.0	27.0	
Progression Factor	1.00	1.00		1.00	1.00		1.59	0.21		1.00	1.00	
Incremental Delay, d2	36.2	9.3		36.2	10.7		5.2	1.2		86.3	2.9	
Delay (s)	81.5	38.7		81.5	40.5		79.3	7.3		132.3	29.8	
Level of Service	F	D		F	D		E	A		F	C	
Approach Delay (s)		42.8			44.4			12.5			46.2	
Approach LOS		D			D			B			D	
Intersection Summary												
HCM Average Control Delay			38.7			HCM Level of Service		D				
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)		16.0				
Intersection Capacity Utilization			72.1%			ICU Level of Service		C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 MD Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1394	2895	1333	1476	2841	1308	1490	2780		1448	2685	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1394	2895	1333	1476	2841	1308	1490	2780		1448	2685	
Volume (vph)	140	850	70	80	790	150	240	250	120	200	370	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	895	74	84	832	158	253	263	126	211	389	221
RTOR Reduction (vph)	0	0	33	0	0	80	0	57	0	0	80	0
Lane Group Flow (vph)	147	895	41	84	832	78	253	332	0	211	530	0
Heavy Vehicles (%)	9%	5%	2%	3%	7%	4%	2%	5%	2%	5%	6%	9%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	12.0	37.4	55.9	6.4	31.8	49.1	18.5	22.9		17.3	21.7	
Effective Green, g (s)	12.0	37.4	55.9	6.4	31.8	49.1	18.5	22.9		17.3	21.7	
Actuated g/C Ratio	0.12	0.37	0.56	0.06	0.32	0.49	0.18	0.23		0.17	0.22	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	167	1083	798	94	903	695	276	637		251	583	
v/s Ratio Prot	c0.11	0.31	0.01	0.06	c0.29	0.02	c0.17	0.12		0.15	c0.20	
v/s Ratio Perm			0.02			0.04						
v/c Ratio	0.88	0.83	0.05	0.89	0.92	0.11	0.92	0.52		0.84	0.91	
Uniform Delay, d1	43.3	28.4	10.0	46.5	32.9	13.7	40.0	33.7		40.0	38.2	
Progression Factor	1.17	1.05	0.15	1.29	0.56	0.03	1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.7	2.4	0.0	37.9	8.4	0.0	32.8	3.0		21.6	20.6	
Delay (s)	71.4	32.1	1.6	97.8	26.7	0.5	72.8	36.8		61.6	58.8	
Level of Service	E	C	A	F	C	A	E	D		E	E	
Approach Delay (s)		35.2			28.4			51.0			59.5	
Approach LOS		D			C			D			E	

Intersection Summary

HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
74: Bandini Blvd & Atlantic Ave

2035 MD Peak_Alt 2
6/30/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↑	↔	↔	↑↑↑↑		↔	↔↔↔	↔
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.86	0.86		1.00	1.00	1.00	1.00	0.81		1.00	0.86	0.86
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1157	2723		1322	1221	1162	1505	5964		1357	3931	1073
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1157	2723		1322	1221	1162	1505	5964		1357	3931	1073
Volume (vph)	310	550	350	170	170	360	60	1230	240	80	720	460
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	579	368	179	179	379	63	1295	253	84	758	484
RTOR Reduction (vph)	0	78	0	0	0	146	0	23	0	0	0	0
Lane Group Flow (vph)	326	869	0	179	179	233	63	1525	0	84	758	484
Heavy Vehicles (%)	13%	14%	88%	15%	31%	17%	1%	5%	11%	12%	5%	9%
Turn Type	Split			Split		pm+ov	Prot			Prot		Free
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8						Free
Actuated Green, G (s)	50.8	50.8		22.3	22.3	34.2	8.5	41.0		11.9	44.4	150.0
Effective Green, g (s)	52.8	52.8		24.3	24.3	38.2	10.5	43.0		13.9	46.4	150.0
Actuated g/C Ratio	0.35	0.35		0.16	0.16	0.25	0.07	0.29		0.09	0.31	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	958		214	198	327	105	1710		126	1216	1073
v/s Ratio Prot	0.28	c0.32		0.14	c0.15	c0.07	0.04	c0.26		0.06	0.19	
v/s Ratio Perm						0.13						c0.45
v/c Ratio	0.80	1.14dr		0.84	0.90	0.71	0.60	0.89		0.67	0.62	0.45
Uniform Delay, d1	43.9	46.3		60.9	61.7	50.9	67.7	51.3		65.8	44.3	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	15.2	13.8		23.7	38.2	7.2	8.9	7.5		12.5	2.4	1.4
Delay (s)	59.1	60.1		84.6	99.9	58.1	76.6	58.8		78.4	46.7	1.4
Level of Service	E	E		F	F	E	E	E		E	D	A
Approach Delay (s)	59.8			74.7		59.5		32.2				
Approach LOS	E			E		E		C				
Intersection Summary												
HCM Average Control Delay	54.5		HCM Level of Service				D					
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	150.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization	79.3%		ICU Level of Service				D					
Analysis Period (min)	15											
dr Defacto Right Lane. Recode with 1 though lane as a right lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 126: Washington Blvd & I 710 SB

2035 MD Peak_Alt 2
 6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑			↕		↖	↕	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00		0.95	0.91	0.95
Frt	1.00	1.00		1.00	0.96			0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	0.95	1.00
Satd. Flow (prot)	1000	3900		1246	3556			1193		1313	1257	1154
Flt Permitted	0.95	1.00		0.95	1.00			0.83		0.74	0.74	1.00
Satd. Flow (perm)	1000	3900		1246	3556			1014		1027	983	1154
Volume (vph)	230	710	0	10	770	310	10	0	10	820	0	420
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	747	0	11	811	326	11	0	11	863	0	442
RTOR Reduction (vph)	0	0	0	0	120	0	0	7	0	0	0	287
Lane Group Flow (vph)	242	747	0	11	1017	0	0	15	0	432	431	155
Heavy Vehicles (%)	52%	12%	22%	22%	21%	9%	22%	0%	22%	10%	22%	12%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	10.0	25.4		1.6	17.0			21.0		21.0	21.0	21.0
Effective Green, g (s)	10.0	25.4		1.6	17.0			21.0		21.0	21.0	21.0
Actuated g/C Ratio	0.17	0.42		0.03	0.28			0.35		0.35	0.35	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	167	1651		33	1008			355		359	344	404
v/s Ratio Prot	c0.24	0.19		0.01	c0.29							
v/s Ratio Perm								0.01		0.42	c0.44	0.13
v/c Ratio	1.45	0.45		0.33	1.01			0.04		1.20	1.25	0.38
Uniform Delay, d1	25.0	12.3		28.7	21.5			12.9		19.5	19.5	14.6
Progression Factor	1.00	1.00		0.71	0.50			1.00		1.00	1.00	1.00
Incremental Delay, d2	232.3	0.9		4.8	27.7			0.2		115.1	135.6	2.7
Delay (s)	257.3	13.2		25.1	38.4			13.1		134.6	155.1	17.4
Level of Service	F	B		C	D			B		F	F	B
Approach Delay (s)		73.0			38.3			13.1			101.7	
Approach LOS		E			D			B			F	



























Intersection Summary

HCM Average Control Delay	71.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 148: Wardlow Rd & Cherry Ave



























2035 MD Peak_Alt 2
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91		0.91	0.91		1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.94		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	0.99		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1356	2640		1356	2715		1462	2923	1308	1448	4085	
Flt Permitted	0.95	0.99		0.95	0.98		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1356	2640		1356	2715		1462	2923	1308	1448	4085	
Volume (vph)	200	100	130	210	80	40	220	1200	250	50	1160	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	105	137	221	84	42	232	1263	263	53	1221	168
RTOR Reduction (vph)	0	100	0	0	13	0	0	0	61	0	12	0
Lane Group Flow (vph)	132	221	0	113	221	0	232	1263	202	53	1377	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	5%	5%	5%
Turn Type	Split		Split		Prot		pm+ov		Prot			
Protected Phases	4	4		8	8	5	2	8		1	6	
Permitted Phases							2					
Actuated Green, G (s)	15.6	15.6		14.5	14.5		22.8	70.7	85.2	6.1	54.0	
Effective Green, g (s)	15.6	15.6		14.5	14.5		22.8	70.7	85.2	6.1	54.0	
Actuated g/C Ratio	0.13	0.13		0.12	0.12		0.19	0.58	0.69	0.05	0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	172	335		160	320		271	1681	907	72	1795	
v/s Ratio Prot	c0.10	0.08		c0.08	0.08		c0.16	c0.43	0.03	0.04	0.34	
v/s Ratio Perm							0.13					
v/c Ratio	0.77	0.66		0.71	0.69		0.86	0.75	0.22	0.74	0.77	
Uniform Delay, d1	51.9	51.1		52.2	52.0		48.5	19.5	6.8	57.6	29.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	18.3	4.8		13.3	6.1		22.3	3.1	0.1	32.0	3.2	
Delay (s)	70.2	56.0		65.4	58.1		70.8	22.7	7.0	89.6	32.3	
Level of Service	E	E		E	E		E	C	A	F	C	
Approach Delay (s)	60.1		60.5		26.7		34.4					
Approach LOS	E		E		C		C					
Intersection Summary												
HCM Average Control Delay	36.2		HCM Level of Service		D							
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	122.9		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	76.3%		ICU Level of Service		D							
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 MD Peak_Alt 2
 1/11/2010

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1394	2868	1320	1448	2841	1308	1476	2777		1434	2714	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1394	2868	1320	1448	2841	1308	1476	2777		1434	2714	
Volume (vph)	140	760	80	160	700	90	100	490	110	130	550	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	800	84	168	737	95	105	516	116	137	579	168
RTOR Reduction (vph)	0	0	58	0	0	66	0	19	0	0	27	0
Lane Group Flow (vph)	147	800	26	168	737	29	105	613	0	137	720	0
Heavy Vehicles (%)	9%	6%	3%	5%	7%	4%	3%	7%	4%	6%	8%	9%
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	13.2	30.4	30.4	13.6	30.8	30.8	8.8	28.4		11.6	31.2	
Effective Green, g (s)	13.2	30.4	30.4	13.6	30.8	30.8	8.8	28.4		11.6	31.2	
Actuated g/C Ratio	0.13	0.30	0.30	0.14	0.31	0.31	0.09	0.28		0.12	0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	872	401	197	875	403	130	789		166	847	
v/s Ratio Prot	0.11	c0.28		c0.12	0.26		0.07	0.22		c0.10	c0.27	
v/s Ratio Perm			0.02			0.02						
v/c Ratio	0.80	0.92	0.06	0.85	0.84	0.07	0.81	0.78		0.83	0.85	
Uniform Delay, d1	42.1	33.6	24.7	42.2	32.3	24.5	44.8	32.9		43.2	32.2	
Progression Factor	1.00	1.00	1.00	1.24	0.83	1.01	1.41	0.57		0.98	0.57	
Incremental Delay, d2	21.0	14.2	0.1	12.3	2.8	0.0	22.0	5.3		15.2	5.5	
Delay (s)	63.1	47.8	24.8	64.5	29.8	24.9	85.0	24.1		57.5	23.8	
Level of Service	E	D	C	E	C	C	F	C		E	C	
Approach Delay (s)		48.1			35.2			32.8			29.0	
Approach LOS		D			D			C			C	

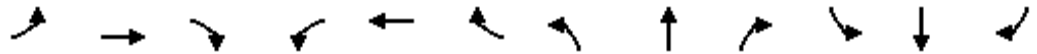
Intersection Summary

HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave

2035 MD Peak_Alt 2
 6/30/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕		↕	↕↕		↕	↕↕	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	
Frt		0.97			0.98		1.00	0.97		1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		2817			2829		1476	2787		1434	2818	
Flt Permitted		1.00			1.00		0.33	1.00		0.25	1.00	
Satd. Flow (perm)		2817			2829		517	2787		370	2818	
Volume (vph)	40	570	130	50	500	70	60	510	140	60	460	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	600	137	53	526	74	63	537	147	63	484	63
RTOR Reduction (vph)	0	18	0	0	11	0	0	23	0	0	9	0
Lane Group Flow (vph)	0	761	0	0	642	0	63	661	0	63	538	0
Heavy Vehicles (%)	4%	5%	4%	2%	6%	2%	3%	6%	4%	6%	6%	6%
Turn Type	Split		Split				Perm		Perm			
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		29.6			24.7		33.7	33.7		33.7	33.7	
Effective Green, g (s)		29.6			24.7		33.7	33.7		33.7	33.7	
Actuated g/C Ratio		0.30			0.25		0.34	0.34		0.34	0.34	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		834			699		174	939		125	950	
v/s Ratio Prot		c0.27			c0.23			c0.24			0.19	
v/s Ratio Perm							0.12			0.17		
v/c Ratio		0.91			0.92		0.36	0.70		0.50	0.57	
Uniform Delay, d1		33.9			36.7		25.0	28.8		26.5	27.2	
Progression Factor		0.65			0.61		0.80	0.82		1.00	1.00	
Incremental Delay, d2		12.7			15.1		2.9	2.2		13.8	2.4	
Delay (s)		34.9			37.4		22.9	25.8		40.3	29.6	
Level of Service		C			D		C	C		D	C	
Approach Delay (s)		34.9			37.4			25.5			30.7	
Approach LOS		C			D			C			C	























Intersection Summary

HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
153: Gage Ave & Santa Fe Ave
































2035 MD Peak_Alt 2
6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	2814		1434	2791		1407	2739	1308	1448	2714	1106
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	2814		1434	2791		1407	2739	1308	1448	2714	1106
Volume (vph)	80	450	120	70	630	50	120	720	60	80	720	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	474	126	74	663	53	126	758	63	84	758	95
RTOR Reduction (vph)	0	24	0	0	6	0	0	0	34	0	0	54
Lane Group Flow (vph)	84	576	0	74	710	0	126	758	29	84	758	41
Heavy Vehicles (%)	4%	4%	7%	6%	8%	4%	8%	11%	4%	5%	12%	23%
Turn Type	Prot			Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	7.8	30.1		6.4	28.7		12.0	39.5	45.9	8.0	35.5	43.3
Effective Green, g (s)	7.8	30.1		6.4	28.7		12.0	39.5	45.9	8.0	35.5	43.3
Actuated g/C Ratio	0.08	0.30		0.06	0.29		0.12	0.40	0.46	0.08	0.36	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	847		92	801		169	1082	653	116	963	523
v/s Ratio Prot	c0.06	0.20		0.05	c0.25		c0.09	c0.28	0.00	0.06	c0.28	0.01
v/s Ratio Perm									0.02			0.03
v/c Ratio	0.74	0.68		0.80	0.89		0.75	0.70	0.04	0.72	0.79	0.08
Uniform Delay, d1	45.1	30.7		46.2	34.1		42.5	25.3	14.9	44.9	28.9	16.6
Progression Factor	1.00	1.00		1.08	0.59		1.00	1.00	1.00	1.34	0.70	0.02
Incremental Delay, d2	21.7	2.3		29.3	8.7		16.3	3.8	0.0	12.7	4.0	0.0
Delay (s)	66.8	33.0		79.3	28.8		58.8	29.1	15.0	72.9	24.2	0.3
Level of Service	E	C		E	C		E	C	B	E	C	A
Approach Delay (s)		37.1			33.5			32.1			26.2	
Approach LOS		D			C			C			C	
Intersection Summary												
HCM Average Control Delay			31.8			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			72.7%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 155: 223rd St & Wilmington Blvd

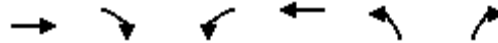
2035 MD Peak_Alt 2
 6/30/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			  		 	  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.91	1.00	0.97	0.91	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2808	2833		2782	2868	1133	1462	3900	1308	2034	3825	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2808	2833		2782	2868	1133	1462	3900	1308	2034	3825	
Volume (vph)	560	500	10	120	220	160	40	1370	140	240	530	280
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	589	526	11	126	232	168	42	1442	147	253	558	295
RTOR Reduction (vph)	0	2	0	0	0	6	0	0	43	0	87	0
Lane Group Flow (vph)	589	535	0	126	232	162	42	1442	104	253	766	0
Heavy Vehicles (%)	5%	7%	5%	6%	6%	20%	4%	12%	4%	45%	10%	5%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	20.0	24.5		8.5	13.0	28.0	4.6	36.0	44.5	15.0	46.4	
Effective Green, g (s)	20.0	24.5		8.5	13.0	28.0	4.6	36.0	44.5	15.0	46.4	
Actuated g/C Ratio	0.20	0.24		0.08	0.13	0.28	0.05	0.36	0.44	0.15	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	562	694		236	373	363	67	1404	634	305	1775	
v/s Ratio Prot	c0.21	c0.19		0.05	0.08	0.07	0.03	c0.37	0.01	c0.12	0.20	
v/s Ratio Perm						0.08			0.07			
v/c Ratio	1.05	0.77		0.53	0.62	0.44	0.63	1.03	0.16	0.83	0.43	
Uniform Delay, d1	40.0	35.1		43.9	41.2	29.6	46.9	32.0	16.6	41.3	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	51.2	5.3		2.3	3.2	0.9	16.9	31.2	0.1	16.8	0.8	
Delay (s)	91.2	40.5		46.2	44.4	30.5	63.8	63.2	16.7	58.0	18.7	
Level of Service	F	D		D	D	C	E	E	B	E	B	
Approach Delay (s)		67.0			40.4			59.0			27.7	
Approach LOS		E			D			E			C	

Intersection Summary

HCM Average Control Delay	50.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑↑↑	↑	↑
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	1.00	0.97	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1583	1248	2106	4121	1246	861
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1583	1248	2106	4121	1246	861
Volume (vph)	530	80	140	300	80	390
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	558	84	147	316	84	411
RTOR Reduction (vph)	0	53	0	0	0	83
Lane Group Flow (vph)	558	31	147	316	84	328
Heavy Vehicles (%)	92%	9%	40%	6%	22%	58%
Turn Type		Perm	Prot			pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4				2
Actuated Green, G (s)	22.0	22.0	10.0	36.0	16.0	26.0
Effective Green, g (s)	22.0	22.0	10.0	36.0	16.0	26.0
Actuated g/C Ratio	0.37	0.37	0.17	0.60	0.27	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	580	458	351	2473	332	431
v/s Ratio Prot	c0.35		0.07	0.08	0.07	c0.13
v/s Ratio Perm		0.02				0.25
v/c Ratio	0.96	0.07	0.42	0.13	0.25	0.76
Uniform Delay, d1	18.6	12.3	22.4	5.2	17.3	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.10	1.03
Incremental Delay, d2	29.1	0.3	0.8	0.1	1.5	6.3
Delay (s)	47.7	12.6	23.2	5.3	20.5	21.2
Level of Service	D	B	C	A	C	C
Approach Delay (s)	43.1			11.0	21.1	
Approach LOS	D			B	C	


























Intersection Summary

HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: E Anaheim St & Magnolia Avenue

2035 AM Peak_Alt 4
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1448	2733		1520	2685		2920	2912		1520	2864	
Flt Permitted	0.07	1.00		0.23	1.00		0.43	1.00		0.41	1.00	
Satd. Flow (perm)	110	2733		367	2685		1324	2912		661	2864	
Volume (vph)	40	830	120	60	1495	60	400	330	70	60	310	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	874	126	63	1574	63	421	347	74	63	326	74
RTOR Reduction (vph)	0	11	0	0	3	0	0	18	0	0	19	0
Lane Group Flow (vph)	42	989	0	63	1634	0	421	403	0	63	381	0
Heavy Vehicles (%)	5%	10%	3%	0%	13%	2%	1%	2%	0%	0%	3%	4%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	61.0	61.0		61.0	61.0		31.0	31.0		31.0	31.0	
Effective Green, g (s)	61.0	61.0		61.0	61.0		31.0	31.0		31.0	31.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.31	0.31		0.31	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	67	1667		224	1638		410	903		205	888	
v/s Ratio Prot		0.36			c0.61			0.14			0.13	
v/s Ratio Perm	0.38			0.17			c0.32			0.10		
v/c Ratio	0.63	0.59		0.28	1.00		1.03	0.45		0.31	0.43	
Uniform Delay, d1	12.3	11.9		9.2	19.4		34.5	27.6		26.3	27.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	37.0	1.6		0.7	21.5		51.5	0.4		0.9	0.3	
Delay (s)	49.3	13.5		9.9	41.0		86.0	28.0		27.2	27.8	
Level of Service	D	B		A	D		F	C		C	C	
Approach Delay (s)		14.9			39.8			57.0			27.7	
Approach LOS		B			D			E			C	
Intersection Summary												
HCM Average Control Delay			35.6	HCM Level of Service				D				
HCM Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			94.4%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: E Anaheim St & Pacific Ave

2035 AM Peak_Alt 4
 8/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	899	2841	1333	1490	2714	1333	2920	2811		2920	2662	
Flt Permitted	0.09	1.00	1.00	0.23	1.00	1.00	0.12	1.00		0.32	1.00	
Satd. Flow (perm)	89	2841	1333	363	2714	1333	384	2811		983	2662	
Volume (vph)	55	760	140	70	1240	70	310	480	60	150	800	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	58	800	147	74	1305	74	326	505	63	158	842	105
RTOR Reduction (vph)	0	0	49	0	0	38	0	9	0	0	10	0
Lane Group Flow (vph)	58	800	98	74	1305	36	326	559	0	158	937	0
Heavy Vehicles (%)	69%	7%	2%	2%	12%	2%	1%	7%	1%	1%	3%	87%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt				pm+pt	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	45.6	42.5	47.5	48.8	44.1	48.1	37.0	32.0		35.0	31.0	
Effective Green, g (s)	45.6	42.5	47.5	48.8	44.1	48.1	37.0	32.0		35.0	31.0	
Actuated g/C Ratio	0.46	0.43	0.48	0.49	0.44	0.48	0.37	0.32		0.35	0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	66	1217	692	232	1207	700	271	907		425	832	
v/s Ratio Prot	c0.03	0.28	0.01	c0.02	c0.48	0.00	c0.06	0.20		0.01	0.35	
v/s Ratio Perm	0.37		0.07	0.14		0.02	c0.39			0.12		
v/c Ratio	0.88	0.66	0.14	0.32	1.08	0.05	1.20	0.62		0.37	1.13	
Uniform Delay, d1	23.9	22.6	14.5	14.8	27.6	13.5	28.8	28.4		22.4	34.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.1	2.8	0.1	0.8	50.8	0.0	121.0	1.3		0.6	72.2	
Delay (s)	93.0	25.3	14.5	15.6	78.4	13.5	149.9	29.7		22.9	106.3	
Level of Service	F	C	B	B	E	B	F	C		C	F	
Approach Delay (s)		27.7			71.9			73.5			94.4	
Approach LOS		C			E			E			F	

Intersection Summary

HCM Average Control Delay	67.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: E Anaheim St & Cherry Ave

















2035 AM Peak_Alt 4
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2868	1320	1476	2743		1490	1584	1347	1476	1553	1347
Flt Permitted	0.40	1.00	1.00	0.29	1.00		0.27	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	626	2868	1320	444	2743		429	1584	1347	444	1553	1347
Volume (vph)	100	850	70	260	570	70	80	400	50	150	410	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	895	74	274	600	74	84	421	53	158	432	158
RTOR Reduction (vph)	0	0	47	0	12	0	0	0	17	0	0	68
Lane Group Flow (vph)	105	895	27	274	662	0	84	421	36	158	432	90
Heavy Vehicles (%)	1%	6%	3%	3%	10%	1%	2%	1%	1%	3%	3%	1%
Turn Type	pm+pt		Perm	pm+pt		Perm		pm+ov	Perm		pm+ov	
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2		2	6		8		8	4		4	4
Actuated Green, G (s)	35.2	35.2	35.2	30.0	30.0		34.3	34.3	50.3	34.3	34.3	55.5
Effective Green, g (s)	35.2	35.2	35.2	30.0	30.0		34.3	34.3	50.3	34.3	34.3	55.5
Actuated g/C Ratio	0.36	0.36	0.36	0.31	0.31		0.35	0.35	0.52	0.35	0.35	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	417	1035	477	306	844		151	557	750	156	546	822
v/s Ratio Prot	0.05	c0.31		c0.15	0.24			0.27	0.01		0.28	0.02
v/s Ratio Perm	0.04		0.02	c0.13		0.20			0.02	c0.36		0.04
v/c Ratio	0.25	0.86	0.06	0.90	0.78		0.56	0.76	0.05	1.01	0.79	0.11
Uniform Delay, d1	23.9	28.9	20.3	41.8	30.8		25.5	27.9	11.7	31.6	28.4	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	9.6	0.2	26.5	4.8		4.4	5.8	0.0	75.5	7.7	0.1
Delay (s)	24.2	38.5	20.5	68.4	35.6		29.9	33.7	11.7	107.1	36.1	9.7
Level of Service	C	D	C	E	D		C	C	B	F	D	A
Approach Delay (s)		35.9			45.1			31.0			45.5	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM Average Control Delay			39.9	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			97.5	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			93.2%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group































HCM Signalized Intersection Capacity Analysis
18: O Street & Alameda St

2035 AM Peak_Alt 4
12/4/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		 	  			  
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.88	0.91		1.00	0.91
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1520	2081	2970		1357	2893
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1520	2081	2970		1357	2893
Volume (vph)	110	400	360	100	310	610
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	421	379	105	326	642
RTOR Reduction (vph)	0	365	44	0	0	0
Lane Group Flow (vph)	116	56	440	0	326	642
Heavy Vehicles (%)	0%	15%	54%	0%	12%	51%
Turn Type		Prot			Prot	
Protected Phases	4	4	2		1	6
Permitted Phases						
Actuated Green, G (s)	12.9	12.9	27.1		45.1	76.2
Effective Green, g (s)	12.9	12.9	27.1		45.1	76.2
Actuated g/C Ratio	0.13	0.13	0.28		0.46	0.78
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	202	276	829		630	2270
v/s Ratio Prot	c0.08	0.03	c0.15		c0.24	0.22
v/s Ratio Perm						
v/c Ratio	0.57	0.20	0.53		0.52	0.28
Uniform Delay, d1	39.5	37.5	29.6		18.3	2.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.9	0.4	2.4		0.7	0.3
Delay (s)	43.4	37.9	32.0		19.0	3.2
Level of Service	D	D	C		B	A
Approach Delay (s)	39.1		32.0			8.5
Approach LOS	D		C			A
Intersection Summary						
HCM Average Control Delay			22.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			97.1		Sum of lost time (s)	12.0
Intersection Capacity Utilization			48.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 20: Pacific Coast Hwy & Pacific Ave

2035 AM Peak_Alt 4
 12/4/2009

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1267	4160	1347	1490	4160	1347	1490	2512	1333	1505	2764	1248
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)	1267	4160	1347	1490	4160	1347	285	2512	1333	332	2764	1248
Volume (vph)	90	1100	200	100	1510	120	150	870	80	80	940	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1158	211	105	1589	126	158	916	84	84	989	137
RTOR Reduction (vph)	0	0	57	0	0	57	0	0	4	0	0	1
Lane Group Flow (vph)	95	1158	154	105	1589	69	158	916	80	84	989	136
Heavy Vehicles (%)	20%	5%	1%	2%	5%	1%	2%	21%	2%	1%	10%	9%
Turn Type	Prot		Perm	Prot		Perm	Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	6.0	33.0	33.0	8.0	35.0	35.0	47.0	47.0	55.0	47.0	47.0	53.0
Effective Green, g (s)	6.0	33.0	33.0	8.0	35.0	35.0	47.0	47.0	55.0	47.0	47.0	53.0
Actuated g/C Ratio	0.06	0.33	0.33	0.08	0.35	0.35	0.47	0.47	0.55	0.47	0.47	0.53
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	76	1373	445	119	1456	471	134	1181	786	156	1299	711
v/s Ratio Prot	c0.08	0.28		0.07	c0.38			0.36	0.01		0.36	0.01
v/s Ratio Perm			0.11			0.05	c0.56		0.05	0.25		0.10
v/c Ratio	1.25	0.84	0.35	0.88	1.09	0.15	1.18	0.78	0.10	0.54	0.76	0.19
Uniform Delay, d1	47.0	31.1	25.3	45.5	32.5	22.3	26.5	22.1	10.7	18.8	21.9	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	184.6	6.5	2.1	48.1	52.6	0.1	133.8	3.3	0.1	3.5	2.7	0.1
Delay (s)	231.6	37.6	27.5	93.6	85.1	22.4	160.3	25.4	10.8	22.4	24.6	12.4
Level of Service	F	D	C	F	F	C	F	C	B	C	C	B
Approach Delay (s)		48.7			81.3			42.7			23.0	
Approach LOS		D			F			D			C	

Intersection Summary			
HCM Average Control Delay	52.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 21: Pacific Coast Hwy & Long Beach Blvd

2035 AM Peak_Alt 4
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			 		 	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2808	4167		2920	4115		1505	2980	1320	1505	2951	1283
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2808	4167		2920	4115		1505	2980	1320	1505	2951	1283
Volume (vph)	180	1000	70	190	1210	130	190	670	50	170	920	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1053	74	200	1274	137	200	705	53	179	968	126
RTOR Reduction (vph)	0	8	0	0	13	0	0	0	24	0	0	30
Lane Group Flow (vph)	189	1119	0	200	1398	0	200	705	29	179	968	96
Heavy Vehicles (%)	5%	4%	1%	1%	5%	1%	1%	2%	3%	1%	3%	6%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases								8				4
Actuated Green, G (s)	7.0	31.0		9.0	33.0		13.0	29.2	38.2	14.8	31.0	38.0
Effective Green, g (s)	7.0	31.0		9.0	33.0		13.0	29.2	38.2	14.8	31.0	38.0
Actuated g/C Ratio	0.07	0.31		0.09	0.33		0.13	0.29	0.38	0.15	0.31	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	197	1292		263	1358		196	870	504	223	915	488
v/s Ratio Prot	0.07	c0.27		0.07	c0.34		c0.13	0.24	0.01	0.12	c0.33	0.01
v/s Ratio Perm								0.02				0.06
v/c Ratio	0.96	0.87		0.76	1.03		1.02	0.81	0.06	0.80	1.06	0.20
Uniform Delay, d1	46.4	32.5		44.4	33.5		43.5	32.8	19.5	41.2	34.5	20.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	51.8	8.0		12.2	32.3		69.7	5.8	0.0	18.5	46.3	0.2
Delay (s)	98.2	40.5		56.6	65.8		113.2	38.6	19.6	59.7	80.8	21.0
Level of Service	F	D		E	E		F	D	B	E	F	C
Approach Delay (s)		48.8			64.7			53.1			71.9	
Approach LOS		D			E			D			E	

Intersection Summary

HCM Average Control Delay	60.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 25: Sepulveda Blvd & Alameda St Ramp

2035 AM Peak_Alt 4
 7/1/2009

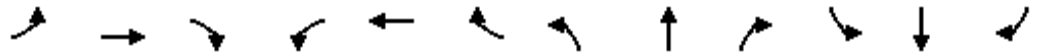
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1267	2525		1267	2533	1133	800	842		1552	842	716
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.74	1.00		0.62	1.00	1.00
Satd. Flow (perm)	1267	2525		1267	2533	1133	620	842		1017	842	716
Volume (vph)	180	480	10	10	620	190	10	20	0	320	30	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	505	11	11	653	200	11	21	0	337	32	179
RTOR Reduction (vph)	0	2	0	0	0	104	0	0	0	0	0	65
Lane Group Flow (vph)	189	514	0	11	653	96	11	21	0	337	32	114
Heavy Vehicles (%)	20%	20%	20%	20%	20%	20%	90%	90%	90%	90%	90%	90%
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	19.6	53.1		0.8	34.3	51.9	21.3	20.5		42.1	37.3	56.9
Effective Green, g (s)	19.6	53.1		0.8	34.3	51.9	21.3	20.5		42.1	37.3	56.9
Actuated g/C Ratio	0.18	0.49		0.01	0.32	0.48	0.20	0.19		0.39	0.35	0.53
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	230	1241		9	804	586	124	160		484	291	404
v/s Ratio Prot	c0.15	0.20		0.01	c0.26	0.03	0.00	0.02		c0.11	0.04	0.05
v/s Ratio Perm						0.06	0.02			c0.16		0.11
v/c Ratio	0.82	0.41		1.22	0.81	0.16	0.09	0.13		0.70	0.11	0.28
Uniform Delay, d1	42.5	17.5		53.6	33.9	15.8	35.3	36.4		25.9	24.1	14.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.5	0.2		385.4	6.3	0.1	0.3	1.7		4.3	0.8	0.4
Delay (s)	63.0	17.8		439.0	40.2	15.9	35.6	38.0		30.2	24.8	14.6
Level of Service	E	B		F	D	B	D	D		C	C	B
Approach Delay (s)		29.9			39.6			37.2			24.8	
Approach LOS		C			D			D			C	

Intersection Summary		
HCM Average Control Delay	32.6	HCM Level of Service C
HCM Volume to Capacity ratio	0.76	
Actuated Cycle Length (s)	108.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	59.7%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 28: Willow St & Long Beach Blvd

2035 AM Peak_Alt 4
 12/4/2009






































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑↑	↖	↖	↑↑↑		↖	↑↑	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2920	4241	1347	2756	4241	1333	1505	4089		1505	2923	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2920	4241	1347	2756	4241	1333	1505	4089		1505	2923	1347
Volume (vph)	290	1010	150	190	1270	90	200	840	250	280	830	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	1063	158	200	1337	95	211	884	263	295	874	211
RTOR Reduction (vph)	0	0	17	0	0	6	0	49	0	0	0	32
Lane Group Flow (vph)	305	1063	141	200	1337	89	211	1098	0	295	874	179
Heavy Vehicles (%)	1%	3%	1%	7%	3%	2%	1%	2%	7%	1%	4%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	11.0	34.0	50.0	10.0	33.0	54.0	16.0	29.0		21.0	34.0	45.0
Effective Green, g (s)	11.0	34.0	50.0	10.0	33.0	54.0	16.0	29.0		21.0	34.0	45.0
Actuated g/C Ratio	0.10	0.31	0.45	0.09	0.30	0.49	0.15	0.26		0.19	0.31	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	292	1311	612	251	1272	654	219	1078		287	903	551
v/s Ratio Prot	c0.10	0.25	0.03	0.07	c0.32	0.03	0.14	0.27		c0.20	c0.30	0.03
v/s Ratio Perm			0.07			0.04						0.10
v/c Ratio	1.04	0.81	0.23	0.80	1.05	0.14	0.96	1.02		1.03	0.97	0.33
Uniform Delay, d1	49.5	35.0	18.3	49.0	38.5	15.3	46.7	40.5		44.5	37.5	22.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	64.8	5.5	0.2	15.9	39.8	0.1	50.1	32.3		60.5	22.2	0.3
Delay (s)	114.3	40.6	18.5	65.0	78.3	15.4	96.8	72.8		105.0	59.6	22.5
Level of Service	F	D	B	E	E	B	F	E		F	E	C
Approach Delay (s)		53.0			73.0			76.5			63.7	
Approach LOS		D			E			E			E	

Intersection Summary		
HCM Average Control Delay	66.4	HCM Level of Service E
HCM Volume to Capacity ratio	0.96	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 8.0
Intersection Capacity Utilization	96.6%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 29: Willow St & Atlantic Ave

2035 AM Peak_Alt 4
 12/4/2009

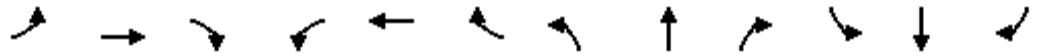
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		  	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2633	4222		1407	4145		2920	2980	1308	2920	2980	1320
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2633	4222		1407	4145		2920	2980	1308	2920	2980	1320
Volume (vph)	290	900	100	150	1150	240	210	690	260	100	590	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.95	0.95	0.95
Adj. Flow (vph)	305	947	105	158	1211	253	221	726	289	105	621	126
RTOR Reduction (vph)	0	15	0	0	36	0	0	0	213	0	0	98
Lane Group Flow (vph)	305	1037	0	158	1428	0	221	726	76	105	621	28
Heavy Vehicles (%)	12%	2%	1%	8%	3%	1%	1%	2%	4%	1%	2%	3%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases									8			4
Actuated Green, G (s)	12.0	32.6		12.9	33.5		8.0	23.6	23.6	4.3	19.9	19.9
Effective Green, g (s)	12.0	32.6		12.9	33.5		8.0	23.6	23.6	4.3	19.9	19.9
Actuated g/C Ratio	0.13	0.36		0.14	0.37		0.09	0.26	0.26	0.05	0.22	0.22
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	353	1540		203	1553		261	787	345	140	663	294
v/s Ratio Prot	c0.12	0.25		0.11	c0.34		0.08	c0.24		0.04	c0.21	
v/s Ratio Perm									0.06			0.02
v/c Ratio	0.86	0.67		0.78	0.92		0.85	0.92	0.22	0.75	0.94	0.10
Uniform Delay, d1	37.9	23.9		36.9	26.7		40.1	32.0	25.7	42.0	34.1	27.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.1	2.4		17.0	9.1		21.6	16.2	0.3	20.0	20.7	0.1
Delay (s)	57.1	26.3		53.8	35.8		61.7	48.2	26.0	62.0	54.8	27.7
Level of Service	E	C		D	D		E	D	C	E	D	C
Approach Delay (s)		33.2			37.5			45.4			51.7	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: Willow St & Cherry Ave

2035 AM Peak_Alt 4
12/4/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↘
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2835	4241	1347	2835	4200	1347	2920	4282	1320	2863	4138	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2835	4241	1347	2835	4200	1347	2920	4282	1320	2863	4138	
Volume (vph)	50	1000	320	360	1410	240	170	1180	180	350	960	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	1053	337	379	1484	253	179	1242	189	368	1011	211
RTOR Reduction (vph)	0	0	12	0	0	19	0	0	86	0	36	0
Lane Group Flow (vph)	53	1053	325	379	1484	234	179	1242	103	368	1186	0
Heavy Vehicles (%)	4%	3%	1%	4%	4%	1%	1%	2%	3%	3%	3%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Over		Prot	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	3.2	24.0	32.9	12.8	33.6	45.6	8.9	26.0	12.8	12.0	29.1	
Effective Green, g (s)	3.2	24.0	32.9	12.8	33.6	45.6	8.9	26.0	12.8	12.0	29.1	
Actuated g/C Ratio	0.04	0.26	0.36	0.14	0.37	0.50	0.10	0.29	0.14	0.13	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	100	1121	547	400	1554	736	286	1226	186	378	1326	
v/s Ratio Prot	0.02	c0.25	0.06	0.13	c0.35	0.04	0.06	c0.29	0.08	0.13	c0.29	
v/s Ratio Perm			0.18			0.13						
v/c Ratio	0.53	0.94	0.59	0.95	0.95	0.32	0.63	1.01	0.55	0.97	0.89	
Uniform Delay, d1	43.1	32.7	23.5	38.7	27.9	13.4	39.4	32.4	36.3	39.2	29.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.3	15.8	1.7	31.5	13.5	0.3	4.2	29.0	3.5	39.0	8.1	
Delay (s)	48.4	48.5	25.3	70.1	41.4	13.6	43.6	61.4	39.9	78.3	37.5	
Level of Service	D	D	C	E	D	B	D	E	D	E	D	
Approach Delay (s)		43.0			43.2			56.9			46.9	
Approach LOS		D			D			E			D	































Intersection Summary

HCM Average Control Delay	47.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
35: Del Amo Blvd & Long Beach Blvd

2035 AM Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 				
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2808	4200	1320	2949	4325	1347	2891	2980	1347	2891	2980	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2808	4200	1320	2949	4325	1347	2891	2980	1347	2891	2980	1347
Volume (vph)	210	800	280	120	1730	170	260	630	150	160	760	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	842	295	126	1821	179	274	663	158	168	800	337
RTOR Reduction (vph)	0	0	31	0	0	18	0	0	39	0	0	3
Lane Group Flow (vph)	221	842	264	126	1821	161	274	663	119	168	800	334
Heavy Vehicles (%)	5%	4%	3%	0%	1%	1%	2%	2%	1%	2%	2%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.0	36.0	44.0	8.0	37.0	43.0	8.0	24.0	32.0	6.0	22.0	29.0
Effective Green, g (s)	7.0	36.0	44.0	8.0	37.0	43.0	8.0	24.0	32.0	6.0	22.0	29.0
Actuated g/C Ratio	0.08	0.40	0.49	0.09	0.41	0.48	0.09	0.27	0.36	0.07	0.24	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	218	1680	704	262	1778	703	257	795	479	193	728	434
v/s Ratio Prot	c0.08	0.20	0.03	0.04	c0.42	0.02	0.09	c0.22	0.02	0.06	c0.27	0.06
v/s Ratio Perm			0.17			0.10			0.07			0.19
v/c Ratio	1.01	0.50	0.37	0.48	1.02	0.23	1.07	0.83	0.25	0.87	1.10	0.77
Uniform Delay, d1	41.5	20.3	14.4	39.0	26.5	13.8	41.0	31.1	20.5	41.6	34.0	27.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	64.5	1.1	0.3	1.4	27.7	0.2	74.7	7.5	0.3	32.0	63.7	8.0
Delay (s)	106.0	21.3	14.7	40.4	54.2	14.0	115.7	38.6	20.8	73.6	97.7	35.5
Level of Service	F	C	B	D	D	B	F	D	C	E	F	D
Approach Delay (s)			33.7			50.0			55.4			78.5
Approach LOS			C			D			E			E

Intersection Summary		
HCM Average Control Delay	53.6	HCM Level of Service D
HCM Volume to Capacity ratio	1.00	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	93.9%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 36: Del Amo Blvd & Atlantic Ave

2035 AM Peak_Alt 4
 12/4/2009



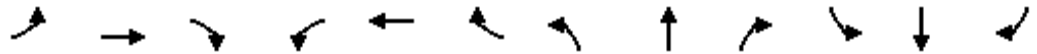
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑↑	↗	↙	↑↑↑		↙	↑↑	↗	↙	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	4241	1333	1505	4237		2920	2951	1347	2920	3010	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	4241	1333	1505	4237		2920	2951	1347	2920	3010	1347
Volume (vph)	130	800	180	110	1460	110	260	470	80	210	790	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	842	189	116	1537	116	274	495	84	221	832	221
RTOR Reduction (vph)	0	0	82	0	9	0	0	0	24	0	0	4
Lane Group Flow (vph)	137	842	107	116	1644	0	274	495	60	221	832	217
Heavy Vehicles (%)	2%	3%	2%	1%	2%	2%	1%	3%	1%	1%	1%	1%
Turn Type	Prot	pm+ov		Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2						8				4
Actuated Green, G (s)	9.0	33.0	42.0	15.0	39.0		9.0	26.1	41.1	9.9	27.0	36.0
Effective Green, g (s)	9.0	33.0	42.0	15.0	39.0		9.0	26.1	41.1	9.9	27.0	36.0
Actuated g/C Ratio	0.09	0.33	0.42	0.15	0.39		0.09	0.26	0.41	0.10	0.27	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1400	613	226	1652		263	770	554	289	813	539
v/s Ratio Prot	c0.09	0.20	0.02	0.08	c0.39		c0.09	0.17	0.02	0.08	c0.28	0.04
v/s Ratio Perm			0.06						0.03			0.12
v/c Ratio	1.02	0.60	0.17	0.51	1.00		1.04	0.64	0.11	0.76	1.02	0.40
Uniform Delay, d1	45.5	28.0	18.2	39.1	30.4		45.5	32.8	18.2	43.9	36.5	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	83.8	1.9	0.1	2.0	20.9		66.8	1.8	0.1	11.4	37.6	0.5
Delay (s)	129.3	29.9	18.3	41.1	51.3		112.3	34.7	18.2	55.3	74.1	24.4
Level of Service	F	C	B	D	D		F	C	B	E	E	C
Approach Delay (s)		39.7			50.7			58.0			62.2	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	52.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 37: Del Amo Blvd & Cherry Ave

2035 AM Peak_Alt 4
 12/4/2009




































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↕↕	↗	↔↔	↕↕↕		↗	↕↕↕	↗	↔↔	↕↕↕	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		1.00	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	4282	1333	2891	4269		1490	4282	1333	2920	4282	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	4282	1333	2891	4269		1490	4282	1333	2920	4282	1333
Volume (vph)	160	800	200	520	1390	130	130	660	320	370	1250	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	842	211	547	1463	137	137	695	337	389	1316	211
RTOR Reduction (vph)	0	0	7	0	11	0	0	0	13	0	0	22
Lane Group Flow (vph)	168	842	204	547	1589	0	137	695	324	389	1316	189
Heavy Vehicles (%)	4%	2%	2%	2%	1%	1%	2%	2%	2%	1%	2%	2%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2					8				4
Actuated Green, G (s)	6.0	26.0	35.0	19.0	39.0		9.0	23.4	42.4	15.6	30.0	36.0
Effective Green, g (s)	6.0	26.0	35.0	19.0	39.0		9.0	23.4	42.4	15.6	30.0	36.0
Actuated g/C Ratio	0.06	0.26	0.35	0.19	0.39		0.09	0.23	0.42	0.16	0.30	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	170	1113	520	549	1665		134	1002	619	456	1285	480
v/s Ratio Prot	0.06	c0.20	0.04	0.19	c0.37		c0.09	0.16	0.10	c0.13	c0.31	0.02
v/s Ratio Perm			0.12						0.14			0.12
v/c Ratio	0.99	0.76	0.39	1.00	0.95		1.02	0.69	0.52	0.85	1.02	0.39
Uniform Delay, d1	47.0	34.1	24.5	40.5	29.6		45.5	35.0	21.3	41.1	35.0	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	64.9	4.8	0.5	37.2	12.8		83.8	2.1	0.8	14.3	31.4	0.5
Delay (s)	111.9	38.9	25.0	77.7	42.4		129.3	37.1	22.1	55.4	66.4	24.4
Level of Service	F	D	C	E	D		F	D	C	E	E	C
Approach Delay (s)		46.5			51.4			43.6			59.5	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 38: Del Amo Blvd & Lakewood Blvd

2035 AM Peak_Alt 4
 12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	  		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4207		2891	3010	1347	2920	4241	1333	2920	2980	1333
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4207		2891	3010	1347	2920	4241	1333	2920	2980	1333
Volume (vph)	150	1190	170	150	1010	250	210	350	110	210	950	190
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1253	179	158	1063	263	221	368	116	221	1000	200
RTOR Reduction (vph)	0	19	0	0	0	78	0	0	24	0	0	13
Lane Group Flow (vph)	158	1413	0	158	1063	185	221	368	92	221	1000	187
Heavy Vehicles (%)	2%	2%	1%	2%	1%	1%	1%	3%	2%	1%	2%	2%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	6.0	36.0		6.0	36.0	47.8	8.0	30.2	36.2	11.8	34.0	40.0
Effective Green, g (s)	6.0	36.0		6.0	36.0	47.8	8.0	30.2	36.2	11.8	34.0	40.0
Actuated g/C Ratio	0.06	0.36		0.06	0.36	0.48	0.08	0.30	0.36	0.12	0.34	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	173	1515		173	1084	644	234	1281	483	345	1013	587
v/s Ratio Prot	c0.05	0.34		0.05	c0.35	0.03	c0.08	0.09	0.01	0.08	c0.34	0.02
v/s Ratio Perm						0.10			0.06			0.12
v/c Ratio	0.91	0.93		0.91	0.98	0.29	0.94	0.29	0.19	0.64	0.99	0.32
Uniform Delay, d1	46.7	30.8		46.7	31.7	15.8	45.8	26.7	21.9	42.1	32.8	20.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.1	11.9		44.1	22.6	0.2	43.3	0.1	0.2	4.0	24.9	0.3
Delay (s)	90.8	42.7		90.8	54.3	16.0	89.1	26.8	22.1	46.1	57.7	21.0
Level of Service	F	D		F	D	B	F	C	C	D	E	C
Approach Delay (s)		47.5			51.4			45.5			50.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd

























2035 AM Peak_Alt 4
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1462	2923	1320	2920	2895	1283	2863	2951	1333	1476	2951	1347	
Flt Permitted	0.15	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	228	2923	1320	2920	2895	1283	2863	2951	1333	1476	2951	1347	
Volume (vph)	80	700	90	490	1090	150	230	520	200	110	780	150	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	84	737	95	516	1147	158	242	547	211	116	821	158	
RTOR Reduction (vph)	0	0	14	0	0	44	0	0	53	0	0	18	
Lane Group Flow (vph)	84	737	81	516	1147	114	242	547	158	116	821	140	
Heavy Vehicles (%)	4%	4%	3%	1%	5%	6%	3%	3%	2%	3%	3%	1%	
Turn Type	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5	
Permitted Phases	2		2			6			8			4	
Actuated Green, G (s)	32.0	28.0	37.0	18.0	42.0	56.7	9.0	23.2	41.2	14.7	28.9	32.9	
Effective Green, g (s)	32.0	28.0	37.0	18.0	42.0	56.7	9.0	23.2	41.2	14.7	28.9	32.9	
Actuated g/C Ratio	0.32	0.28	0.37	0.18	0.42	0.57	0.09	0.23	0.41	0.15	0.29	0.33	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	122	819	489	526	1217	728	258	685	550	217	854	444	
v/s Ratio Prot	0.03	0.25	0.01	c0.18	c0.40	0.02	c0.08	0.19	0.05	0.08	c0.28	0.01	
v/s Ratio Perm	0.19		0.05			0.07			0.07			0.09	
v/c Ratio	0.69	0.90	0.16	0.98	0.94	0.16	0.94	0.80	0.29	0.53	0.96	0.32	
Uniform Delay, d1	25.6	34.6	21.1	40.8	27.8	10.3	45.2	36.1	19.6	39.4	35.0	25.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.0	14.9	0.2	34.2	14.2	0.1	39.1	6.5	0.3	2.5	21.8	0.4	
Delay (s)	40.6	49.5	21.2	75.0	42.0	10.4	84.2	42.6	19.8	42.0	56.7	25.5	
Level of Service	D	D	C	E	D	B	F	D	B	D	E	C	
Approach Delay (s)		45.7			48.6			47.9			50.7		
Approach LOS		D			D			D			D		
Intersection Summary													
HCM Average Control Delay			48.4									HCM Level of Service	D
HCM Volume to Capacity ratio			0.94										
Actuated Cycle Length (s)			99.9									Sum of lost time (s)	12.0
Intersection Capacity Utilization			87.8%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
41: Alondra Blvd & Santa Fe Ave

2035 AM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1448	2923	1271	1490	2951	1308	1448	2714	1347	1505	2750	2750
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1448	2923	1271	1490	2951	1308	1448	2714	1347	1505	2750	2750
Volume (vph)	80	480	70	170	800	240	120	380	130	150	890	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	505	74	179	842	253	126	400	137	158	937	95
RTOR Reduction (vph)	0	0	46	0	0	92	0	0	75	0	7	0
Lane Group Flow (vph)	84	505	28	179	842	161	126	400	62	158	1025	0
Heavy Vehicles (%)	5%	4%	7%	2%	3%	4%	5%	12%	1%	1%	9%	9%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases		4			8			2			2	
Actuated Green, G (s)	6.0	24.0	33.0	13.0	31.0	45.4	9.0	32.6	45.6	14.4	38.0	
Effective Green, g (s)	6.0	24.0	33.0	13.0	31.0	45.4	9.0	32.6	45.6	14.4	38.0	
Actuated g/C Ratio	0.06	0.24	0.33	0.13	0.31	0.45	0.09	0.33	0.46	0.14	0.38	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	87	702	470	194	915	646	130	885	668	217	1045	
v/s Ratio Prot	0.06	0.17	0.01	c0.12	c0.29	0.04	c0.09	0.15	0.01	c0.10	c0.37	
v/s Ratio Perm			0.02			0.09			0.03			
v/c Ratio	0.97	0.72	0.06	0.92	0.92	0.25	0.97	0.45	0.09	0.73	0.98	
Uniform Delay, d1	46.9	34.9	22.9	43.0	33.3	16.8	45.4	26.6	15.5	40.9	30.6	
Progression Factor	0.85	1.21	3.49	1.41	0.48	0.02	1.00	1.00	1.00	1.44	0.50	
Incremental Delay, d2	82.7	6.1	0.1	27.3	9.1	0.1	68.6	1.7	0.1	9.5	20.8	
Delay (s)	122.7	48.2	80.0	88.0	25.2	0.5	113.9	28.3	15.5	68.5	36.1	
Level of Service	F	D	E	F	C	A	F	C	B	E	D	
Approach Delay (s)		61.2			29.1			41.9			40.4	
Approach LOS		E			C			D			D	
Intersection Summary												
HCM Average Control Delay			40.5		HCM Level of Service				D			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			85.4%		ICU Level of Service				E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Alondra Blvd & Garfield Ave

























2035 AM Peak_Alt 4
6/28/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95		
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	0.97		
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1490	2951	1320	1505	2895		2863	2951	1333	2835	2846		
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1490	2951	1320	1505	2895		2863	2951	1333	2835	2846		
Volume (vph)	150	680	120	390	680	100	300	500	140	310	610	140	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	158	716	126	411	716	105	316	526	147	326	642	147	
RTOR Reduction (vph)	0	0	56	0	12	0	0	0	12	0	20	0	
Lane Group Flow (vph)	158	716	70	411	809	0	316	526	135	326	769	0	
Heavy Vehicles (%)	2%	3%	3%	1%	3%	3%	3%	3%	2%	4%	4%	3%	
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot			
Protected Phases	7	4	5	3	8		5	2	3	1	6		
Permitted Phases			4						2				
Actuated Green, G (s)	16.0	22.0	32.0	25.0	31.0		10.0	23.0	48.0	14.0	27.0		
Effective Green, g (s)	16.0	22.0	32.0	25.0	31.0		10.0	23.0	48.0	14.0	27.0		
Actuated g/C Ratio	0.16	0.22	0.32	0.25	0.31		0.10	0.23	0.48	0.14	0.27		
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	238	649	475	376	897		286	679	693	397	768		
v/s Ratio Prot	0.11	c0.24	0.01	c0.27	0.28		c0.11	0.18	0.05	c0.11	c0.27		
v/s Ratio Perm			0.04						0.05				
v/c Ratio	0.66	1.10	0.15	1.09	0.90		1.10	0.77	0.19	0.82	1.00		
Uniform Delay, d1	39.5	39.0	24.3	37.5	33.0		45.0	36.1	14.9	41.8	36.5		
Progression Factor	0.87	0.79	0.62	0.78	0.62		1.00	1.00	1.00	0.96	0.57		
Incremental Delay, d2	6.3	65.9	0.1	63.1	7.5		84.3	8.4	0.1	4.3	18.4		
Delay (s)	40.5	96.5	15.1	92.3	28.1		129.3	44.5	15.0	44.5	39.1		
Level of Service	D	F	B	F	C		F	D	B	D	D		
Approach Delay (s)		77.4			49.5			67.2			40.6		
Approach LOS		E			D			E			D		
Intersection Summary													
HCM Average Control Delay			57.7			HCM Level of Service							E
HCM Volume to Capacity ratio			1.10										
Actuated Cycle Length (s)			100.0			Sum of lost time (s)							20.0
Intersection Capacity Utilization			96.8%			ICU Level of Service							F
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 AM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1320	2891	2951	1320	1476	2951	1333	1476	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2951	1320	2891	2951	1320	1476	2951	1333	1476	2980	1333
Volume (vph)	90	870	130	130	860	190	200	440	70	100	500	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	916	137	137	905	200	211	463	74	105	526	116
RTOR Reduction (vph)	0	0	24	0	0	77	0	0	48	0	0	62
Lane Group Flow (vph)	95	916	113	137	905	123	211	463	26	105	526	54
Heavy Vehicles (%)	2%	3%	3%	2%	3%	3%	3%	3%	2%	3%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	8.7	37.0	53.8	7.0	35.3	46.8	16.8	28.5	35.5	11.5	23.2	31.9
Effective Green, g (s)	8.7	37.0	53.8	7.0	35.3	46.8	16.8	28.5	35.5	11.5	23.2	31.9
Actuated g/C Ratio	0.09	0.37	0.54	0.07	0.35	0.47	0.17	0.28	0.36	0.12	0.23	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	130	1092	763	202	1042	671	248	841	527	170	691	479
v/s Ratio Prot	c0.06	c0.31	0.02	0.05	0.31	0.02	c0.14	0.16	0.00	0.07	c0.18	0.01
v/s Ratio Perm			0.06			0.07			0.02			0.03
v/c Ratio	0.73	0.84	0.15	0.68	0.87	0.18	0.85	0.55	0.05	0.62	0.76	0.11
Uniform Delay, d1	44.5	28.8	11.6	45.4	30.2	15.5	40.4	30.3	21.2	42.2	35.8	24.1
Progression Factor	1.40	0.29	0.10	1.00	1.00	1.00	1.00	1.00	1.00	1.34	0.70	0.23
Incremental Delay, d2	8.0	2.3	0.0	8.7	7.8	0.1	23.3	2.6	0.0	4.0	4.8	0.1
Delay (s)	70.5	10.8	1.2	54.1	38.0	15.6	63.7	32.9	21.2	60.4	30.0	5.7
Level of Service	E	B	A	D	D	B	E	C	C	E	C	A
Approach Delay (s)		14.6			36.2			40.4			30.5	
Approach LOS		B			D			D			C	

























Intersection Summary

HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 AM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2980	1333	2681	2980	1320	1490	2714	1259	1476	2841	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2980	1333	2681	2980	1320	1490	2714	1259	1476	2841	1347
Volume (vph)	40	730	130	240	1020	100	180	370	40	180	570	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	768	137	253	1074	105	189	389	42	189	600	95
RTOR Reduction (vph)	0	0	29	0	0	48	0	0	26	0	0	57
Lane Group Flow (vph)	42	768	108	253	1074	57	189	389	16	189	600	38
Heavy Vehicles (%)	2%	2%	2%	10%	2%	3%	2%	12%	8%	3%	7%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	4.0	30.8	45.3	11.7	38.5	54.1	14.5	25.9	37.6	15.6	27.0	31.0
Effective Green, g (s)	4.0	30.8	45.3	11.7	38.5	54.1	14.5	25.9	37.6	15.6	27.0	31.0
Actuated g/C Ratio	0.04	0.31	0.45	0.12	0.38	0.54	0.14	0.26	0.38	0.16	0.27	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	60	918	657	314	1147	767	216	703	524	230	767	471
v/s Ratio Prot	0.03	0.26	0.02	c0.09	c0.36	0.01	0.13	0.14	0.00	c0.13	c0.21	0.00
v/s Ratio Perm			0.06			0.03			0.01			0.03
v/c Ratio	0.70	0.84	0.16	0.81	0.94	0.07	0.88	0.55	0.03	0.82	0.78	0.08
Uniform Delay, d1	47.4	32.3	16.2	43.0	29.6	11.0	41.9	32.0	19.7	40.9	33.8	24.4
Progression Factor	1.00	1.00	1.00	1.47	0.51	0.00	1.11	0.94	0.65	1.00	1.00	1.00
Incremental Delay, d2	30.0	6.7	0.1	5.7	6.4	0.0	27.7	2.8	0.0	20.5	7.8	0.1
Delay (s)	77.4	39.0	16.3	68.9	21.5	0.0	74.4	33.0	12.8	61.3	41.6	24.5
Level of Service	E	D	B	E	C	A	E	C	B	E	D	C
Approach Delay (s)		37.4			28.3			44.2			44.0	
Approach LOS		D			C			D			D	

























Intersection Summary

HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 49: Rosecrans Ave & Long Beach Blvd

































2035 AM Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2951	1214	1394	2980	1333	2587	2858		2891	2912	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2951	1214	1394	2980	1333	2587	2858		2891	2912	
Volume (vph)	120	630	130	80	1080	130	190	430	100	170	510	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	663	137	84	1137	137	200	453	105	179	537	105
RTOR Reduction (vph)	0	0	66	0	0	67	0	20	0	0	16	0
Lane Group Flow (vph)	126	663	71	84	1137	70	200	538	0	179	626	0
Heavy Vehicles (%)	2%	3%	12%	9%	2%	2%	14%	3%	5%	2%	2%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	10.0	42.5	51.7	9.0	41.5	49.6	9.2	24.4		8.1	23.3	
Effective Green, g (s)	10.0	42.5	51.7	9.0	41.5	49.6	9.2	24.4		8.1	23.3	
Actuated g/C Ratio	0.10	0.42	0.52	0.09	0.42	0.50	0.09	0.24		0.08	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1254	676	125	1237	714	238	697		234	678	
v/s Ratio Prot	c0.08	0.22	0.01	0.06	c0.38	0.01	c0.08	0.19		0.06	c0.21	
v/s Ratio Perm			0.05			0.04						
v/c Ratio	0.85	0.53	0.10	0.67	0.92	0.10	0.84	0.77		0.76	0.92	
Uniform Delay, d1	44.2	21.3	12.3	44.1	27.7	13.4	44.7	35.2		45.0	37.5	
Progression Factor	1.59	0.30	0.04	1.41	0.35	0.20	1.34	0.77		1.04	1.07	
Incremental Delay, d2	21.4	0.2	0.0	1.3	1.2	0.0	18.8	6.6		6.3	10.5	
Delay (s)	91.9	6.6	0.5	63.5	10.9	2.6	78.5	33.8		52.9	50.5	
Level of Service	F	A	A	E	B	A	E	C		D	D	
Approach Delay (s)		17.3			13.3			45.6			51.1	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM Average Control Delay			28.6				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				16.0	
Intersection Capacity Utilization			83.6%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave

2035 AM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	2923	1204	2891	2980	1347	2730	2980	1333	2891	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	2923	1204	2891	2980	1347	2730	2980	1333	2891	2951	1333
Volume (vph)	70	1370	90	60	1340	240	180	750	80	370	600	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1442	95	63	1411	253	189	789	84	389	632	116
RTOR Reduction (vph)	0	0	30	0	0	12	0	0	8	0	0	15
Lane Group Flow (vph)	74	1442	65	63	1411	241	189	789	76	389	632	101
Heavy Vehicles (%)	2%	4%	13%	2%	2%	1%	8%	2%	2%	2%	3%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	44.6	53.6	3.2	43.8	55.8	9.0	24.2	27.4	12.0	27.2	31.2
Effective Green, g (s)	4.0	44.6	53.6	3.2	43.8	55.8	9.0	24.2	27.4	12.0	27.2	31.2
Actuated g/C Ratio	0.04	0.45	0.54	0.03	0.44	0.56	0.09	0.24	0.27	0.12	0.27	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	1304	694	93	1305	806	246	721	365	347	803	416
v/s Ratio Prot	0.03	c0.49	0.01	0.02	c0.47	0.04	0.07	c0.26	0.01	c0.13	0.21	0.01
v/s Ratio Perm			0.05			0.14			0.05			0.07
v/c Ratio	0.64	1.11	0.09	0.68	1.08	0.30	0.77	1.09	0.21	1.12	0.79	0.24
Uniform Delay, d1	47.3	27.7	11.3	47.9	28.1	11.7	44.5	37.9	27.9	44.0	33.7	25.6
Progression Factor	0.92	0.82	0.25	1.00	1.00	1.00	0.79	0.76	0.68	0.79	0.67	0.52
Incremental Delay, d2	10.5	58.8	0.1	17.8	50.0	0.2	13.0	61.6	0.3	80.3	6.2	0.2
Delay (s)	54.0	81.5	2.9	65.7	78.1	11.9	48.3	90.3	19.4	115.0	28.8	13.6
Level of Service	D	F	A	E	E	B	D	F	B	F	C	B
Approach Delay (s)		75.6			67.9			77.2			56.7	
Approach LOS		E			E			E			E	

Intersection Summary		
HCM Average Control Delay	69.6	HCM Level of Service E
HCM Volume to Capacity ratio	1.08	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	92.1%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
51: Rosecrans Ave & Garfield Ave

2035 AM Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗↘		↖	↖↗	↖	↖↗	↖↗	↖	↖↗	↖↗	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2863	3948		1476	2923	1320	2835	2951	1295	2863	2923	1320
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2863	3948		1476	2923	1320	2835	2951	1295	2863	2923	1320
Volume (vph)	290	790	410	140	820	140	310	670	180	390	820	400
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	305	832	432	147	863	147	326	705	189	411	863	421
RTOR Reduction (vph)	0	94	0	0	0	18	0	0	16	0	0	13
Lane Group Flow (vph)	305	1170	0	147	863	129	326	705	173	411	863	408
Heavy Vehicles (%)	3%	6%	3%	3%	4%	3%	4%	3%	5%	3%	4%	3%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	11.0	30.0		11.0	30.0	45.0	12.0	28.0	39.0	15.0	31.0	42.0
Effective Green, g (s)	11.0	30.0		11.0	30.0	45.0	12.0	28.0	39.0	15.0	31.0	42.0
Actuated g/C Ratio	0.11	0.30		0.11	0.30	0.45	0.12	0.28	0.39	0.15	0.31	0.42
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	315	1184		162	877	647	340	826	557	429	906	607
v/s Ratio Prot	c0.11	c0.30		0.10	0.30	0.03	0.11	0.24	0.03	c0.14	c0.30	0.07
v/s Ratio Perm						0.07			0.10			0.23
v/c Ratio	0.97	0.99		0.91	0.98	0.20	0.96	0.85	0.31	0.96	0.95	0.67
Uniform Delay, d1	44.3	34.8		44.0	34.8	16.6	43.8	34.1	21.2	42.2	33.8	23.4
Progression Factor	1.00	1.00		0.70	0.65	0.59	0.96	0.66	0.63	0.93	0.83	0.75
Incremental Delay, d2	41.7	23.1		27.8	17.8	0.1	35.4	10.0	0.3	32.3	20.3	2.9
Delay (s)	86.0	57.9		58.7	40.5	9.9	77.2	32.3	13.7	71.7	48.3	20.5
Level of Service	F	E		E	D	A	E	C	B	E	D	C
Approach Delay (s)		63.4			38.9			41.5			47.1	
Approach LOS		E			D			D			D	

























Intersection Summary

HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 AM Peak_Alt 4
7/1/2009
































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1394	2951	1308	1490	2951	1320	1476	2951	1333	1505	2868	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1394	2951	1308	1490	2951	1320	1476	2951	1333	1505	2868	1308
Volume (vph)	170	750	350	140	720	80	220	570	250	90	640	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	789	368	147	758	84	232	600	263	95	674	221
RTOR Reduction (vph)	0	0	43	0	0	52	0	0	91	0	0	45
Lane Group Flow (vph)	179	789	325	147	758	32	232	600	172	95	674	176
Heavy Vehicles (%)	9%	3%	4%	2%	3%	3%	3%	3%	2%	1%	6%	4%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	14.0	29.9	46.5	11.0	26.9	37.7	16.6	32.3	43.3	10.8	26.5	40.5
Effective Green, g (s)	14.0	29.9	46.5	11.0	26.9	37.7	16.6	32.3	43.3	10.8	26.5	40.5
Actuated g/C Ratio	0.14	0.30	0.46	0.11	0.27	0.38	0.17	0.32	0.43	0.11	0.26	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	195	882	661	164	794	550	245	953	631	163	760	582
v/s Ratio Prot	c0.13	c0.27	0.08	0.10	0.26	0.01	c0.16	0.20	0.03	0.06	c0.24	0.04
v/s Ratio Perm			0.17			0.02			0.10			0.09
v/c Ratio	0.92	0.89	0.49	0.90	0.95	0.06	0.95	0.63	0.27	0.58	0.89	0.30
Uniform Delay, d1	42.4	33.5	18.6	43.9	36.0	19.8	41.3	28.8	18.2	42.5	35.3	20.2
Progression Factor	1.19	0.66	0.25	1.00	1.00	1.00	1.37	0.70	0.21	1.20	0.89	0.32
Incremental Delay, d2	23.2	5.5	0.2	41.4	21.4	0.0	41.4	3.0	0.2	3.1	9.1	0.2
Delay (s)	73.8	27.6	4.8	85.4	57.4	19.9	97.9	23.2	4.0	53.9	40.7	6.7
Level of Service	E	C	A	F	E	B	F	C	A	D	D	A
Approach Delay (s)		27.5			58.3			34.4			34.4	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Imperial Hwy & Long Beach Blvd

2035 AM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			  			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2980	1320	2891	2980	1347	1476	4200	1333	1505	4210	4210
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2980	1320	2891	2980	1347	1476	4200	1333	1505	4210	4210
Volume (vph)	60	570	190	390	1160	40	280	940	380	90	950	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	600	200	411	1221	42	295	989	400	95	1000	63
RTOR Reduction (vph)	0	0	12	0	0	19	0	0	53	0	7	0
Lane Group Flow (vph)	63	600	188	411	1221	23	295	989	347	95	1056	0
Heavy Vehicles (%)	0%	2%	3%	2%	2%	1%	3%	4%	2%	1%	3%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	4.0	22.8	41.8	18.2	37.0	46.0	19.0	34.0	52.2	9.0	24.0	
Effective Green, g (s)	4.0	22.8	41.8	18.2	37.0	46.0	19.0	34.0	52.2	9.0	24.0	
Actuated g/C Ratio	0.04	0.23	0.42	0.18	0.37	0.46	0.19	0.34	0.52	0.09	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	61	679	552	526	1103	620	280	1428	749	135	1010	
v/s Ratio Prot	0.04	c0.20	0.06	0.14	c0.41	0.00	c0.20	0.24	0.08	0.06	c0.25	
v/s Ratio Perm			0.08			0.01			0.18			
v/c Ratio	1.03	0.88	0.34	0.78	1.11	0.04	1.05	0.69	0.46	0.70	1.05	
Uniform Delay, d1	48.0	37.3	19.7	39.0	31.5	14.8	40.5	28.5	15.1	44.2	38.0	
Progression Factor	1.27	0.88	0.77	0.70	0.63	0.36	0.87	0.94	0.70	0.72	0.68	
Incremental Delay, d2	122.2	12.6	0.4	4.4	56.4	0.0	67.9	2.7	0.4	12.7	38.3	
Delay (s)	182.9	45.5	15.6	31.6	76.1	5.4	102.9	29.5	11.1	44.6	64.1	
Level of Service	F	D	B	C	E	A	F	C	B	D	E	
Approach Delay (s)		48.6			63.4			38.0			62.5	
Approach LOS		D			E			D			E	

Intersection Summary

HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave

2035 AM Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2913		1490	2933		2949	2980	1347	2920	2815	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2913		1490	2933		2949	2980	1347	2920	2815	1333
Volume (vph)	110	770	160	140	1070	110	160	360	300	430	480	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	811	168	147	1126	116	168	379	316	453	505	189
RTOR Reduction (vph)	0	17	0	0	8	0	0	0	35	0	0	25
Lane Group Flow (vph)	116	962	0	147	1234	0	168	379	281	453	505	164
Heavy Vehicles (%)	3%	2%	0%	2%	2%	4%	0%	2%	1%	1%	8%	2%
Turn Type	Prot			Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	8.0	38.8		12.2	43.0		8.0	17.0	29.2	16.0	25.0	33.0
Effective Green, g (s)	8.0	38.8		12.2	43.0		8.0	17.0	29.2	16.0	25.0	33.0
Actuated g/C Ratio	0.08	0.39		0.12	0.43		0.08	0.17	0.29	0.16	0.25	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	118	1130		182	1261		236	507	393	467	704	440
v/s Ratio Prot	0.08	c0.33		0.10	c0.42		0.06	c0.13	0.09	c0.16	0.18	0.03
v/s Ratio Perm								0.12				0.09
v/c Ratio	0.98	0.85		0.81	0.98		0.71	0.75	0.71	0.97	0.72	0.37
Uniform Delay, d1	45.9	28.0		42.8	28.0		44.9	39.5	31.7	41.8	34.3	25.6
Progression Factor	0.75	0.58		0.83	0.74		0.93	1.10	1.64	0.98	0.97	0.78
Incremental Delay, d2	62.4	4.3		13.1	13.7		4.8	4.8	3.0	33.4	6.1	0.5
Delay (s)	96.9	20.5		48.8	34.4		46.7	48.3	55.0	74.3	39.2	20.5
Level of Service	F	C		D	C		D	D	D	E	D	C
Approach Delay (s)		28.6			35.9			50.4			50.0	
Approach LOS		C			D			D			D	
Intersection Summary												
HCM Average Control Delay			40.5	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			86.2%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd

























2035 AM Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2863	4191		2920	4134		2891	2923	1347	2891	2895	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2863	4191		2920	4134		2891	2923	1347	2891	2895	1333
Volume (vph)	440	900	150	140	970	230	290	720	160	210	800	260
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	463	947	158	147	1021	242	305	758	168	221	842	274
RTOR Reduction (vph)	0	22	0	0	40	0	0	0	16	0	0	7
Lane Group Flow (vph)	463	1083	0	147	1223	0	305	758	152	221	842	267
Heavy Vehicles (%)	3%	2%	2%	1%	3%	1%	2%	4%	1%	2%	5%	2%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	16.0	35.8		9.2	29.0		11.0	31.0	40.2	8.0	28.0	44.0
Effective Green, g (s)	16.0	35.8		9.2	29.0		11.0	31.0	40.2	8.0	28.0	44.0
Actuated g/C Ratio	0.16	0.36		0.09	0.29		0.11	0.31	0.40	0.08	0.28	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	458	1500		269	1199		318	906	541	231	811	640
v/s Ratio Prot	c0.16	0.26		0.05	c0.30		c0.11	0.26	0.03	0.08	c0.29	0.07
v/s Ratio Perm								0.09				0.13
v/c Ratio	1.01	0.72		0.55	1.02		0.96	0.84	0.28	0.96	1.04	0.42
Uniform Delay, d1	42.0	27.8		43.4	35.5		44.3	32.1	20.2	45.8	36.0	19.2
Progression Factor	0.55	0.33		1.00	1.00		0.86	0.74	0.36	0.78	0.60	0.47
Incremental Delay, d2	33.1	0.9		2.3	31.2		36.9	8.3	0.3	33.4	34.5	0.3
Delay (s)	56.2	10.2		45.7	66.7		75.0	32.0	7.5	69.4	55.9	9.2
Level of Service	E	B		D	E		E	C	A	E	E	A
Approach Delay (s)		23.8			64.5			39.3			48.6	
Approach LOS		C			E			D			D	
Intersection Summary												
HCM Average Control Delay			43.6	HCM Level of Service				D				
HCM Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			92.7%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: Firestone Blvd & California Ave

2035 AM Peak_Alt 4
7/1/2009


































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2980	1333	1476	2980	1333	2920	3010	1347	2920	2980	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2980	1333	1476	2980	1333	2920	3010	1347	2920	2980	1347
Volume (vph)	60	1310	120	50	1100	90	220	690	110	180	840	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	1379	126	53	1158	95	232	726	116	189	884	105
RTOR Reduction (vph)	0	0	20	0	0	35	0	0	11	0	0	17
Lane Group Flow (vph)	63	1379	106	53	1158	60	232	726	105	189	884	89
Heavy Vehicles (%)	1%	2%	2%	3%	2%	2%	1%	1%	1%	1%	2%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.0	43.0	51.0	4.0	42.0	49.0	8.0	30.0	34.0	7.0	29.0	34.0
Effective Green, g (s)	5.0	43.0	51.0	4.0	42.0	49.0	8.0	30.0	34.0	7.0	29.0	34.0
Actuated g/C Ratio	0.05	0.43	0.51	0.04	0.42	0.49	0.08	0.30	0.34	0.07	0.29	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	75	1281	733	59	1252	706	234	903	458	204	864	458
v/s Ratio Prot	0.04	c0.46	0.01	0.04	c0.39	0.01	0.08	c0.24	0.01	0.06	c0.30	0.01
v/s Ratio Perm	0.07			0.04			0.07			0.06		
v/c Ratio	0.84	1.08	0.14	0.90	0.92	0.08	0.99	0.80	0.23	0.93	1.02	0.19
Uniform Delay, d1	47.1	28.5	13.0	47.8	27.5	13.6	46.0	32.3	23.6	46.2	35.5	23.3
Progression Factor	0.99	0.71	0.16	0.60	0.32	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	42.2	45.4	0.1	51.3	6.4	0.0	56.2	7.5	0.3	42.5	36.6	0.2
Delay (s)	88.9	65.5	2.1	80.1	15.1	1.1	102.2	39.8	23.9	88.7	72.1	23.5
Level of Service	F	E	A	F	B	A	F	D	C	F	E	C
Approach Delay (s)	61.4			16.7			51.6			70.4		
Approach LOS	E			B			D			E		

Intersection Summary			
HCM Average Control Delay	50.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
60: Firestone Blvd & Atlantic Ave

2035 AM Peak_Alt 4
7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2920	4282	1333	2920	2980	1320	2863	2980	1347	2808	2923	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2920	4282	1333	2920	2980	1320	2863	2980	1347	2808	2923	1347
Volume (vph)	160	1530	80	50	960	390	220	550	80	850	460	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	1611	84	53	1011	411	232	579	84	895	484	84
RTOR Reduction (vph)	0	0	45	0	0	8	0	0	6	0	0	25
Lane Group Flow (vph)	168	1611	39	53	1011	403	232	579	78	895	484	59
Heavy Vehicles (%)	1%	2%	2%	1%	2%	3%	3%	2%	1%	5%	4%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.0	34.6	46.6	3.2	31.8	59.8	12.0	18.2	21.4	28.0	34.2	40.2
Effective Green, g (s)	6.0	34.6	46.6	3.2	31.8	59.8	12.0	18.2	21.4	28.0	34.2	40.2
Actuated g/C Ratio	0.06	0.35	0.47	0.03	0.32	0.60	0.12	0.18	0.21	0.28	0.34	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	175	1482	621	93	948	842	344	542	288	786	1000	595
v/s Ratio Prot	0.06	c0.38	0.01	0.02	c0.34	0.13	0.08	c0.19	0.01	c0.32	0.17	0.01
v/s Ratio Perm			0.02			0.17			0.05			0.04
v/c Ratio	0.96	1.09	0.06	0.57	1.07	0.48	0.67	1.07	0.27	1.14	0.48	0.10
Uniform Delay, d1	46.9	32.7	14.7	47.7	34.1	11.3	42.1	40.9	32.8	36.0	25.9	18.6
Progression Factor	0.77	0.70	2.01	0.94	0.87	0.88	1.26	0.53	0.43	0.77	0.78	0.71
Incremental Delay, d2	32.6	44.6	0.0	4.3	41.7	0.2	4.3	54.8	0.4	77.1	1.6	0.1
Delay (s)	68.9	67.4	29.5	49.2	71.4	10.1	57.4	76.3	14.6	104.7	21.9	13.3
Level of Service	E	E	C	D	E	B	E	E	B	F	C	B
Approach Delay (s)		65.8			53.6			65.6			72.1	
Approach LOS		E			D			E			E	

Intersection Summary

HCM Average Control Delay	64.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
61: Firestone Blvd & Garfield Ave

2035 AM Peak_Alt 4
8/2/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.94	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3897	4282	1308	2949	4200	1320	2863	2951	1360	2863	2951	1204
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3897	4282	1308	2949	4200	1320	2863	2951	1360	2863	2951	1204
Volume (vph)	620	990	340	50	1030	100	760	750	80	130	370	460
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	653	1042	358	53	1084	105	800	789	84	137	389	484
RTOR Reduction (vph)	0	0	28	0	0	27	0	0	22	0	0	7
Lane Group Flow (vph)	653	1042	330	53	1084	78	800	789	62	137	389	477
Heavy Vehicles (%)	10%	2%	4%	0%	4%	3%	3%	3%	0%	3%	3%	13%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.0	38.8	64.8	3.2	25.0	32.0	26.0	35.0	38.2	7.0	16.0	33.0
Effective Green, g (s)	17.0	38.8	64.8	3.2	25.0	32.0	26.0	35.0	38.2	7.0	16.0	33.0
Actuated g/C Ratio	0.17	0.39	0.65	0.03	0.25	0.32	0.26	0.35	0.38	0.07	0.16	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	662	1661	900	94	1050	422	744	1033	520	200	472	445
v/s Ratio Prot	0.17	0.24	0.10	0.02	c0.26	0.01	c0.28	0.27	0.00	0.05	0.13	c0.18
v/s Ratio Perm			0.16			0.05			0.04			0.21
v/c Ratio	0.99	0.63	0.37	0.56	1.03	0.19	1.08	0.76	0.12	0.69	0.82	1.07
Uniform Delay, d1	41.4	24.8	8.1	47.7	37.5	24.6	37.0	28.8	20.0	45.4	40.6	33.5
Progression Factor	0.93	1.23	1.36	0.66	1.05	0.87	0.84	0.88	0.81	0.87	0.85	0.86
Incremental Delay, d2	26.2	1.3	0.2	3.5	27.7	0.1	54.0	5.0	0.1	9.2	14.8	63.1
Delay (s)	64.7	31.7	11.2	35.2	67.0	21.6	85.1	30.4	16.2	48.5	49.5	91.8
Level of Service	E	C	B	D	E	C	F	C	B	D	D	F
Approach Delay (s)		38.6			61.8			55.9			69.6	
Approach LOS		D			E			E			E	
Intersection Summary												
HCM Average Control Delay			53.5			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			93.2%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd

























2035 AM Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔		↔↔	↔↔↔		↔↔	↔↔	↔	↔↔	↔↔	↔
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	4146		2863	4069		2920	2923	1333	2891	2895	1295
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	4146		2863	4069		2920	2923	1333	2891	2895	1295
Volume (vph)	370	750	220	380	840	240	230	810	240	450	740	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	389	789	232	400	884	253	242	853	253	474	779	168
RTOR Reduction (vph)	0	53	0	0	52	0	0	0	9	0	0	14
Lane Group Flow (vph)	389	968	0	400	1085	0	242	853	244	474	779	154
Heavy Vehicles (%)	4%	2%	1%	3%	4%	3%	1%	4%	2%	2%	5%	5%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	14.0	24.8		15.2	26.0		11.0	28.0	43.2	16.0	33.0	47.0
Effective Green, g (s)	14.0	24.8		15.2	26.0		11.0	28.0	43.2	16.0	33.0	47.0
Actuated g/C Ratio	0.14	0.25		0.15	0.26		0.11	0.28	0.43	0.16	0.33	0.47
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	397	1028		435	1058		321	818	629	463	955	609
v/s Ratio Prot	0.14	c0.23		0.14	c0.27		0.08	c0.29	0.06	c0.16	c0.27	0.04
v/s Ratio Perm									0.12			0.08
v/c Ratio	0.98	0.94		0.92	1.03		0.75	1.04	0.39	1.02	0.82	0.25
Uniform Delay, d1	42.9	36.9		41.8	37.0		43.2	36.0	19.4	42.0	30.7	15.9
Progression Factor	0.56	0.60		1.00	1.00		0.98	0.54	0.31	1.00	1.00	1.00
Incremental Delay, d2	36.5	14.4		24.2	34.4		3.8	31.5	0.1	48.0	7.6	0.2
Delay (s)	60.3	36.5		66.0	71.4		46.3	51.1	6.1	90.0	38.4	16.2
Level of Service	E	D		E	E		D	D	A	F	D	B
Approach Delay (s)		43.0			70.0			41.8			53.0	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay	52.5			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.95											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)				8.0				
Intersection Capacity Utilization	93.3%			ICU Level of Service				F				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St

2035 AM Peak_Alt 4
7/1/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2980	1333	2835	2980	1347	1490	2980	1320	1490	2895	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2980	1333	2835	2980	1347	1490	2980	1320	1490	2895	1333
Volume (vph)	80	710	110	210	1000	220	130	950	220	60	540	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	747	116	221	1053	232	137	1000	232	63	568	63
RTOR Reduction (vph)	0	0	34	0	0	27	0	0	44	0	0	42
Lane Group Flow (vph)	84	747	82	221	1053	205	137	1000	188	63	568	21
Heavy Vehicles (%)	3%	2%	2%	4%	2%	1%	2%	2%	3%	2%	5%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	6.0	34.1	46.2	9.9	38.0	43.0	12.1	35.0	44.9	5.0	27.9	33.9
Effective Green, g (s)	6.0	34.1	46.2	9.9	38.0	43.0	12.1	35.0	44.9	5.0	27.9	33.9
Actuated g/C Ratio	0.06	0.34	0.46	0.10	0.38	0.43	0.12	0.35	0.45	0.05	0.28	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	89	1016	669	281	1132	633	180	1043	593	75	808	452
v/s Ratio Prot	0.06	c0.25	0.01	0.08	c0.35	0.02	0.09	c0.34	0.03	0.04	c0.20	0.00
v/s Ratio Perm			0.05			0.14			0.11			0.01
v/c Ratio	0.94	0.74	0.12	0.79	0.93	0.32	0.76	0.96	0.32	0.84	0.70	0.05
Uniform Delay, d1	46.8	29.0	15.3	44.0	29.7	18.9	42.6	31.8	17.7	47.1	32.3	22.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.51	0.48	0.82	0.74	0.81
Incremental Delay, d2	76.4	4.7	0.1	13.5	14.5	0.3	13.3	16.1	0.2	46.4	4.2	0.0
Delay (s)	123.2	33.7	15.4	57.5	44.2	19.2	52.9	32.4	8.7	84.9	28.1	18.1
Level of Service	F	C	B	E	D	B	D	C	A	F	C	B
Approach Delay (s)		39.4			42.3			30.5			32.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	36.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave

2035 AM Peak_Alt 4
5/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2980	1347	1505	2951	1333	2920	2980	1347	2891	2923	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2980	1347	1505	2951	1333	2920	2980	1347	2891	2923	1320
Volume (vph)	100	950	110	140	1260	130	170	640	130	140	430	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1000	116	147	1326	137	179	674	137	147	453	74
RTOR Reduction (vph)	0	0	60	0	0	35	0	0	24	0	0	17
Lane Group Flow (vph)	105	1000	56	147	1326	102	179	674	113	147	453	57
Heavy Vehicles (%)	2%	2%	1%	1%	3%	2%	1%	2%	1%	2%	4%	3%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.0	40.6	48.6	12.4	45.0	51.0	8.0	25.0	37.4	6.0	23.0	31.0
Effective Green, g (s)	8.0	40.6	48.6	12.4	45.0	51.0	8.0	25.0	37.4	6.0	23.0	31.0
Actuated g/C Ratio	0.08	0.41	0.49	0.12	0.45	0.51	0.08	0.25	0.37	0.06	0.23	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	119	1210	709	187	1328	733	234	745	558	173	672	462
v/s Ratio Prot	0.07	0.34	0.01	c0.10	c0.45	0.01	c0.06	c0.23	0.03	0.05	0.15	0.01
v/s Ratio Perm			0.04			0.07			0.06			0.03
v/c Ratio	0.88	0.83	0.08	0.79	1.00	0.14	0.76	0.90	0.20	0.85	0.67	0.12
Uniform Delay, d1	45.5	26.6	13.7	42.5	27.5	12.9	45.1	36.3	21.2	46.6	35.1	24.8
Progression Factor	0.80	1.30	4.28	1.33	0.67	0.17	1.37	0.63	0.34	0.71	0.75	0.67
Incremental Delay, d2	46.6	4.5	0.0	6.8	13.4	0.0	8.3	10.5	0.1	27.3	4.7	0.1
Delay (s)	82.8	38.9	58.9	63.5	31.8	2.2	70.1	33.5	7.4	60.2	31.0	16.7
Level of Service	F	D	E	E	C	A	E	C	A	E	C	B
Approach Delay (s)		44.6			32.1			36.5			35.8	
Approach LOS		D			C			D			D	
Intersection Summary												
HCM Average Control Delay			37.0				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			87.0%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St

2035 AM Peak_Alt 4
7/1/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1476	2942		1448	2870		1490	2937		1462	2895	1308
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1476	2942		1448	2870		1490	2937		1462	2895	1308
Volume (vph)	150	1160	30	50	990	70	40	470	50	80	340	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1221	32	53	1042	74	42	495	53	84	358	95
RTOR Reduction (vph)	0	2	0	0	5	0	0	8	0	0	0	59
Lane Group Flow (vph)	158	1251	0	53	1111	0	42	540	0	84	358	36
Heavy Vehicles (%)	3%	3%	1%	5%	5%	3%	2%	2%	2%	4%	5%	4%
Turn Type	Prot			Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	12.6	49.6		4.8	41.8		4.2	22.6		7.0	25.4	38.0
Effective Green, g (s)	12.6	49.6		4.8	41.8		4.2	22.6		7.0	25.4	38.0
Actuated g/C Ratio	0.13	0.50		0.05	0.42		0.04	0.23		0.07	0.25	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	186	1459		70	1200		63	664		102	735	549
v/s Ratio Prot	c0.11	0.43		0.04	c0.39		0.03	c0.18		c0.06	c0.12	0.01
v/s Ratio Perm												0.02
v/c Ratio	0.85	0.86		0.76	0.93		0.67	0.81		0.82	0.49	0.07
Uniform Delay, d1	42.8	22.1		47.0	27.6		47.2	36.7		45.9	31.8	19.7
Progression Factor	1.00	1.00		1.00	1.00		1.34	0.32		1.00	1.00	1.00
Incremental Delay, d2	28.6	6.7		36.6	13.3		17.4	7.7		39.2	2.3	0.1
Delay (s)	71.3	28.8		83.7	41.0		80.6	19.6		85.1	34.1	19.8
Level of Service	E	C		F	D		F	B		F	C	B
Approach Delay (s)		33.6			42.9			23.9			39.5	
Approach LOS		C			D			C			D	

























Intersection Summary

HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 AM Peak_Alt 4
7/1/2009























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1448	2951	1333	1505	2923	1333	1490	2980	1347	1476	2923	1283
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1448	2951	1333	1505	2923	1333	1490	2980	1347	1476	2923	1283
Volume (vph)	220	950	50	60	860	250	100	700	210	140	280	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1000	53	63	905	263	105	737	221	147	295	137
RTOR Reduction (vph)	0	0	26	0	0	44	0	0	42	0	0	80
Lane Group Flow (vph)	232	1000	27	63	905	219	105	737	179	147	295	57
Heavy Vehicles (%)	5%	3%	2%	1%	4%	2%	2%	2%	1%	3%	4%	6%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	16.0	39.8	51.0	7.2	31.0	41.0	11.2	27.0	34.2	10.0	25.8	41.8
Effective Green, g (s)	16.0	39.8	51.0	7.2	31.0	41.0	11.2	27.0	34.2	10.0	25.8	41.8
Actuated g/C Ratio	0.16	0.40	0.51	0.07	0.31	0.41	0.11	0.27	0.34	0.10	0.26	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	232	1174	733	108	906	547	167	805	461	148	754	588
v/s Ratio Prot	c0.16	0.34	0.00	0.04	c0.31	0.04	0.07	c0.25	0.03	c0.10	0.10	0.02
v/s Ratio Perm			0.02			0.12			0.10			0.03
v/c Ratio	1.00	0.85	0.04	0.58	1.00	0.40	0.63	0.92	0.39	0.99	0.39	0.10
Uniform Delay, d1	42.0	27.4	12.2	44.9	34.5	20.8	42.4	35.4	25.0	45.0	30.6	17.7
Progression Factor	0.66	0.24	0.00	0.75	0.68	0.38	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	48.3	4.2	0.0	3.7	20.0	0.2	7.2	16.8	0.5	71.6	1.5	0.1
Delay (s)	76.0	10.7	0.0	37.5	43.6	8.2	49.6	52.2	25.5	116.6	32.1	17.7
Level of Service	E	B	A	D	D	A	D	D	C	F	C	B
Approach Delay (s)		22.1			35.7			46.4			50.2	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	36.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group





























HCM Signalized Intersection Capacity Analysis
71: Slauson Ave & Eastern Ave

2035 AM Peak_Alt 4
9/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	4076		1226	4112		2891	2951	1259	2499	2815	1308
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	4076		1226	4112		2891	2951	1259	2499	2815	1308
Volume (vph)	170	780	250	90	750	100	300	850	130	100	420	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	821	263	95	789	105	316	895	137	105	442	105
RTOR Reduction (vph)	0	58	0	0	17	0	0	0	22	0	0	23
Lane Group Flow (vph)	179	1026	0	95	877	0	316	895	115	105	442	82
Heavy Vehicles (%)	2%	4%	1%	24%	4%	7%	2%	3%	8%	18%	8%	4%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	14.7	29.4		10.3	25.0		15.0	38.2	48.5	6.1	29.3	44.0
Effective Green, g (s)	14.7	29.4		10.3	25.0		15.0	38.2	48.5	6.1	29.3	44.0
Actuated g/C Ratio	0.15	0.29		0.10	0.25		0.15	0.38	0.48	0.06	0.29	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	219	1198		126	1028		434	1127	661	152	825	628
v/s Ratio Prot	c0.12	c0.25		0.08	0.21		c0.11	c0.30	0.02	0.04	0.16	0.02
v/s Ratio Perm								0.07				0.04
v/c Ratio	0.82	0.86		0.75	0.85		0.73	0.79	0.17	0.69	0.54	0.13
Uniform Delay, d1	41.3	33.3		43.6	35.7		40.6	27.4	14.5	46.0	29.6	16.6
Progression Factor	1.43	0.57		0.65	0.84		1.10	0.40	0.15	1.25	0.71	0.64
Incremental Delay, d2	17.3	5.2		11.3	3.4		3.6	3.5	0.1	10.2	2.0	0.1
Delay (s)	76.6	24.1		39.7	33.6		48.2	14.4	2.3	67.8	23.1	10.8
Level of Service	E	C		D	C		D	B	A	E	C	B
Approach Delay (s)		31.5			34.2			21.1			28.3	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			28.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			75.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
73: Slauson Ave & Garfield Ave

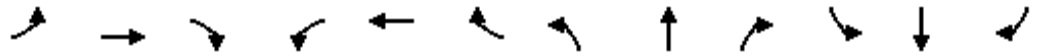
2035 AM Peak_Alt 4
7/6/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2815	1295	1505	2923	1360	1490	2895	1347	1520	2895	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2815	1295	1505	2923	1360	1490	2895	1347	1520	2895	1308
Volume (vph)	140	520	20	140	910	60	150	880	150	90	610	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	547	21	147	958	63	158	926	158	95	642	211
RTOR Reduction (vph)	0	0	12	0	0	38	0	0	66	0	0	48
Lane Group Flow (vph)	147	547	9	147	958	25	158	926	92	95	642	163
Heavy Vehicles (%)	3%	8%	5%	1%	4%	0%	2%	5%	1%	0%	5%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	31.7	44.8	12.3	33.0	40.0	13.1	33.0	45.3	7.0	26.9	37.9
Effective Green, g (s)	11.0	31.7	44.8	12.3	33.0	40.0	13.1	33.0	45.3	7.0	26.9	37.9
Actuated g/C Ratio	0.11	0.32	0.45	0.12	0.33	0.40	0.13	0.33	0.45	0.07	0.27	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	162	892	632	185	965	598	195	955	664	106	779	548
v/s Ratio Prot	c0.10	0.19	0.00	0.10	c0.33	0.00	c0.11	c0.32	0.02	0.06	0.22	0.03
v/s Ratio Perm			0.01			0.02			0.05			0.09
v/c Ratio	0.91	0.61	0.01	0.79	0.99	0.04	0.81	0.97	0.14	0.90	0.82	0.30
Uniform Delay, d1	44.0	29.0	15.3	42.6	33.4	18.3	42.2	33.0	16.0	46.1	34.3	21.7
Progression Factor	0.59	1.01	2.29	1.00	1.00	1.00	0.76	1.05	2.78	1.38	0.50	0.59
Incremental Delay, d2	32.6	0.8	0.0	20.5	27.0	0.0	18.2	19.8	0.1	40.6	6.3	0.2
Delay (s)	58.7	30.0	35.1	63.1	60.4	18.3	50.4	54.5	44.5	104.3	23.3	13.1
Level of Service	E	C	D	E	E	B	D	D	D	F	C	B
Approach Delay (s)		36.1			58.5			52.7			29.1	
Approach LOS		D			E			D			C	
Intersection Summary												
HCM Average Control Delay			46.0				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			87.2%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 106: Cesar Chavez Ave & Humphreys Ave

2035 AM_Alt 4
 8/9/2011



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Volume (veh/h)	22	979	33	37	921	51	10	2	35	61	13	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	23	1031	35	39	969	54	11	2	37	64	14	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (ft)		663										
pX, platoon unblocked				0.94		0.94	0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1023			1065		1701	2195	533	1674	2186	512	
vC1, stage 1 conf vol						1094	1094		1074	1074		
vC2, stage 2 conf vol						606	1101		599	1112		
vCu, unblocked vol	1023			938		1615	2142	370	1586	2132	512	
tC, single (s)	4.3			4.3		7.7	6.7	7.1	7.7	6.7	7.1	
tC, 2 stage (s)						6.7	5.7		6.7	5.7		
tF (s)	2.3			2.3		3.6	4.1	3.4	3.6	4.1	3.4	
p0 queue free %	96			94		94	99	94	65	92	92	
cM capacity (veh/h)	628			637		190	176	567	186	174	487	

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	538	550	524	538	49	115
Volume Left	23	0	39	0	11	64
Volume Right	0	35	0	54	37	37
cSH	628	1700	637	1700	374	230
Volume to Capacity	0.04	0.32	0.06	0.32	0.13	0.50
Queue Length 95th (ft)	3	0	5	0	11	64
Control Delay (s)	1.0	0.0	1.7	0.0	16.1	35.4
Lane LOS	A		A		C	E
Approach Delay (s)	0.5		0.8		16.1	35.4
Approach LOS					C	E

Intersection Summary	
Average Delay	2.7
Intersection Capacity Utilization	75.4%
ICU Level of Service	D
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
146: 223rd St & Santa Fe Ave































2035 AM Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2980	1333	2920	2980	1347	2863	2923	1347	2920	2895	2302
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2980	1333	2920	2980	1347	2863	2923	1347	2920	2895	2302
Volume (vph)	140	210	200	230	340	950	450	520	160	200	470	420
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	221	211	242	358	1000	474	578	168	211	495	442
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	103	0	0	326
Lane Group Flow (vph)	147	221	165	242	358	1000	474	578	65	211	495	116
Heavy Vehicles (%)	3%	2%	2%	1%	2%	1%	3%	4%	1%	1%	5%	4%
Turn Type	Prot	pm+ov		Prot	Free		Prot	pm+ov		Prot	Over	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2			Free			8				
Actuated Green, G (s)	19.7	23.4	42.4	11.8	15.5	89.8	19.0	23.1	34.9	15.5	19.6	19.7
Effective Green, g (s)	19.7	23.4	42.4	11.8	15.5	89.8	19.0	23.1	34.9	15.5	19.6	19.7
Actuated g/C Ratio	0.22	0.26	0.47	0.13	0.17	1.00	0.21	0.26	0.39	0.17	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	324	777	629	384	514	1347	606	752	584	504	632	505
v/s Ratio Prot	0.10	0.07	0.06	0.08	0.12		0.17	0.20	0.01	0.07	0.17	0.05
v/s Ratio Perm			0.07			c0.74			0.03			
v/c Ratio	0.45	0.28	0.26	0.63	0.70	0.74	0.78	0.77	0.11	0.42	0.78	0.23
Uniform Delay, d1	30.4	26.5	14.3	36.9	34.9	0.0	33.4	30.9	17.5	33.1	33.1	28.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.9	0.2	3.4	4.1	3.7	6.5	4.7	0.1	0.6	6.3	0.2
Delay (s)	31.4	27.4	14.5	40.3	39.0	3.7	40.0	35.6	17.6	33.7	39.4	29.1
Level of Service	C	C	B	D	D	A	D	D	B	C	D	C
Approach Delay (s)		23.7			17.2			34.8			34.4	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			27.1	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			89.8	Sum of lost time (s)				0.0				
Intersection Capacity Utilization			64.4%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 AM Peak_Alt 4
 05/27/2011





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	2951	1333	2863	2895	1333	1490	2923	1320	1369	2841	1183
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	2951	1333	2863	2895	1333	1490	2923	1320	1369	2841	1183
Volume (vph)	300	870	30	110	830	120	120	1080	90	50	350	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	316	916	32	116	874	126	126	1137	95	53	368	158
RTOR Reduction (vph)	0	0	16	0	0	14	0	0	27	0	0	96
Lane Group Flow (vph)	316	916	16	116	874	112	126	1137	68	53	368	62
Heavy Vehicles (%)	4%	3%	2%	3%	5%	2%	2%	4%	3%	11%	7%	15%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	33.6	50.6	7.4	30.0	34.0	17.0	39.0	46.4	4.0	26.0	37.0
Effective Green, g (s)	11.0	33.6	50.6	7.4	30.0	34.0	17.0	39.0	46.4	4.0	26.0	37.0
Actuated g/C Ratio	0.11	0.34	0.51	0.07	0.30	0.34	0.17	0.39	0.46	0.04	0.26	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	992	728	212	869	453	253	1140	665	55	739	438
v/s Ratio Prot	0.11	c0.31	0.00	0.04	c0.30	0.01	0.08	c0.39	0.01	c0.04	0.13	0.02
v/s Ratio Perm			0.01			0.07			0.04			0.04
v/c Ratio	1.01	0.92	0.02	0.55	1.01	0.25	0.50	1.00	0.10	0.96	0.50	0.14
Uniform Delay, d1	44.5	32.0	12.3	44.7	35.0	23.8	37.6	30.4	15.1	47.9	31.5	20.9
Progression Factor	1.00	1.00	1.00	0.45	0.26	0.19	0.59	0.24	0.01	0.71	0.87	1.40
Incremental Delay, d2	54.2	13.7	0.0	1.4	22.4	0.1	0.4	13.6	0.0	82.2	1.5	0.1
Delay (s)	98.7	45.6	12.4	21.5	31.4	4.7	22.6	21.0	0.2	116.4	28.9	29.4
Level of Service	F	D	B	C	C	A	C	C	A	F	C	C
Approach Delay (s)		58.1			27.4			19.7			37.1	
Approach LOS		E			C			B			D	

Intersection Summary			
HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave

2035 AM Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frt		0.99			0.99		1.00	1.00	0.85	1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2902			2900		1490	2895	1347	1448	2823	
Flt Permitted		1.00			1.00		0.56	1.00	1.00	0.14	1.00	
Satd. Flow (perm)		2902			2900		880	2895	1347	210	2823	
Volume (vph)	30	740	30	70	730	80	40	820	120	20	200	40
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	779	32	74	768	84	42	863	126	21	211	42
RTOR Reduction (vph)	0	3	0	0	8	0	0	0	10	0	16	0
Lane Group Flow (vph)	0	840	0	0	918	0	42	863	116	21	237	0
Heavy Vehicles (%)	4%	4%	3%	3%	3%	3%	2%	5%	1%	5%	5%	5%
Turn Type	Split		Split				Perm		pm+ov	Perm		
Protected Phases	4	4		8	8			2	8			6
Permitted Phases							2		2			6
Actuated Green, G (s)		28.0			31.0		29.0	29.0	60.0	29.0	29.0	
Effective Green, g (s)		28.0			31.0		29.0	29.0	60.0	29.0	29.0	
Actuated g/C Ratio		0.28			0.31		0.29	0.29	0.60	0.29	0.29	
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		813			899		255	840	862	61	819	
v/s Ratio Prot		c0.29			c0.32			c0.30	0.04		0.08	
v/s Ratio Perm							0.05		0.04	0.10		
v/c Ratio		1.03			1.02		0.16	1.03	0.13	0.34	0.29	
Uniform Delay, d1		36.0			34.5		26.5	35.5	8.7	28.0	27.5	
Progression Factor		0.19			0.54		0.53	0.63	0.48	1.00	1.00	
Incremental Delay, d2		25.9			33.1		1.1	35.0	0.1	14.8	0.9	
Delay (s)		32.9			51.8		15.1	57.5	4.3	42.8	28.4	
Level of Service		C			D		B	E	A	D	C	
Approach Delay (s)		32.9			51.8			49.2			29.5	
Approach LOS		C			D			D			C	
Intersection Summary												
HCM Average Control Delay			43.8			HCM Level of Service				D		
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			99.4%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 153: Gage Ave & Santa Fe Ave

2035 AM Peak_Alt 4
 05/27/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2923	1248	1476	2923	1333	2835	2841	1333	2835	2739	1193
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2923	1248	1476	2923	1333	2835	2841	1333	2835	2739	1193
Volume (vph)	120	810	50	90	670	80	200	1170	70	100	620	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	853	53	95	705	84	211	1232	74	105	653	95
RTOR Reduction (vph)	0	0	31	0	0	36	0	0	10	0	0	33
Lane Group Flow (vph)	126	853	22	95	705	48	211	1232	64	105	653	62
Heavy Vehicles (%)	1%	4%	9%	3%	4%	2%	4%	7%	2%	4%	11%	14%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.7	29.0	42.0	7.0	26.3	30.3	13.0	44.0	51.0	4.0	35.0	44.7
Effective Green, g (s)	9.7	29.0	42.0	7.0	26.3	30.3	13.0	44.0	51.0	4.0	35.0	44.7
Actuated g/C Ratio	0.10	0.29	0.42	0.07	0.26	0.30	0.13	0.44	0.51	0.04	0.35	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	848	524	103	769	457	369	1250	680	113	959	581
v/s Ratio Prot	0.08	c0.29	0.01	0.06	c0.24	0.00	c0.07	c0.43	0.01	0.04	0.24	0.01
v/s Ratio Perm			0.01			0.03			0.04			0.04
v/c Ratio	0.86	1.01	0.04	0.92	0.92	0.10	0.57	0.99	0.09	0.93	0.68	0.11
Uniform Delay, d1	44.5	35.5	17.1	46.2	35.8	25.1	40.9	27.7	12.6	47.9	27.7	16.1
Progression Factor	1.00	1.00	1.00	0.98	0.36	0.03	1.00	1.00	1.00	0.84	0.46	0.14
Incremental Delay, d2	37.5	32.4	0.0	35.6	7.3	0.0	2.1	22.2	0.1	60.9	3.8	0.1
Delay (s)	82.0	67.9	17.2	81.1	20.2	0.8	43.0	49.9	12.7	100.8	16.5	2.3
Level of Service	F	E	B	F	C	A	D	D	B	F	B	A
Approach Delay (s)		67.0			24.9			47.1			25.3	
Approach LOS		E			C			D			C	
Intersection Summary												
HCM Average Control Delay			43.0			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			87.6%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 161: Del Amo Blvd & Susana Road

2035 AM Peak_Alt 4
 7/1/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1434	4098		1520	3010	1347	1520	1505		2835	1600	2324
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.72	1.00		0.48	1.00	1.00
Satd. Flow (perm)	1434	4098		1520	3010	1347	1145	1505		1425	1600	2324
Volume (vph)	210	810	30	20	1430	290	30	30	20	350	60	940
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	853	32	21	1505	305	32	32	21	368	63	989
RTOR Reduction (vph)	0	3	0	0	0	116	0	19	0	0	0	353
Lane Group Flow (vph)	221	882	0	21	1505	189	32	34	0	368	63	636
Heavy Vehicles (%)	6%	6%	6%	0%	1%	1%	0%	0%	0%	4%	0%	3%
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	14.3	56.7		2.7	45.1	61.9	16.3	7.8		28.6	16.1	30.4
Effective Green, g (s)	14.3	56.7		2.7	45.1	61.9	16.3	7.8		28.6	16.1	30.4
Actuated g/C Ratio	0.14	0.57		0.03	0.45	0.62	0.16	0.08		0.29	0.16	0.30
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	205	2324		41	1358	834	219	117		644	258	706
v/s Ratio Prot	c0.15	0.22		0.01	c0.50	0.04	0.01	0.02		c0.10	0.04	c0.13
v/s Ratio Perm						0.10	0.01			0.07		0.14
v/c Ratio	1.08	0.38		0.51	1.11	0.23	0.15	0.29		0.57	0.24	0.90
Uniform Delay, d1	42.9	11.9		48.0	27.4	8.4	35.8	43.5		29.4	36.6	33.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	85.1	0.5		10.4	59.8	0.1	0.3	1.4		1.2	0.5	14.7
Delay (s)	128.0	12.4		58.4	87.2	8.6	36.1	44.8		30.6	37.1	48.0
Level of Service	F	B		E	F	A	D	D		C	D	D
Approach Delay (s)		35.5			73.8			41.5			43.0	
Approach LOS		D			E			D			D	


























Intersection Summary

HCM Average Control Delay	53.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: E Anaheim St & Magnolia Avenue

2035 MD Peak_Alt 4
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1448	2589		1520	2575		2835	2870		1520	2836	
Flt Permitted	0.20	1.00		0.18	1.00		0.44	1.00		0.46	1.00	
Satd. Flow (perm)	306	2589		290	2575		1306	2870		738	2836	
Volume (vph)	80	1070	110	80	1010	100	170	240	70	130	260	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	1126	116	84	1063	105	179	253	74	137	274	74
RTOR Reduction (vph)	0	6	0	0	6	0	0	30	0	0	27	0
Lane Group Flow (vph)	84	1236	0	84	1162	0	179	297	0	137	321	0
Heavy Vehicles (%)	5%	17%	4%	0%	18%	1%	4%	3%	0%	0%	4%	3%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	61.4	61.4		61.4	61.4		19.9	19.9		19.9	19.9	
Effective Green, g (s)	61.4	61.4		61.4	61.4		19.9	19.9		19.9	19.9	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.22	0.22		0.22	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	1780		199	1770		291	640		164	632	
v/s Ratio Prot	c0.48			0.45			0.10			0.11		
v/s Ratio Perm	0.27			0.29			0.14			c0.19		
v/c Ratio	0.40	0.69		0.42	0.66		0.62	0.46		0.84	0.51	
Uniform Delay, d1	6.0	8.3		6.1	7.9		31.3	30.1		33.1	30.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	2.3		1.4	0.9		3.8	0.5		29.1	0.6	
Delay (s)	11.6	10.6		7.6	8.8		35.1	30.6		62.2	31.1	
Level of Service	B	B		A	A		D	C		E	C	
Approach Delay (s)	10.7			8.8			32.2			39.9		
Approach LOS	B			A			C			D		
Intersection Summary												
HCM Average Control Delay	17.0			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.73											
Actuated Cycle Length (s)	89.3			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	77.0%			ICU Level of Service			D					
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: E Anaheim St & Pacific Ave

2035 MD Peak_Alt 4
 8/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	938	2667	1308	1490	2621	1333	2863	2753		2920	2646	
Flt Permitted	0.18	1.00	1.00	0.25	1.00	1.00	0.33	1.00		0.40	1.00	
Satd. Flow (perm)	173	2667	1308	397	2621	1333	981	2753		1228	2646	
Volume (vph)	150	985	95	50	945	70	135	290	50	90	320	40
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1037	100	53	995	74	142	305	53	95	337	42
RTOR Reduction (vph)	0	0	37	0	0	35	0	14	0	0	10	0
Lane Group Flow (vph)	158	1037	63	53	995	39	142	344	0	95	369	0
Heavy Vehicles (%)	62%	14%	4%	2%	16%	2%	3%	9%	2%	1%	4%	85%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt				pm+pt	
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	65.3	58.2	62.2	51.7	48.6	51.7	22.4	18.4		20.6	17.5	
Effective Green, g (s)	65.3	58.2	62.2	51.7	48.6	51.7	22.4	18.4		20.6	17.5	
Actuated g/C Ratio	0.66	0.59	0.63	0.52	0.49	0.52	0.23	0.19		0.21	0.18	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	1571	876	242	1289	751	299	513		309	469	
v/s Ratio Prot	c0.10	0.39	0.00	0.01	0.38	0.00	c0.02	0.13		0.01	c0.14	
v/s Ratio Perm	c0.40		0.05	0.11		0.03	0.09			0.05		
v/c Ratio	0.74	0.66	0.07	0.22	0.77	0.05	0.47	0.67		0.31	0.79	
Uniform Delay, d1	11.7	13.6	7.1	11.7	20.6	11.5	31.4	37.4		32.1	38.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.0	2.2	0.0	0.5	2.9	0.0	1.2	3.4		0.6	8.5	
Delay (s)	24.7	15.8	7.1	12.2	23.5	11.6	32.5	40.8		32.7	47.4	
Level of Service	C	B	A	B	C	B	C	D		C	D	
Approach Delay (s)		16.2			22.2			38.5			44.4	
Approach LOS		B			C			D			D	
Intersection Summary												
HCM Average Control Delay			25.4			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			98.8			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			70.8%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: E Anaheim St & Cherry Ave

















2035 MD Peak_Alt 4
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2739	1320	1490	2609		1476	1553	1320	1462	1553	1347
Flt Permitted	0.18	1.00	1.00	0.11	1.00		0.18	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	279	2739	1320	165	2609		273	1553	1320	442	1553	1347
Volume (vph)	150	1110	70	90	890	120	70	420	60	160	520	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1168	74	95	937	126	74	442	63	168	547	147
RTOR Reduction (vph)	0	0	40	0	11	0	0	0	19	0	0	35
Lane Group Flow (vph)	158	1168	34	95	1052	0	74	442	44	168	547	112
Heavy Vehicles (%)	1%	11%	3%	2%	16%	3%	3%	3%	3%	4%	3%	1%
Turn Type	pm+pt		Perm	pm+pt		Perm		pm+ov	Perm		pm+ov	
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2		2	6		8		8	4		4	4
Actuated Green, G (s)	45.1	45.1	45.1	42.0	42.0		36.7	36.7	40.7	36.7	36.7	43.8
Effective Green, g (s)	45.1	45.1	45.1	42.0	42.0		36.7	36.7	40.7	36.7	36.7	43.8
Actuated g/C Ratio	0.46	0.46	0.46	0.43	0.43		0.38	0.38	0.42	0.38	0.38	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	218	1263	609	125	1120		102	583	603	166	583	658
v/s Ratio Prot	0.05	c0.43		0.03	c0.40			0.28	0.00		0.35	0.01
v/s Ratio Perm	0.28		0.03	0.29		0.27		0.03	c0.38		0.07	
v/c Ratio	0.72	0.92	0.06	0.76	0.94		0.73	0.76	0.07	1.01	0.94	0.17
Uniform Delay, d1	31.0	24.8	14.6	21.6	26.7		26.2	26.7	17.2	30.5	29.5	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	12.7	0.2	23.4	14.5		22.4	5.6	0.1	73.0	22.9	0.1
Delay (s)	42.3	37.5	14.8	44.9	41.1		48.6	32.3	17.2	103.6	52.3	16.3
Level of Service	D	D	B	D	D		D	C	B	F	D	B
Approach Delay (s)		36.8			41.5			32.7			56.2	
Approach LOS		D			D			C			E	
Intersection Summary												
HCM Average Control Delay			41.7			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			97.8			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			94.1%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group































HCM Signalized Intersection Capacity Analysis
18: O Street & Alameda St

2035 MD Peak_Alt 4
12/4/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		 	  			  
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.88	0.91		1.00	0.91
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1520	2100	2792		1322	2696
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1520	2100	2792		1322	2696
Volume (vph)	120	210	450	130	170	390
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	221	474	137	179	411
RTOR Reduction (vph)	0	191	44	0	0	0
Lane Group Flow (vph)	126	30	567	0	179	411
Heavy Vehicles (%)	0%	14%	66%	0%	15%	62%
Turn Type		Prot			Prot	
Protected Phases	4	4	2		1	6
Permitted Phases						
Actuated Green, G (s)	13.3	13.3	40.1		33.1	77.2
Effective Green, g (s)	13.3	13.3	40.1		33.1	77.2
Actuated g/C Ratio	0.14	0.14	0.41		0.34	0.78
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	205	284	1137		444	2113
v/s Ratio Prot	c0.08	0.01	c0.20		c0.14	0.15
v/s Ratio Perm						
v/c Ratio	0.61	0.11	0.50		0.40	0.19
Uniform Delay, d1	40.2	37.4	21.7		25.1	2.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.4	0.2	1.6		0.6	0.2
Delay (s)	45.6	37.5	23.3		25.7	2.9
Level of Service	D	D	C		C	A
Approach Delay (s)	40.5		23.3			9.8
Approach LOS	D		C			A
Intersection Summary						
HCM Average Control Delay			22.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			98.5		Sum of lost time (s)	12.0
Intersection Capacity Utilization			42.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 20: Pacific Coast Hwy & Pacific Ave

2035 MD Peak_Alt 4
 12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1277	3935	1333	1476	3971	1333	1476	2472	1295	1490	2598	1259
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.32	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	1277	3935	1333	1476	3971	1333	496	2472	1295	473	2598	1259
Volume (vph)	190	1220	80	80	1070	110	90	500	100	90	480	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	1284	84	84	1126	116	95	526	105	95	505	126
RTOR Reduction (vph)	0	0	41	0	0	69	0	0	15	0	0	7
Lane Group Flow (vph)	200	1284	43	84	1126	47	95	526	90	95	505	119
Heavy Vehicles (%)	19%	11%	2%	3%	10%	2%	3%	23%	5%	2%	17%	8%
Turn Type	Prot		Perm	Prot		Perm	Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	17.5	46.0	46.0	8.1	36.6	36.6	23.6	23.6	31.7	23.6	23.6	41.1
Effective Green, g (s)	17.5	46.0	46.0	8.1	36.6	36.6	23.6	23.6	31.7	23.6	23.6	41.1
Actuated g/C Ratio	0.20	0.51	0.51	0.09	0.41	0.41	0.26	0.26	0.35	0.26	0.26	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	249	2018	684	133	1620	544	130	650	515	124	684	633
v/s Ratio Prot	c0.16	0.33		0.06	c0.28			c0.21	0.02		0.19	0.04
v/s Ratio Perm			0.03			0.04	0.19		0.05	0.20		0.06
v/c Ratio	0.80	0.64	0.06	0.63	0.70	0.09	0.73	0.81	0.18	0.77	0.74	0.19
Uniform Delay, d1	34.5	15.8	11.0	39.4	21.9	16.3	30.2	30.9	20.0	30.5	30.2	14.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.9	1.5	0.2	9.4	1.3	0.1	18.9	7.4	0.2	24.1	4.2	0.1
Delay (s)	51.3	17.3	11.2	48.8	23.3	16.4	49.1	38.3	20.2	54.6	34.4	14.6
Level of Service	D	B	B	D	C	B	D	D	C	D	C	B
Approach Delay (s)		21.3			24.3			37.1			33.6	
Approach LOS		C			C			D			C	

Intersection Summary		
HCM Average Control Delay	26.9	HCM Level of Service C
HCM Volume to Capacity ratio	0.75	
Actuated Cycle Length (s)	89.7	Sum of lost time (s) 12.0
Intersection Capacity Utilization	72.7%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 21: Pacific Coast Hwy & Long Beach Blvd

2035 MD Peak_Alt 4
 7/27/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖↗↘		↖↗	↖↗↘		↖	↖↗	↖	↖	↖↗	↖
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2730	3948		2863	3941		1490	2923	1320	1490	2868	1248
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2730	3948		2863	3941		1490	2923	1320	1490	2868	1248
Volume (vph)	190	880	70	170	820	170	120	670	60	150	860	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	926	74	179	863	179	126	705	63	158	905	137
RTOR Reduction (vph)	0	9	0	0	32	0	0	0	30	0	0	50
Lane Group Flow (vph)	200	991	0	179	1010	0	126	705	34	158	905	87
Heavy Vehicles (%)	8%	10%	2%	3%	9%	3%	2%	4%	3%	2%	6%	9%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases								8				4
Actuated Green, G (s)	9.0	30.0		8.0	29.0		10.5	31.0	39.0	13.0	33.5	42.5
Effective Green, g (s)	9.0	30.0		8.0	29.0		10.5	31.0	39.0	13.0	33.5	42.5
Actuated g/C Ratio	0.09	0.31		0.08	0.30		0.11	0.32	0.40	0.13	0.34	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	1209		234	1166		160	925	525	198	980	541
v/s Ratio Prot	0.07	c0.25		0.06	c0.26		0.08	c0.24	0.01	0.11	c0.32	0.01
v/s Ratio Perm									0.02			0.06
v/c Ratio	0.80	0.82		0.76	0.87		0.79	0.76	0.06	0.80	0.92	0.16
Uniform Delay, d1	43.6	31.5		44.1	32.7		42.7	30.2	18.2	41.2	31.0	16.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.9	6.3		13.8	7.0		22.1	3.8	0.1	19.7	13.8	0.1
Delay (s)	59.6	37.8		57.9	39.6		64.7	33.9	18.3	60.9	44.8	17.0
Level of Service	E	D		E	D		E	C	B	E	D	B
Approach Delay (s)		41.4			42.3			37.2			43.8	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	41.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
25: Sepulveda Blvd & Alameda St Ramp

2035 MD Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↗	↗	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00		0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1322	2643		1322	2643	1183		1338		2564	1391	1183
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00		0.57	1.00	1.00
Satd. Flow (perm)	1322	2643		1322	2643	1183		1338		1549	1391	1183
Volume (vph)	110	310	0	10	280	300	0	30	10	190	10	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	326	0	11	295	316	0	32	11	200	11	116
RTOR Reduction (vph)	0	0	0	0	0	141	0	9	0	0	0	36
Lane Group Flow (vph)	116	326	0	11	295	175	0	34	0	200	11	80
Heavy Vehicles (%)	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	13.7	31.4		1.6	19.3	55.5		14.8		55.0	55.0	68.7
Effective Green, g (s)	13.7	31.4		1.6	19.3	55.5		14.8		55.0	55.0	68.7
Actuated g/C Ratio	0.14	0.31		0.02	0.19	0.56		0.15		0.55	0.55	0.69
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	181	830		21	510	704		198		1219	765	860
v/s Ratio Prot	c0.09	0.12		0.01	c0.11	c0.09		0.03		0.06	0.01	0.01
v/s Ratio Perm						0.06				c0.03		0.05
v/c Ratio	0.64	0.39		0.52	0.58	0.25		0.17		0.16	0.01	0.09
Uniform Delay, d1	40.8	26.8		48.8	36.7	11.5		37.2		11.1	10.2	5.2
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	0.3		21.6	1.6	0.2		1.9		0.3	0.0	0.0
Delay (s)	48.4	27.1		70.4	38.2	11.7		39.1		11.4	10.2	5.3
Level of Service	D	C		E	D	B		D		B	B	A
Approach Delay (s)		32.7			25.3			39.1			9.2	
Approach LOS		C			C			D			A	

































Intersection Summary

HCM Average Control Delay	24.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
28: Willow St & Long Beach Blvd

































2035 MD Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			  			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2920	4200	1347	2835	4282	1308	1505	3963		1476	2868	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2920	4200	1347	2835	4282	1308	1505	3963		1476	2868	1347
Volume (vph)	360	800	180	270	980	180	220	550	210	260	770	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	379	842	189	284	1032	189	232	579	221	274	811	179
RTOR Reduction (vph)	0	0	20	0	0	16	0	61	0	0	0	39
Lane Group Flow (vph)	379	842	169	284	1032	173	232	739	0	274	811	140
Heavy Vehicles (%)	1%	4%	1%	4%	2%	4%	1%	4%	10%	3%	6%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	15.0	30.0	48.0	13.6	28.6	51.7	18.0	26.9		23.1	32.0	47.0
Effective Green, g (s)	15.0	30.0	48.0	13.6	28.6	51.7	18.0	26.9		23.1	32.0	47.0
Actuated g/C Ratio	0.14	0.27	0.44	0.12	0.26	0.47	0.16	0.25		0.21	0.29	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	400	1150	590	352	1117	617	247	973		311	837	578
v/s Ratio Prot	c0.13	0.20	0.05	0.10	c0.24	0.06	0.15	0.19		c0.19	c0.28	0.03
v/s Ratio Perm			0.08			0.07						0.07
v/c Ratio	0.95	0.73	0.29	0.81	0.92	0.28	0.94	0.76		0.88	0.97	0.24
Uniform Delay, d1	46.9	36.2	19.8	46.7	39.4	17.6	45.3	38.3		41.9	38.3	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	31.5	4.1	0.3	12.7	12.5	0.2	40.4	3.5		23.9	23.4	0.2
Delay (s)	78.4	40.3	20.1	59.4	51.9	17.9	85.7	41.8		65.9	61.8	20.2
Level of Service	E	D	C	E	D	B	F	D		E	E	C
Approach Delay (s)		47.8			49.1			51.7			56.8	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM Average Control Delay			51.1				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			109.6				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			87.8%				ICU Level of Service				E	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
29: Willow St & Atlantic Ave





































2035 MD Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2564	4262		1476	4206		2891	2923	1271	2863	2923	1283
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2564	4262		1476	4206		2891	2923	1271	2863	2923	1283
Volume (vph)	170	840	90	90	820	110	100	540	100	200	520	190
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	884	95	95	863	116	105	568	105	211	547	200
RTOR Reduction (vph)	0	14	0	0	18	0	0	0	80	0	0	138
Lane Group Flow (vph)	179	965	0	95	961	0	105	568	25	211	547	62
Heavy Vehicles (%)	15%	1%	1%	3%	2%	2%	2%	4%	7%	3%	4%	6%
Turn Type	Prot			Prot			Prot		Perm	Prot		Perm
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases									8			4
Actuated Green, G (s)	7.4	28.8		7.8	29.2		5.2	19.9	19.9	11.0	25.7	25.7
Effective Green, g (s)	7.4	28.8		7.8	29.2		5.2	19.9	19.9	11.0	25.7	25.7
Actuated g/C Ratio	0.09	0.34		0.09	0.35		0.06	0.24	0.24	0.13	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	227	1470		138	1471		180	697	303	377	900	395
v/s Ratio Prot	c0.07	0.23		0.06	c0.23		0.04	c0.19		0.07	c0.19	
v/s Ratio Perm									0.02			0.05
v/c Ratio	0.79	0.66		0.69	0.65		0.58	0.81	0.08	0.56	0.61	0.16
Uniform Delay, d1	37.3	23.2		36.7	22.9		38.1	30.1	24.7	34.0	24.6	21.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.4	2.3		13.4	1.1		4.8	7.3	0.1	1.8	1.2	0.2
Delay (s)	53.7	25.5		50.0	23.9		42.8	37.3	24.8	35.8	25.8	21.2
Level of Service	D	C		D	C		D	C	C	D	C	C
Approach Delay (s)		29.8			26.2			36.4			27.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM Average Control Delay			29.5	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			83.5	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			65.4%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: Willow St & Cherry Ave



































2035 MD Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2782	4200	1320	2835	4200	1333	2920	4200	1295	2808	4062	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2782	4200	1320	2835	4200	1333	2920	4200	1295	2808	4062	
Volume (vph)	100	980	650	250	890	350	200	1110	180	370	810	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1032	684	263	937	368	211	1168	189	389	853	221
RTOR Reduction (vph)	0	0	10	0	0	12	0	0	92	0	51	0
Lane Group Flow (vph)	105	1032	674	263	937	356	211	1168	97	389	1023	0
Heavy Vehicles (%)	6%	4%	3%	4%	4%	2%	1%	4%	5%	5%	4%	5%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	Over		Prot		
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases		2			6							
Actuated Green, G (s)	5.0	23.0	42.0	9.0	27.0	40.0	19.0	29.0	9.0	13.0	23.0	
Effective Green, g (s)	5.0	23.0	42.0	9.0	27.0	40.0	19.0	29.0	9.0	13.0	23.0	
Actuated g/C Ratio	0.06	0.26	0.47	0.10	0.30	0.44	0.21	0.32	0.10	0.14	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	155	1073	675	284	1260	652	616	1353	130	406	1038	
v/s Ratio Prot	0.04	0.25	c0.21	0.09	c0.22	0.08	0.07	0.28	0.08	0.14	c0.25	
v/s Ratio Perm		0.30			0.19							
v/c Ratio	0.68	0.96	1.00	0.93	0.74	0.55	0.34	0.86	0.75	0.96	0.99	
Uniform Delay, d1	41.7	33.1	24.0	40.2	28.4	18.3	30.2	28.6	39.4	38.2	33.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.1	19.7	34.1	34.2	2.4	0.9	0.3	5.9	20.7	33.6	24.2	
Delay (s)	52.9	52.8	58.1	74.3	30.8	19.3	30.5	34.6	60.1	71.8	57.5	
Level of Service	D	D	E	E	C	B	C	C	E	E	E	
Approach Delay (s)		54.8			35.4			37.1			61.3	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM Average Control Delay			47.2			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			90.4%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group
































HCM Signalized Intersection Capacity Analysis
35: Del Amo Blvd & Long Beach Blvd

2035 MD Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2808	4200	1320	2949	4200	1320	2891	2951	1347	2863	2951	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2808	4200	1320	2949	4200	1320	2891	2951	1347	2863	2951	1320
Volume (vph)	250	870	200	110	840	170	200	650	140	140	900	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	916	211	116	884	179	211	684	147	147	947	179
RTOR Reduction (vph)	0	0	20	0	0	44	0	0	35	0	0	11
Lane Group Flow (vph)	263	916	191	116	884	135	211	684	112	147	947	168
Heavy Vehicles (%)	5%	4%	3%	0%	4%	3%	2%	3%	1%	3%	3%	3%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases			2			6			8			4
Actuated Green, G (s)	10.0	29.0	37.1	5.0	24.0	32.5	8.1	30.5	35.5	8.5	30.9	40.9
Effective Green, g (s)	10.0	29.0	37.1	5.0	24.0	32.5	8.1	30.5	35.5	8.5	30.9	40.9
Actuated g/C Ratio	0.11	0.33	0.42	0.06	0.27	0.37	0.09	0.34	0.40	0.10	0.35	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	316	1369	610	166	1133	541	263	1011	537	273	1025	607
v/s Ratio Prot	c0.09	0.22	0.03	0.04	c0.21	0.02	0.07	c0.23	0.01	0.05	c0.32	0.03
v/s Ratio Perm			0.12			0.08			0.07			0.10
v/c Ratio	0.83	0.67	0.31	0.70	0.78	0.25	0.80	0.68	0.21	0.54	0.92	0.28
Uniform Delay, d1	38.7	25.9	17.4	41.3	30.1	19.7	39.7	25.0	17.5	38.4	27.9	14.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.8	2.6	0.3	12.1	3.5	0.2	16.0	1.8	0.2	2.0	13.4	0.2
Delay (s)	55.5	28.5	17.7	53.4	33.6	20.0	55.7	26.8	17.7	40.4	41.3	15.1
Level of Service	E	C	B	D	C	B	E	C	B	D	D	B
Approach Delay (s)			32.0			33.5			31.4			37.5
Approach LOS			C			C			C			D

Intersection Summary		
HCM Average Control Delay	33.7	HCM Level of Service C
HCM Volume to Capacity ratio	0.82	
Actuated Cycle Length (s)	89.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	77.4%	ICU Level of Service D
Analysis Period (min)	15	
























c Critical Lane Group

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	4200	1320	1505	4127		2863	2895	1347	2891	2951	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	4200	1320	1505	4127		2863	2895	1347	2891	2951	1320
Volume (vph)	120	670	300	130	650	100	340	600	120	110	470	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	705	316	137	684	105	358	632	126	116	495	147
RTOR Reduction (vph)	0	0	112	0	21	0	0	0	30	0	0	30
Lane Group Flow (vph)	126	705	204	137	768	0	358	632	96	116	495	117
Heavy Vehicles (%)	3%	4%	3%	1%	4%	2%	3%	5%	1%	2%	3%	3%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2					8				4
Actuated Green, G (s)	16.9	25.5	41.7	12.7	21.3		16.2	29.3	42.0	6.0	19.1	36.0
Effective Green, g (s)	16.9	25.5	41.7	12.7	21.3		16.2	29.3	42.0	6.0	19.1	36.0
Actuated g/C Ratio	0.19	0.28	0.47	0.14	0.24		0.18	0.33	0.47	0.07	0.21	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	279	1197	674	214	982		518	948	632	194	630	590
v/s Ratio Prot	0.09	c0.17	0.05	c0.09	c0.19		0.13	c0.22	0.02	0.04	c0.17	0.04
v/s Ratio Perm			0.10						0.05			0.05
v/c Ratio	0.45	0.59	0.30	0.64	0.78		0.69	0.67	0.15	0.60	0.79	0.20
Uniform Delay, d1	32.2	27.5	14.9	36.2	31.9		34.3	25.9	13.6	40.6	33.3	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.1	0.3	6.4	4.1		4.0	1.8	0.1	4.9	6.4	0.2
Delay (s)	33.4	29.6	15.1	42.6	36.0		38.3	27.7	13.7	45.5	39.7	17.5
Level of Service	C	C	B	D	D		D	C	B	D	D	B
Approach Delay (s)		26.0			37.0			29.5			36.3	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM Average Control Delay			31.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			89.5			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			65.7%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 37: Del Amo Blvd & Cherry Ave

2035 MD Peak_Alt 4
 12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		1.00	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	4241	1320	2863	4165		1462	4160	1320	2920	4160	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	4241	1320	2863	4165		1462	4160	1320	2920	4160	1308
Volume (vph)	110	600	150	310	700	110	160	750	380	150	840	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	632	158	326	737	116	168	789	400	158	884	95
RTOR Reduction (vph)	0	0	20	0	21	0	0	0	33	0	0	62
Lane Group Flow (vph)	116	632	138	326	832	0	168	789	367	158	884	33
Heavy Vehicles (%)	4%	3%	3%	3%	3%	1%	4%	5%	3%	1%	5%	4%
Turn Type	Prot	pm+ov		Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2						8			4	
Actuated Green, G (s)	8.5	23.4	38.0	14.0	28.9		14.6	29.3	43.3	9.0	23.7	32.2
Effective Green, g (s)	8.5	23.4	38.0	14.0	28.9		14.6	29.3	43.3	9.0	23.7	32.2
Actuated g/C Ratio	0.09	0.26	0.41	0.15	0.32		0.16	0.32	0.47	0.10	0.26	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	263	1082	605	437	1313		233	1329	681	287	1075	459
v/s Ratio Prot	0.04	c0.15	0.04	c0.11	c0.20		c0.11	0.19	0.08	0.05	c0.21	0.01
v/s Ratio Perm		0.07						0.20			0.02	
v/c Ratio	0.44	0.58	0.23	0.75	0.63		0.72	0.59	0.54	0.55	0.82	0.07
Uniform Delay, d1	39.4	29.9	17.4	37.1	26.9		36.6	26.2	17.1	39.4	32.0	19.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	2.3	0.2	6.8	1.0		10.5	0.7	0.8	2.3	5.2	0.1
Delay (s)	40.5	32.2	17.6	44.0	27.9		47.1	26.9	18.0	41.7	37.2	19.9
Level of Service	D	C	B	D	C		D	C	B	D	D	B
Approach Delay (s)		30.7			32.3			26.8			36.4	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM Average Control Delay			31.4	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			91.7	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			67.4%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 38: Del Amo Blvd & Lakewood Blvd

2035 MD Peak_Alt 4
 12/4/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4165		2891	2951	1333	2891	4200	1333	2891	2895	1333
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4165		2891	2951	1333	2891	4200	1333	2891	2895	1333
Volume (vph)	200	820	120	200	850	320	160	830	150	310	910	360
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	863	126	211	895	337	168	874	158	326	958	379
RTOR Reduction (vph)	0	19	0	0	0	9	0	0	23	0	0	18
Lane Group Flow (vph)	211	970	0	211	895	328	168	874	135	326	958	361
Heavy Vehicles (%)	2%	3%	2%	2%	3%	2%	2%	4%	2%	2%	5%	2%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	9.5	33.0		9.8	33.3	46.9	6.0	26.8	36.6	13.6	34.4	43.9
Effective Green, g (s)	9.5	33.0		9.8	33.3	46.9	6.0	26.8	36.6	13.6	34.4	43.9
Actuated g/C Ratio	0.10	0.33		0.10	0.34	0.47	0.06	0.27	0.37	0.14	0.35	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	1386		286	991	630	175	1135	492	396	1004	644
v/s Ratio Prot	c0.07	0.23		0.07	c0.30	0.07	0.06	c0.21	0.03	0.11	c0.33	0.05
v/s Ratio Perm						0.17			0.07			0.22
v/c Ratio	0.76	0.70		0.74	0.90	0.52	0.96	0.77	0.27	0.82	0.95	0.56
Uniform Delay, d1	43.7	28.8		43.5	31.4	18.3	46.5	33.4	22.0	41.6	31.6	20.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.7	3.0		9.5	11.3	0.7	55.6	3.3	0.3	13.0	18.2	1.1
Delay (s)	55.4	31.7		53.0	42.7	19.0	102.0	36.6	22.3	54.6	49.9	21.6
Level of Service	E	C		D	D	B	F	D	C	D	D	C
Approach Delay (s)		35.9			38.7			43.9			44.3	
Approach LOS		D			D			D			D	

Intersection Summary		
HCM Average Control Delay	40.9	HCM Level of Service D
HCM Volume to Capacity ratio	0.88	
Actuated Cycle Length (s)	99.2	Sum of lost time (s) 12.0
Intersection Capacity Utilization	83.3%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd






























2035 MD Peak_Alt 4
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2951	1347	2891	2951	1236	2756	2841	1333	1421	2868	1333
Flt Permitted	0.61	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	943	2951	1347	2891	2951	1236	2756	2841	1333	1421	2868	1333
Volume (vph)	100	290	80	280	220	110	110	680	330	100	770	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	305	84	295	232	116	116	716	347	105	811	63
RTOR Reduction (vph)	0	0	58	0	0	65	0	0	143	0	0	37
Lane Group Flow (vph)	105	305	26	295	232	51	116	716	204	105	811	26
Heavy Vehicles (%)	3%	3%	1%	2%	3%	10%	7%	7%	2%	7%	6%	2%
Turn Type	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6			8			4
Actuated Green, G (s)	25.7	20.5	26.3	13.0	28.3	37.6	5.8	26.0	39.0	9.3	29.5	34.7
Effective Green, g (s)	25.7	20.5	26.3	13.0	28.3	37.6	5.8	26.0	39.0	9.3	29.5	34.7
Actuated g/C Ratio	0.30	0.24	0.31	0.15	0.33	0.44	0.07	0.31	0.46	0.11	0.35	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	713	481	443	985	548	189	871	613	156	998	608
v/s Ratio Prot	0.02	c0.10	0.00	c0.10	0.08	0.01	0.04	c0.25	0.05	0.07	c0.28	0.00
v/s Ratio Perm	0.08		0.02			0.03			0.10			0.02
v/c Ratio	0.33	0.43	0.05	0.67	0.24	0.09	0.61	0.82	0.33	0.67	0.81	0.04
Uniform Delay, d1	22.2	27.2	20.5	33.9	20.4	13.7	38.4	27.3	14.6	36.3	25.1	15.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.9	0.0	3.8	0.1	0.1	5.8	6.3	0.3	10.9	5.1	0.0
Delay (s)	22.8	29.1	20.6	37.6	20.6	13.8	44.2	33.6	14.9	47.2	30.3	15.1
Level of Service	C	C	C	D	C	B	D	C	B	D	C	B
Approach Delay (s)		26.3			27.2			29.1			31.1	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			28.9				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			84.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			61.3%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
41: Alondra Blvd & Santa Fe Ave

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.97
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1394	2895	1204	1505	2868	1320	1407	2667	1320	1505	2650	2650
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1394	2895	1204	1505	2868	1320	1407	2667	1320	1505	2650	2650
Volume (vph)	80	350	80	80	400	110	70	440	120	120	310	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	368	84	84	421	116	74	463	126	126	326	74
RTOR Reduction (vph)	0	0	55	0	0	69	0	0	70	0	18	0
Lane Group Flow (vph)	84	368	29	84	421	47	74	463	56	126	382	0
Heavy Vehicles (%)	9%	5%	13%	1%	6%	3%	8%	14%	3%	1%	13%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	9.6	25.6	34.6	10.6	26.6	40.3	9.0	34.1	44.7	13.7	38.8	
Effective Green, g (s)	9.6	25.6	34.6	10.6	26.6	40.3	9.0	34.1	44.7	13.7	38.8	
Actuated g/C Ratio	0.10	0.26	0.35	0.11	0.27	0.40	0.09	0.34	0.45	0.14	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	134	741	465	160	763	585	127	909	643	206	1028	
v/s Ratio Prot	c0.06	0.13	0.01	0.06	c0.15	0.01	0.05	c0.17	0.01	c0.08	0.14	
v/s Ratio Perm			0.02			0.02			0.03			
v/c Ratio	0.63	0.50	0.06	0.52	0.55	0.08	0.58	0.51	0.09	0.61	0.37	
Uniform Delay, d1	43.5	31.7	21.9	42.3	31.6	18.4	43.7	26.3	15.9	40.6	21.9	
Progression Factor	1.04	1.19	4.06	1.51	0.44	0.00	1.00	1.00	1.00	1.23	0.35	
Incremental Delay, d2	8.5	2.3	0.1	2.7	2.5	0.1	6.7	2.0	0.1	5.1	1.0	
Delay (s)	53.8	39.9	88.7	66.5	16.6	0.1	50.3	28.3	16.0	55.0	8.6	
Level of Service	D	D	F	E	B	A	D	C	B	E	A	
Approach Delay (s)		49.7			20.2			28.4			19.7	
Approach LOS		D			C			C			B	

Intersection Summary

HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Alondra Blvd & Garfield Ave






























2035 MD Peak_Alt 4
6/28/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1462	2895	1271	1476	2843		2756	2868	1308	2835	2811	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1462	2895	1271	1476	2843		2756	2868	1308	2835	2811	
Volume (vph)	120	550	80	160	770	160	130	330	150	290	560	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	579	84	168	811	168	137	347	158	305	589	105
RTOR Reduction (vph)	0	0	51	0	18	0	0	0	58	0	15	0
Lane Group Flow (vph)	126	579	33	168	961	0	137	347	100	305	679	0
Heavy Vehicles (%)	4%	5%	7%	3%	4%	5%	7%	6%	4%	4%	6%	4%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	10.7	32.7	39.1	14.1	36.1		6.4	24.7	38.8	12.5	30.8	
Effective Green, g (s)	10.7	32.7	39.1	14.1	36.1		6.4	24.7	38.8	12.5	30.8	
Actuated g/C Ratio	0.11	0.33	0.39	0.14	0.36		0.06	0.25	0.39	0.12	0.31	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	947	548	208	1026		176	708	560	354	866	
v/s Ratio Prot	0.09	0.20	0.00	c0.11	c0.34		0.05	0.12	0.03	c0.11	c0.24	
v/s Ratio Perm			0.02						0.05			
v/c Ratio	0.81	0.61	0.06	0.81	0.94		0.78	0.49	0.18	0.86	0.78	
Uniform Delay, d1	43.6	28.3	19.0	41.6	30.8		46.1	32.3	20.1	42.9	31.6	
Progression Factor	1.35	0.62	0.16	1.49	0.50		1.00	1.00	1.00	1.31	0.78	
Incremental Delay, d2	24.3	1.1	0.0	13.1	10.3		19.2	2.4	0.2	17.8	6.6	
Delay (s)	83.1	18.6	3.1	75.2	25.6		65.3	34.7	20.3	73.8	31.2	
Level of Service	F	B	A	E	C		E	C	C	E	C	
Approach Delay (s)		27.3			32.9			37.7			44.2	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM Average Control Delay			35.7			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			79.1%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1434	2895	1308	2891	2923	1295	1448	2895	1333	1434	2895	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1434	2895	1308	2891	2923	1295	1448	2895	1333	1434	2895	1308
Volume (vph)	130	690	130	170	740	210	170	540	150	170	580	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	726	137	179	779	221	179	568	158	179	611	105
RTOR Reduction (vph)	0	0	28	0	0	58	0	0	80	0	0	58
Lane Group Flow (vph)	137	726	109	179	779	163	179	568	78	179	611	47
Heavy Vehicles (%)	6%	5%	4%	2%	4%	5%	5%	5%	2%	6%	5%	4%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	11.6	32.6	47.0	8.0	29.0	43.8	14.4	28.6	36.6	14.8	29.0	40.6
Effective Green, g (s)	11.6	32.6	47.0	8.0	29.0	43.8	14.4	28.6	36.6	14.8	29.0	40.6
Actuated g/C Ratio	0.12	0.33	0.47	0.08	0.29	0.44	0.14	0.29	0.37	0.15	0.29	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	166	944	667	231	848	619	209	828	541	212	840	583
v/s Ratio Prot	c0.10	c0.25	0.02	0.06	c0.27	0.04	0.12	0.20	0.01	c0.12	c0.21	0.01
v/s Ratio Perm			0.06			0.09			0.05			0.03
v/c Ratio	0.83	0.77	0.16	0.77	0.92	0.26	0.86	0.69	0.14	0.84	0.73	0.08
Uniform Delay, d1	43.2	30.3	15.2	45.1	34.4	17.9	41.8	31.7	21.2	41.5	31.9	18.2
Progression Factor	1.38	0.79	0.27	1.00	1.00	1.00	1.00	1.00	1.00	1.44	0.72	0.06
Incremental Delay, d2	21.9	3.0	0.1	14.9	14.7	0.2	27.4	4.6	0.1	21.8	4.6	0.0
Delay (s)	81.6	26.9	4.2	60.0	49.0	18.1	69.2	36.3	21.3	81.7	27.7	1.1
Level of Service	F	C	A	E	D	B	E	D	C	F	C	A
Approach Delay (s)		31.3			44.9			40.2			35.4	
Approach LOS		C			D			D			D	

























Intersection Summary

HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2923	1320	2633	2951	1295	1476	2598	1193	1421	2739	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2923	1320	2633	2951	1295	1476	2598	1193	1421	2739	1320
Volume (vph)	80	570	60	110	590	70	100	270	50	100	260	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	600	63	116	621	74	105	284	53	105	274	63
RTOR Reduction (vph)	0	0	34	0	0	40	0	0	33	0	0	39
Lane Group Flow (vph)	84	600	29	116	621	34	105	284	20	105	274	24
Heavy Vehicles (%)	2%	4%	3%	12%	3%	5%	3%	17%	14%	7%	11%	3%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	9.3	33.2	45.3	9.4	33.3	45.5	12.1	29.2	38.6	12.2	29.3	38.6
Effective Green, g (s)	9.3	33.2	45.3	9.4	33.3	45.5	12.1	29.2	38.6	12.2	29.3	38.6
Actuated g/C Ratio	0.09	0.33	0.45	0.09	0.33	0.46	0.12	0.29	0.39	0.12	0.29	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	970	651	248	983	641	179	759	508	173	803	562
v/s Ratio Prot	c0.06	0.21	0.01	0.04	c0.21	0.01	0.07	c0.11	0.00	c0.07	0.10	0.00
v/s Ratio Perm			0.02			0.02			0.01			0.01
v/c Ratio	0.60	0.62	0.04	0.47	0.63	0.05	0.59	0.37	0.04	0.61	0.34	0.04
Uniform Delay, d1	43.6	28.1	15.3	42.9	28.2	15.2	41.6	28.1	19.1	41.6	27.8	19.2
Progression Factor	1.00	1.00	1.00	1.22	0.83	0.00	1.18	1.27	0.47	1.00	1.00	1.00
Incremental Delay, d2	7.2	1.2	0.0	0.6	0.6	0.0	4.4	1.3	0.0	5.9	1.2	0.0
Delay (s)	50.8	29.3	15.3	53.2	24.0	0.0	53.5	37.0	9.0	47.5	28.9	19.2
Level of Service	D	C	B	D	C	A	D	D	A	D	C	B
Approach Delay (s)		30.5			26.0			37.5			32.0	
Approach LOS		C			C			D			C	

























Intersection Summary

HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
49: Rosecrans Ave & Long Beach Blvd

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1476	2868	1153	1434	2895	1295	2378	2814		2835	2871	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1476	2868	1153	1434	2895	1295	2378	2814		2835	2871	
Volume (vph)	140	510	110	100	590	210	140	750	140	120	830	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	537	116	105	621	221	147	789	147	126	874	137
RTOR Reduction (vph)	0	0	68	0	0	77	0	15	0	0	12	0
Lane Group Flow (vph)	147	537	48	105	621	144	147	921	0	126	999	0
Heavy Vehicles (%)	3%	6%	18%	6%	5%	5%	24%	5%	8%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	11.7	25.7	33.8	9.6	23.6	30.6	8.1	41.7		7.0	40.6	
Effective Green, g (s)	11.7	25.7	33.8	9.6	23.6	30.6	8.1	41.7		7.0	40.6	
Actuated g/C Ratio	0.12	0.26	0.34	0.10	0.24	0.31	0.08	0.42		0.07	0.41	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	173	737	436	138	683	448	193	1173		198	1166	
v/s Ratio Prot	c0.10	0.19	0.01	0.07	c0.21	0.02	c0.06	0.33		0.04	c0.35	
v/s Ratio Perm			0.03			0.09						
v/c Ratio	0.85	0.73	0.11	0.76	0.91	0.32	0.76	0.79		0.64	0.86	
Uniform Delay, d1	43.3	34.0	22.8	44.1	37.2	26.7	45.0	25.3		45.3	27.0	
Progression Factor	0.69	0.58	1.27	1.03	0.58	0.75	1.13	0.79		1.05	0.58	
Incremental Delay, d2	26.3	3.0	0.1	12.9	10.0	0.2	14.0	4.6		3.7	4.8	
Delay (s)	56.1	22.9	28.9	58.1	31.6	20.3	64.8	24.5		51.3	20.5	
Level of Service	E	C	C	E	C	C	E	C		D	C	
Approach Delay (s)		29.9			31.9			30.0			23.9	
Approach LOS		C			C			C			C	

































Intersection Summary

HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2863	2789	1143	2835	2923	1333	2542	2895	1308	2730	2841	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2863	2789	1143	2835	2923	1333	2542	2895	1308	2730	2841	1320
Volume (vph)	110	840	120	80	950	180	120	580	100	180	320	100
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	884	126	84	1000	189	126	611	105	189	337	105
RTOR Reduction (vph)	0	0	69	0	0	37	0	0	38	0	0	48
Lane Group Flow (vph)	116	884	57	84	1000	152	126	611	67	189	337	57
Heavy Vehicles (%)	3%	9%	19%	4%	4%	2%	16%	5%	4%	8%	7%	3%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	6.0	35.4	45.4	8.1	37.5	46.9	10.0	31.1	39.2	9.4	30.5	36.5
Effective Green, g (s)	6.0	35.4	45.4	8.1	37.5	46.9	10.0	31.1	39.2	9.4	30.5	36.5
Actuated g/C Ratio	0.06	0.35	0.45	0.08	0.38	0.47	0.10	0.31	0.39	0.09	0.30	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	172	987	565	230	1096	678	254	900	513	257	867	482
v/s Ratio Prot	0.04	c0.32	0.01	0.03	c0.34	0.02	0.05	c0.21	0.01	c0.07	0.12	0.01
v/s Ratio Perm			0.04			0.09			0.04			0.04
v/c Ratio	0.67	0.90	0.10	0.37	0.91	0.22	0.50	0.68	0.13	0.74	0.39	0.12
Uniform Delay, d1	46.0	30.6	15.6	43.5	29.7	15.8	42.6	30.1	19.5	44.1	27.4	21.1
Progression Factor	1.30	0.65	0.05	1.00	1.00	1.00	0.88	0.83	0.73	0.62	0.72	1.98
Incremental Delay, d2	8.7	9.3	0.1	1.0	11.4	0.2	1.4	3.9	0.1	6.6	0.8	0.1
Delay (s)	68.7	29.2	0.8	44.5	41.1	15.9	38.8	29.0	14.3	34.0	20.6	41.7
Level of Service	E	C	A	D	D	B	D	C	B	C	C	D
Approach Delay (s)		30.1			37.6			28.6			28.1	
Approach LOS		C			D			C			C	
























Intersection Summary

HCM Average Control Delay	31.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
51: Rosecrans Ave & Garfield Ave

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	3806		1434	2841	1308	2730	2868	1283	2863	2868	1308
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	3806		1434	2841	1308	2730	2868	1283	2863	2868	1308
Volume (vph)	170	530	100	150	620	190	140	470	110	220	450	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	179	558	105	158	653	200	147	495	116	232	474	221
RTOR Reduction (vph)	0	27	0	0	0	62	0	0	33	0	0	54
Lane Group Flow (vph)	179	636	0	158	653	138	147	495	83	232	474	167
Heavy Vehicles (%)	4%	13%	7%	6%	7%	4%	8%	6%	6%	3%	6%	4%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	10.2	23.9		15.6	29.3	41.4	9.5	32.4	48.0	12.1	35.0	45.2
Effective Green, g (s)	10.2	23.9		15.6	29.3	41.4	9.5	32.4	48.0	12.1	35.0	45.2
Actuated g/C Ratio	0.10	0.24		0.16	0.29	0.41	0.10	0.32	0.48	0.12	0.35	0.45
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	289	910		224	832	594	259	929	667	346	1004	644
v/s Ratio Prot	0.06	0.17		c0.11	c0.23	0.03	0.05	c0.17	0.02	c0.08	c0.17	0.03
v/s Ratio Perm						0.08			0.05			0.10
v/c Ratio	0.62	0.70		0.71	0.78	0.23	0.57	0.53	0.12	0.67	0.47	0.26
Uniform Delay, d1	43.0	34.8		40.0	32.5	19.0	43.3	27.6	14.4	42.0	25.3	17.0
Progression Factor	1.00	1.00		1.51	0.68	0.22	1.25	0.76	0.32	1.38	0.75	0.12
Incremental Delay, d2	3.9	2.4		7.7	3.9	0.2	2.7	2.1	0.1	4.6	1.5	0.2
Delay (s)	47.0	37.1		68.3	25.9	4.4	56.6	23.1	4.7	62.6	20.5	2.2
Level of Service	D	D		E	C	A	E	C	A	E	C	A
Approach Delay (s)		39.2			28.3			26.8			26.7	
Approach LOS		D			C			C			C	

























Intersection Summary

HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1310	2868	1283	1476	2895	1295	1434	2868	1295	1434	2895	1248
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1310	2868	1283	1476	2895	1295	1434	2868	1295	1434	2895	1248
Volume (vph)	180	530	140	190	520	120	150	440	250	130	480	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	558	147	200	547	126	158	463	263	137	505	179
RTOR Reduction (vph)	0	0	91	0	0	82	0	0	79	0	0	75
Lane Group Flow (vph)	189	558	56	200	547	44	158	463	184	137	505	104
Heavy Vehicles (%)	16%	6%	6%	3%	5%	5%	6%	6%	5%	6%	5%	9%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	18.2	23.9	38.3	16.9	22.6	35.3	14.4	30.5	47.4	12.7	28.8	47.0
Effective Green, g (s)	18.2	23.9	38.3	16.9	22.6	35.3	14.4	30.5	47.4	12.7	28.8	47.0
Actuated g/C Ratio	0.18	0.24	0.38	0.17	0.23	0.35	0.14	0.30	0.47	0.13	0.29	0.47
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	238	685	543	249	654	509	206	875	666	182	834	636
v/s Ratio Prot	c0.14	c0.19	0.01	0.14	0.19	0.01	c0.11	0.16	0.05	0.10	c0.17	0.03
v/s Ratio Perm			0.03			0.02			0.10			0.05
v/c Ratio	0.79	0.81	0.10	0.80	0.84	0.09	0.77	0.53	0.28	0.75	0.61	0.16
Uniform Delay, d1	39.1	36.0	19.8	40.0	36.9	21.6	41.2	28.8	15.9	42.1	30.7	15.2
Progression Factor	1.56	0.74	0.00	1.00	1.00	1.00	1.45	0.66	0.13	0.76	0.74	2.67
Incremental Delay, d2	13.2	5.8	0.1	16.9	9.1	0.1	12.5	1.8	0.2	13.4	2.7	0.1
Delay (s)	74.1	32.6	0.1	56.8	46.1	21.7	72.3	20.9	2.2	45.4	25.4	40.8
Level of Service	E	C	A	E	D	C	E	C	A	D	C	D
Approach Delay (s)		36.0			45.0			24.5			32.1	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	34.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Imperial Hwy & Long Beach Blvd

2035 MD Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗	↘	↑↑↑	↗	↘	↑↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1520	2923	1271	2756	2951	1333	1421	4121	1308	1490	4048	4048
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1520	2923	1271	2756	2951	1333	1421	4121	1308	1490	4048	4048
Volume (vph)	120	620	270	330	610	80	240	800	340	190	830	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	653	284	347	642	84	253	842	358	200	874	95
RTOR Reduction (vph)	0	0	12	0	0	47	0	0	64	0	13	0
Lane Group Flow (vph)	126	653	272	347	642	37	253	842	294	200	956	0
Heavy Vehicles (%)	0%	4%	7%	7%	3%	2%	7%	6%	4%	2%	7%	0%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	11.1	23.8	42.8	14.0	26.7	43.7	19.0	29.2	43.2	17.0	27.2	
Effective Green, g (s)	11.1	23.8	42.8	14.0	26.7	43.7	19.0	29.2	43.2	17.0	27.2	
Actuated g/C Ratio	0.11	0.24	0.43	0.14	0.27	0.44	0.19	0.29	0.43	0.17	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	169	696	544	386	788	583	270	1203	565	253	1101	
v/s Ratio Prot	0.08	c0.22	0.09	c0.13	c0.22	0.01	c0.18	0.20	0.07	0.13	c0.24	
v/s Ratio Perm			0.12			0.02			0.15			
v/c Ratio	0.75	0.94	0.50	0.90	0.81	0.06	0.94	0.70	0.52	0.79	0.87	
Uniform Delay, d1	43.1	37.4	20.8	42.3	34.3	16.3	39.9	31.5	20.8	39.8	34.7	
Progression Factor	1.36	0.68	0.89	0.91	0.64	1.07	0.95	0.80	1.30	0.83	0.77	
Incremental Delay, d2	14.5	18.4	0.6	18.4	5.0	0.0	33.3	2.8	0.7	14.7	8.9	
Delay (s)	73.0	43.8	19.1	57.1	26.9	17.5	71.1	27.9	27.7	47.9	35.6	
Level of Service	E	D	B	E	C	B	E	C	C	D	D	
Approach Delay (s)		40.6			35.9			35.4			37.7	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave

























2035 MD Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1448	2867		1476	2855		2949	2789	1320	2863	2667	1295
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1448	2867		1476	2855		2949	2789	1320	2863	2667	1295
Volume (vph)	100	750	80	170	710	140	110	310	220	280	440	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	789	84	179	747	147	116	326	232	295	463	147
RTOR Reduction (vph)	0	8	0	0	16	0	0	0	38	0	0	65
Lane Group Flow (vph)	105	865	0	179	878	0	116	326	194	295	463	82
Heavy Vehicles (%)	5%	5%	0%	3%	4%	3%	0%	9%	3%	3%	14%	5%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	10.3	37.6		15.4	42.7		6.0	18.3	33.7	12.7	25.0	35.3
Effective Green, g (s)	10.3	37.6		15.4	42.7		6.0	18.3	33.7	12.7	25.0	35.3
Actuated g/C Ratio	0.10	0.38		0.15	0.43		0.06	0.18	0.34	0.13	0.25	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	1078		227	1219		177	510	498	364	667	509
v/s Ratio Prot	0.07	c0.30		c0.12	0.31		0.04	0.12	0.06	c0.10	c0.17	0.02
v/s Ratio Perm									0.09			0.05
v/c Ratio	0.70	0.80		0.79	0.72		0.66	0.64	0.39	0.81	0.69	0.16
Uniform Delay, d1	43.4	27.9		40.7	23.7		46.0	37.8	25.3	42.5	34.0	22.2
Progression Factor	0.78	1.22		1.44	0.29		0.64	1.02	1.87	0.62	0.68	0.82
Incremental Delay, d2	8.3	2.5		11.0	1.4		6.9	4.9	0.4	11.9	5.4	0.1
Delay (s)	42.1	36.5		69.8	8.3		36.4	43.6	47.8	38.3	28.5	18.3
Level of Service	D	D		E	A		D	D	D	D	C	B
Approach Delay (s)		37.1			18.6			43.8			30.0	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM Average Control Delay			31.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			71.8%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd































2035 MD Peak_Alt 4
5/25/2011

																										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR														
Lane Configurations																										
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600												
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0												
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95												
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00												
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00												
Satd. Flow (prot)	2891	4083		2920	4036		2891	2714	1320	2863	2764	1333														
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00												
Satd. Flow (perm)	2891	4083		2920	4036		2891	2714	1320	2863	2764	1333														
Volume (vph)	260	810	200	150	700	130	220	620	130	120	640	320														
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95												
Adj. Flow (vph)	274	853	211	158	737	137	232	653	137	126	674	337														
RTOR Reduction (vph)	0	43	0	0	27	0	0	0	23	0	0	16														
Lane Group Flow (vph)	274	1021	0	158	847	0	232	653	114	126	674	321														
Heavy Vehicles (%)	2%	4%	3%	1%	6%	4%	2%	12%	3%	3%	10%	2%														
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov															
Protected Phases	7	4		3	8		5	2	3	1	6	7														
Permitted Phases									2			6														
Actuated Green, G (s)	13.3	30.0		7.9	24.6		10.9	38.8	46.7	7.3	35.2	48.5														
Effective Green, g (s)	13.3	30.0		7.9	24.6		10.9	38.8	46.7	7.3	35.2	48.5														
Actuated g/C Ratio	0.13	0.30		0.08	0.25		0.11	0.39	0.47	0.07	0.35	0.48														
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0														
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0														
Lane Grp Cap (vph)	385	1225		231	993		315	1053	669	209	973	700														
v/s Ratio Prot	c0.09	c0.25		0.05	0.21		c0.08	c0.24	0.01	0.04	c0.24	0.06														
v/s Ratio Perm									0.07			0.18														
v/c Ratio	0.71	0.83		0.68	0.85		0.74	0.62	0.17	0.60	0.69	0.46														
Uniform Delay, d1	41.5	32.7		44.8	36.0		43.2	24.7	15.4	44.9	27.8	17.0														
Progression Factor	0.66	1.17		1.00	1.00		0.79	1.20	1.71	1.20	0.73	0.24														
Incremental Delay, d2	3.5	2.9		8.1	7.2		8.1	2.5	0.1	4.4	3.6	0.4														
Delay (s)	31.0	41.0		52.9	43.2		42.4	32.1	26.4	58.3	24.0	4.5														
Level of Service	C	D		D	D		D	C	C	E	C	A														
Approach Delay (s)		39.0			44.7			33.7			22.1															
Approach LOS		D			D			C			C															
Intersection Summary																										
HCM Average Control Delay			34.8		HCM Level of Service				C																	
HCM Volume to Capacity ratio			0.76																							
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				16.0																	
Intersection Capacity Utilization			70.8%		ICU Level of Service				C																	
Analysis Period (min)			15																							

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: Firestone Blvd & California Ave

2035 MD Peak_Alt 4
7/1/2009


































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2923	1333	1476	2923	1347	2891	2951	1320	2920	2868	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2923	1333	1476	2923	1347	2891	2951	1320	2920	2868	1333
Volume (vph)	40	1430	70	60	1420	60	70	460	50	110	570	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	1505	74	63	1495	63	74	484	53	116	600	63
RTOR Reduction (vph)	0	0	26	0	0	25	0	0	17	0	0	21
Lane Group Flow (vph)	42	1505	48	63	1495	38	74	484	36	116	600	42
Heavy Vehicles (%)	2%	4%	2%	3%	4%	1%	2%	3%	3%	1%	6%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	3.2	52.8	56.0	5.0	54.6	59.6	3.2	21.2	26.2	5.0	23.0	26.2
Effective Green, g (s)	3.2	52.8	56.0	5.0	54.6	59.6	3.2	21.2	26.2	5.0	23.0	26.2
Actuated g/C Ratio	0.03	0.53	0.56	0.05	0.55	0.60	0.03	0.21	0.26	0.05	0.23	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	1543	800	74	1596	857	93	626	399	146	660	403
v/s Ratio Prot	0.03	c0.51	0.00	c0.04	0.51	0.00	0.03	0.16	0.00	c0.04	c0.21	0.00
v/s Ratio Perm			0.03			0.03			0.02			0.03
v/c Ratio	0.88	0.98	0.06	0.85	0.94	0.04	0.80	0.77	0.09	0.79	0.91	0.10
Uniform Delay, d1	48.2	23.0	10.0	47.1	21.1	8.4	48.1	37.1	27.9	47.0	37.5	28.0
Progression Factor	1.15	0.92	0.60	1.45	0.35	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	69.2	14.3	0.0	8.5	1.3	0.0	36.1	9.0	0.1	25.0	18.7	0.1
Delay (s)	124.5	35.5	6.1	76.8	8.7	0.8	84.1	46.1	28.0	72.0	56.2	28.1
Level of Service	F	D	A	E	A	A	F	D	C	E	E	C
Approach Delay (s)		36.4			11.0			49.2			56.3	
Approach LOS		D			B			D			E	

Intersection Summary		
HCM Average Control Delay	32.6	HCM Level of Service C
HCM Volume to Capacity ratio	0.91	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	86.3%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
60: Firestone Blvd & Atlantic Ave

2035 MD Peak_Alt 4
7/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2920	4200	1295	2891	2951	1295	2835	2868	1333	2730	2815	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2920	4200	1295	2891	2951	1295	2835	2868	1333	2730	2815	1333
Volume (vph)	140	1320	100	90	1400	250	90	340	100	720	510	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	1389	105	95	1474	263	95	358	105	758	537	137
RTOR Reduction (vph)	0	0	60	0	0	23	0	0	7	0	0	22
Lane Group Flow (vph)	147	1389	45	95	1474	240	95	358	98	758	537	115
Heavy Vehicles (%)	1%	4%	5%	2%	3%	5%	4%	6%	2%	8%	8%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	36.2	43.2	7.8	40.0	62.0	7.0	18.0	25.8	22.0	33.0	37.0
Effective Green, g (s)	4.0	36.2	43.2	7.8	40.0	62.0	7.0	18.0	25.8	22.0	33.0	37.0
Actuated g/C Ratio	0.04	0.36	0.43	0.08	0.40	0.62	0.07	0.18	0.26	0.22	0.33	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	1520	611	225	1180	855	198	516	344	601	929	493
v/s Ratio Prot	c0.05	0.33	0.01	0.03	c0.50	0.06	0.03	c0.12	0.02	c0.28	0.19	0.01
v/s Ratio Perm			0.03			0.12			0.05			0.08
v/c Ratio	1.26	0.91	0.07	0.42	1.25	0.28	0.48	0.69	0.29	1.26	0.58	0.23
Uniform Delay, d1	48.0	30.4	16.7	44.0	30.0	8.7	44.7	38.4	29.7	39.0	27.7	21.7
Progression Factor	0.91	0.59	0.48	0.94	0.90	0.76	0.71	0.66	0.56	0.57	0.59	0.61
Incremental Delay, d2	136.1	3.2	0.0	0.5	115.0	0.1	1.3	5.6	0.3	126.8	1.8	0.2
Delay (s)	179.8	21.3	8.1	41.8	142.1	6.8	33.1	30.7	17.1	149.0	18.2	13.4
Level of Service	F	C	A	D	F	A	C	C	B	F	B	B
Approach Delay (s)		34.6			117.5			28.6			87.0	
Approach LOS		C			F			C			F	
























Intersection Summary

HCM Average Control Delay	75.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
61: Firestone Blvd & Garfield Ave

2035 MD Peak_Alt 4
8/2/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.94	0.91	1.00	0.97	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3695	4082	1295	2949	4044	1320	2808	2874		2808	2951	1183
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3695	4082	1295	2949	4044	1320	2808	2874		2808	2951	1183
Volume (vph)	560	1050	270	130	900	200	560	400	70	160	500	330
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	589	1105	284	137	947	211	589	421	74	168	526	347
RTOR Reduction (vph)	0	0	17	0	0	82	0	14	0	0	0	11
Lane Group Flow (vph)	589	1105	267	137	947	129	589	481	0	168	526	336
Heavy Vehicles (%)	16%	7%	5%	0%	8%	3%	5%	4%	0%	5%	3%	15%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	17.0	35.0	57.6	7.0	25.0	35.1	22.6	31.9		10.1	19.4	36.4
Effective Green, g (s)	17.0	35.0	57.6	7.0	25.0	35.1	22.6	31.9		10.1	19.4	36.4
Actuated g/C Ratio	0.17	0.35	0.58	0.07	0.25	0.35	0.23	0.32		0.10	0.19	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	628	1429	798	206	1011	516	635	917		284	572	478
v/s Ratio Prot	c0.16	0.27	0.08	0.05	c0.23	0.03	c0.21	0.17		0.06	c0.18	0.12
v/s Ratio Perm			0.13			0.07						0.16
v/c Ratio	0.94	0.77	0.33	0.67	0.94	0.25	0.93	0.52		0.59	0.92	0.70
Uniform Delay, d1	41.0	29.0	11.1	45.4	36.7	23.1	37.9	27.8		43.0	39.5	27.2
Progression Factor	0.98	1.26	1.17	1.11	0.83	0.38	0.83	0.81		1.18	0.86	0.97
Incremental Delay, d2	3.1	0.4	0.0	5.7	13.0	0.2	17.7	1.8		2.2	16.7	3.2
Delay (s)	43.3	36.8	13.0	55.9	43.5	9.0	49.1	24.4		53.1	50.8	29.5
Level of Service	D	D	B	E	D	A	D	C		D	D	C
Approach Delay (s)		35.3			39.2			37.8			44.1	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			38.4			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			82.0%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd






























2035 MD Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2835	4071		2863	4054		2920	2714	1320	2891	2789	1295
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2835	4071		2863	4054		2920	2714	1320	2891	2789	1295
Volume (vph)	200	830	100	200	850	130	130	590	110	130	530	310
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	874	105	211	895	137	137	621	116	137	558	326
RTOR Reduction (vph)	0	15	0	0	20	0	0	0	25	0	0	28
Lane Group Flow (vph)	211	964	0	211	1012	0	137	621	91	137	558	298
Heavy Vehicles (%)	4%	6%	2%	3%	6%	3%	1%	12%	3%	2%	9%	5%
Turn Type	Prot			Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	11.2	32.9		11.1	32.8		8.5	32.2	43.3	7.8	31.5	42.7
Effective Green, g (s)	11.2	32.9		11.1	32.8		8.5	32.2	43.3	7.8	31.5	42.7
Actuated g/C Ratio	0.11	0.33		0.11	0.33		0.08	0.32	0.43	0.08	0.32	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	1339		318	1330		248	874	624	225	879	605
v/s Ratio Prot	c0.07	0.24		0.07	c0.25		0.05	c0.23	0.02	c0.05	0.20	0.06
v/s Ratio Perm									0.05			0.17
v/c Ratio	0.66	0.72		0.66	0.76		0.55	0.71	0.15	0.61	0.63	0.49
Uniform Delay, d1	42.6	29.5		42.7	30.1		43.9	29.8	17.2	44.6	29.3	20.8
Progression Factor	1.35	0.61		1.00	1.00		1.34	0.94	0.19	1.00	1.00	1.00
Incremental Delay, d2	3.7	1.4		5.1	2.6		1.9	3.6	0.1	4.6	3.5	0.6
Delay (s)	61.3	19.5		47.8	32.7		60.8	31.8	3.3	49.2	32.8	21.4
Level of Service	E	B		D	C		E	C	A	D	C	C
Approach Delay (s)		26.9			35.3			32.5			31.4	
Approach LOS		C			D			C			C	
Intersection Summary												
HCM Average Control Delay			31.5	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			66.8%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2923	1308	2782	2951	1320	1476	2868	1283	1476	2841	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2923	1308	2782	2951	1320	1476	2868	1283	1476	2841	1347
Volume (vph)	70	740	170	170	780	100	160	650	210	90	560	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	779	179	179	821	105	168	684	221	95	589	63
RTOR Reduction (vph)	0	0	27	0	0	57	0	0	67	0	0	42
Lane Group Flow (vph)	74	779	152	179	821	48	168	684	154	95	589	21
Heavy Vehicles (%)	2%	4%	4%	6%	3%	3%	3%	6%	6%	3%	7%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	6.4	34.1	48.6	8.9	36.6	46.0	14.5	31.6	40.5	9.4	26.5	32.9
Effective Green, g (s)	6.4	34.1	48.6	8.9	36.6	46.0	14.5	31.6	40.5	9.4	26.5	32.9
Actuated g/C Ratio	0.06	0.34	0.49	0.09	0.37	0.46	0.14	0.32	0.40	0.09	0.26	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	95	997	688	248	1080	660	214	906	571	139	753	497
v/s Ratio Prot	0.05	0.27	0.03	c0.06	c0.28	0.01	c0.11	c0.24	0.02	0.06	0.21	0.00
v/s Ratio Perm			0.08			0.03			0.10			0.01
v/c Ratio	0.78	0.78	0.22	0.72	0.76	0.07	0.79	0.75	0.27	0.68	0.78	0.04
Uniform Delay, d1	46.1	29.6	14.8	44.3	27.8	15.1	41.2	30.7	19.9	43.9	34.1	22.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.03	0.77	0.72	1.09	0.74	0.54
Incremental Delay, d2	32.2	6.1	0.2	9.9	5.0	0.0	16.1	5.5	0.2	4.4	2.7	0.0
Delay (s)	78.3	35.7	15.0	54.3	32.9	15.1	58.5	29.2	14.5	52.2	27.9	12.3
Level of Service	E	D	B	D	C	B	E	C	B	D	C	B
Approach Delay (s)		35.1			34.7			30.8			29.7	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave


























2035 MD Peak_Alt 4
5/26/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	2895	1333	1490	2923	1295	2891	2868	1333	2808	2868	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	2895	1333	1490	2923	1295	2891	2868	1333	2808	2868	1308
Volume (vph)	110	1160	130	160	1270	170	150	570	150	290	740	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	1221	137	168	1337	179	158	600	158	305	779	95
RTOR Reduction (vph)	0	0	28	0	0	30	0	0	14	0	0	13
Lane Group Flow (vph)	116	1221	109	168	1337	149	158	600	144	305	779	82
Heavy Vehicles (%)	4%	5%	2%	2%	4%	5%	2%	6%	2%	5%	6%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.0	41.0	47.0	11.0	44.0	55.0	6.0	21.0	32.0	11.0	26.0	34.0
Effective Green, g (s)	8.0	41.0	47.0	11.0	44.0	55.0	6.0	21.0	32.0	11.0	26.0	34.0
Actuated g/C Ratio	0.08	0.41	0.47	0.11	0.44	0.55	0.06	0.21	0.32	0.11	0.26	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	1187	680	164	1286	712	173	602	427	309	746	497
v/s Ratio Prot	0.08	0.42	0.01	c0.11	c0.46	0.02	0.05	c0.21	0.04	0.11	c0.27	0.01
v/s Ratio Perm			0.07			0.09			0.07			0.05
v/c Ratio	0.99	1.03	0.16	1.02	1.04	0.21	0.91	1.00	0.34	0.99	1.04	0.17
Uniform Delay, d1	46.0	29.5	15.2	44.5	28.0	11.4	46.7	39.5	25.9	44.4	37.0	23.1
Progression Factor	1.16	1.08	0.82	0.93	0.65	0.36	0.79	0.76	0.78	0.87	0.88	0.62
Incremental Delay, d2	70.0	30.5	0.1	50.5	27.3	0.1	39.2	32.8	0.4	44.4	43.3	0.1
Delay (s)	123.2	62.4	12.6	91.9	45.5	4.1	76.2	62.6	20.7	82.9	75.9	14.5
Level of Service	F	E	B	F	D	A	E	E	C	F	E	B
Approach Delay (s)		62.5			45.7			57.7			72.7	
Approach LOS		E			D			E			E	
Intersection Summary												
HCM Average Control Delay			58.6			HCM Level of Service			E			
HCM Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			91.6%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St

2035 MD Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1434	2843		1434	2808		1476	2825		1434	2868	1283
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1434	2843		1434	2808		1476	2825		1434	2868	1283
Volume (vph)	90	790	60	90	790	70	40	460	50	110	470	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	832	63	95	832	74	42	484	53	116	495	116
RTOR Reduction (vph)	0	6	0	0	7	0	0	8	0	0	0	67
Lane Group Flow (vph)	95	889	0	95	899	0	42	529	0	116	495	49
Heavy Vehicles (%)	6%	6%	3%	6%	7%	6%	3%	6%	6%	6%	6%	6%
Turn Type	Prot			Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	10.0	38.8		8.6	37.4		4.2	25.5		11.1	32.4	42.4
Effective Green, g (s)	10.0	38.8		8.6	37.4		4.2	25.5		11.1	32.4	42.4
Actuated g/C Ratio	0.10	0.39		0.09	0.37		0.04	0.26		0.11	0.32	0.42
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	143	1103		123	1050		62	720		159	929	595
v/s Ratio Prot	c0.07	0.31		0.07	c0.32		0.03	c0.19		c0.08	0.17	0.01
v/s Ratio Perm												0.03
v/c Ratio	0.66	0.81		0.77	0.86		0.68	0.73		0.73	0.53	0.08
Uniform Delay, d1	43.4	27.3		44.7	28.8		47.2	34.1		43.0	27.6	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.56	0.24		1.00	1.00	1.00
Incremental Delay, d2	11.1	6.3		25.4	9.0		11.1	2.7		15.4	2.2	0.1
Delay (s)	54.4	33.6		70.1	37.8		85.0	10.8		58.4	29.8	17.3
Level of Service	D	C		E	D		F	B		E	C	B
Approach Delay (s)		35.6			40.9			16.1			32.4	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM Average Control Delay			33.1			HCM Level of Service					C	
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			72.1%			ICU Level of Service					C	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 MD Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗↗	↘	↘	↗↗	↘
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1394	2895	1333	1476	2841	1308	1490	2895	1333	1448	2868	1248
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1394	2895	1333	1476	2841	1308	1490	2895	1333	1448	2868	1248
Volume (vph)	140	850	70	80	790	150	240	250	120	200	370	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	895	74	84	832	158	253	263	126	211	389	221
RTOR Reduction (vph)	0	0	32	0	0	79	0	0	85	0	0	66
Lane Group Flow (vph)	147	895	42	84	832	79	253	263	41	211	389	155
Heavy Vehicles (%)	9%	5%	2%	3%	7%	4%	2%	5%	2%	5%	6%	9%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	12.6	37.2	56.3	7.8	32.4	49.7	19.1	21.7	29.5	17.3	19.9	32.5
Effective Green, g (s)	12.6	37.2	56.3	7.8	32.4	49.7	19.1	21.7	29.5	17.3	19.9	32.5
Actuated g/C Ratio	0.13	0.37	0.56	0.08	0.32	0.50	0.19	0.22	0.30	0.17	0.20	0.32
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	176	1077	804	115	920	702	285	628	447	251	571	456
v/s Ratio Prot	c0.11	0.31	0.01	0.06	c0.29	0.02	c0.17	0.09	0.01	0.15	c0.14	0.04
v/s Ratio Perm			0.02			0.04			0.02			0.08
v/c Ratio	0.84	0.83	0.05	0.73	0.90	0.11	0.89	0.42	0.09	0.84	0.68	0.34
Uniform Delay, d1	42.7	28.5	9.8	45.1	32.3	13.4	39.4	33.7	25.5	40.0	37.1	25.6
Progression Factor	1.36	0.61	0.00	1.29	0.51	0.02	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.7	3.5	0.0	11.5	6.9	0.0	26.5	2.0	0.1	21.6	6.4	0.4
Delay (s)	76.9	21.0	0.0	69.6	23.2	0.3	65.9	35.8	25.6	61.6	43.6	26.1
Level of Service	E	C	A	E	C	A	E	D	C	E	D	C
Approach Delay (s)		27.0			23.4			45.6			43.5	
Approach LOS		C			C			D			D	




























Intersection Summary

HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: Slauson Ave & Eastern Ave

























2035 MD Peak_Alt 4
9/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	3950		1333	3979		2891	2815	1162	2499	2815	1320
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	3950		1333	3979		2891	2815	1162	2499	2815	1320
Volume (vph)	140	530	170	130	480	80	230	560	140	80	560	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	558	179	137	505	84	242	589	147	84	589	147
RTOR Reduction (vph)	0	56	0	0	23	0	0	0	40	0	0	35
Lane Group Flow (vph)	147	681	0	137	567	0	242	589	107	84	589	112
Heavy Vehicles (%)	3%	8%	2%	14%	6%	16%	2%	8%	17%	18%	8%	3%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1		6
Permitted Phases									2			6
Actuated Green, G (s)	14.6	25.0		14.6	25.0		11.9	38.8	53.4	5.6		32.5
Effective Green, g (s)	14.6	25.0		14.6	25.0		11.9	38.8	53.4	5.6		32.5
Actuated g/C Ratio	0.15	0.25		0.15	0.25		0.12	0.39	0.53	0.06		0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	215	988		195	995		344	1092	667	140		915
v/s Ratio Prot	0.10	c0.17		c0.10	0.14		c0.08	0.21	0.02	0.03		c0.21
v/s Ratio Perm									0.07			0.06
v/c Ratio	0.68	0.69		0.70	0.57		0.70	0.54	0.16	0.60		0.64
Uniform Delay, d1	40.5	34.0		40.6	32.8		42.4	23.7	11.9	46.1		28.8
Progression Factor	1.66	0.45		0.86	1.21		1.16	0.49	0.31	1.22		0.66
Incremental Delay, d2	6.3	1.5		8.9	0.6		2.6	0.7	0.0	6.2		3.1
Delay (s)	73.4	16.9		43.7	40.4		51.6	12.4	3.7	62.4		22.2
Level of Service	E	B		D	D		D	B	A	E		C
Approach Delay (s)		26.3			41.0			20.8				23.2
Approach LOS		C			D			C				C
Intersection Summary												
HCM Average Control Delay			27.1	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			64.7%	ICU Level of Service				C				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
73: Slauson Ave & Garfield Ave

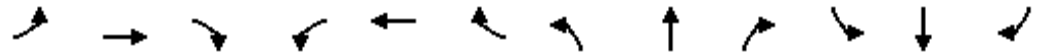
2035 MD Peak_Alt 4
7/6/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1407	2714	1320	1505	2789	1360	1476	2789	1347	1520	2789	1283
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1407	2714	1320	1505	2789	1360	1476	2789	1347	1520	2789	1283
Volume (vph)	160	470	50	110	460	80	30	490	60	90	490	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	495	53	116	484	84	32	516	63	95	516	158
RTOR Reduction (vph)	0	0	37	0	0	57	0	0	32	0	0	68
Lane Group Flow (vph)	168	495	16	116	484	27	32	516	31	95	516	90
Heavy Vehicles (%)	8%	12%	3%	1%	9%	0%	3%	9%	1%	0%	9%	6%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.2	24.4	30.3	12.1	21.3	32.0	5.9	36.8	48.9	10.7	41.6	56.8
Effective Green, g (s)	15.2	24.4	30.3	12.1	21.3	32.0	5.9	36.8	48.9	10.7	41.6	56.8
Actuated g/C Ratio	0.15	0.24	0.30	0.12	0.21	0.32	0.06	0.37	0.49	0.11	0.42	0.57
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	662	453	182	594	490	87	1026	713	163	1160	780
v/s Ratio Prot	c0.12	c0.18	0.00	0.08	0.17	0.01	0.02	c0.19	0.01	c0.06	0.19	0.02
v/s Ratio Perm			0.01			0.01			0.02			0.05
v/c Ratio	0.79	0.75	0.04	0.64	0.81	0.05	0.37	0.50	0.04	0.58	0.44	0.12
Uniform Delay, d1	40.8	35.0	24.6	41.9	37.5	23.5	45.3	24.5	13.3	42.5	20.9	10.0
Progression Factor	0.66	0.62	0.94	1.00	1.00	1.00	1.12	0.77	1.14	1.40	0.53	0.00
Incremental Delay, d2	14.3	3.8	0.0	7.1	8.4	0.0	2.5	1.7	0.0	4.6	1.1	0.1
Delay (s)	41.0	25.5	23.1	49.0	45.9	23.6	53.0	20.4	15.3	64.0	12.2	0.1
Level of Service	D	C	C	D	D	C	D	C	B	E	B	A
Approach Delay (s)		29.0			43.7			21.6			16.1	
Approach LOS		C			D			C			B	
Intersection Summary												
HCM Average Control Delay	27.4		HCM Level of Service				C					
HCM Volume to Capacity ratio	0.64											
Actuated Cycle Length (s)	100.0				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	61.0%			ICU Level of Service				B				
Analysis Period (min)	15											

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 106: Cesar Chavez Ave & Humphreys Ave

2035 MD Peak_ALT 4
 8/9/2011



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Volume (veh/h)	36	835	14	23	865	52	3	6	21	67	11	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	879	15	24	911	55	3	6	22	71	12	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLT			TWLT							
Median storage (veh)		2			2							
Upstream signal (ft)		663										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	965			894			1527	1976	447	1527	1956	483
vC1, stage 1 conf vol							962	962		986	986	
vC2, stage 2 conf vol							565	1014		541	969	
vCu, unblocked vol	965			862			1505	1960	408	1505	1940	483
tC, single (s)	4.3			4.3			7.7	6.7	7.1	7.7	6.7	7.1
tC, 2 stage (s)							6.7	5.7		6.7	5.7	
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	94			97			98	97	96	67	94	89
cM capacity (veh/h)	662			716			205	194	562	211	203	509

























Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	477	454	479	510	32	138
Volume Left	38	0	24	0	3	71
Volume Right	0	15	0	55	22	56
cSH	662	1700	716	1700	362	276
Volume to Capacity	0.06	0.27	0.03	0.30	0.09	0.50
Queue Length 95th (ft)	5	0	3	0	7	65
Control Delay (s)	1.6	0.0	1.0	0.0	15.9	30.4
Lane LOS	A		A		C	D
Approach Delay (s)	0.8		0.5		15.9	30.4
Approach LOS					C	D

Intersection Summary

Average Delay	2.8
Intersection Capacity Utilization	72.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis
 146: 223rd St & Santa Fe Ave































2035 MD Peak_Alt 4
 12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1434	2951	1347	2891	2951	1320	2920	2868	1333	2863	2868	2237
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1434	2951	1347	2891	2951	1320	2920	2868	1333	2863	2868	2237
Volume (vph)	100	150	160	190	200	310	250	390	170	220	450	440
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	158	168	200	211	326	263	411	179	232	474	463
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	119	0	0	328
Lane Group Flow (vph)	105	158	91	200	211	326	263	411	60	232	474	135
Heavy Vehicles (%)	6%	3%	1%	2%	3%	3%	1%	6%	2%	3%	6%	7%
Turn Type	Prot	pm+ov		Prot	Free		Prot	pm+ov		Prot	Over	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2			Free			8				
Actuated Green, G (s)	24.1	24.5	37.0	10.8	11.2	82.4	12.5	16.9	27.7	14.2	18.6	24.1
Effective Green, g (s)	24.1	24.5	37.0	10.8	11.2	82.4	12.5	16.9	27.7	14.2	18.6	24.1
Actuated g/C Ratio	0.29	0.30	0.45	0.13	0.14	1.00	0.15	0.21	0.34	0.17	0.23	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	419	877	605	379	401	1320	443	588	513	493	647	654
v/s Ratio Prot	0.07	0.05	0.02	c0.07	c0.07		0.09	c0.14	0.02	0.08	c0.17	0.06
v/s Ratio Perm			0.04			c0.25			0.03			
v/c Ratio	0.25	0.18	0.15	0.53	0.53	0.25	0.59	0.70	0.12	0.47	0.73	0.21
Uniform Delay, d1	22.3	21.5	13.4	33.4	33.1	0.0	32.6	30.4	18.9	30.7	29.6	22.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.5	0.1	1.3	1.2	0.4	2.1	3.6	0.1	0.7	4.3	0.2
Delay (s)	22.6	21.9	13.5	34.7	34.4	0.4	34.7	34.0	19.0	31.4	33.9	22.1
Level of Service	C	C	B	C	C	A	C	C	B	C	C	C
Approach Delay (s)		18.8			19.5			31.1			28.7	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			25.9		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			82.4		Sum of lost time (s)				12.0			
Intersection Capacity Utilization			49.7%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 MD Peak_Alt 4
 05/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2705	2868	1320	2808	2841	1308	1476	2841	1308	1434	2815	1248
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2705	2868	1320	2808	2841	1308	1476	2841	1308	1434	2815	1248
Volume (vph)	140	760	80	160	700	90	100	490	110	130	550	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	800	84	168	737	95	105	516	116	137	579	168
RTOR Reduction (vph)	0	0	42	0	0	45	0	0	72	0	0	82
Lane Group Flow (vph)	147	800	42	168	737	50	105	516	44	137	579	86
Heavy Vehicles (%)	9%	6%	3%	5%	7%	4%	3%	7%	4%	6%	8%	9%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	32.9	43.6	8.8	33.0	46.0	10.7	29.3	38.1	13.0	31.6	40.3
Effective Green, g (s)	8.7	32.9	43.6	8.8	33.0	46.0	10.7	29.3	38.1	13.0	31.6	40.3
Actuated g/C Ratio	0.09	0.33	0.44	0.09	0.33	0.46	0.11	0.29	0.38	0.13	0.32	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	235	944	628	247	938	654	158	832	551	186	890	553
v/s Ratio Prot	0.05	c0.28	0.01	c0.06	0.26	0.01	0.07	0.18	0.01	c0.10	c0.21	0.01
v/s Ratio Perm			0.02			0.03			0.03			0.06
v/c Ratio	0.63	0.85	0.07	0.68	0.79	0.08	0.66	0.62	0.08	0.74	0.65	0.15
Uniform Delay, d1	44.1	31.2	16.4	44.2	30.3	15.1	42.9	30.5	19.8	41.9	29.4	19.0
Progression Factor	1.00	1.00	1.00	1.02	1.20	0.58	1.59	0.53	0.10	0.79	0.79	1.79
Incremental Delay, d2	5.1	7.1	0.0	4.2	2.4	0.0	8.0	2.7	0.0	7.4	1.9	0.1
Delay (s)	49.2	38.4	16.4	49.4	38.8	8.8	76.3	18.8	2.0	40.3	25.1	34.2
Level of Service	D	D	B	D	D	A	E	B	A	D	C	C
Approach Delay (s)		38.1			37.7			24.4			29.2	
Approach LOS		D			D			C			C	





















Intersection Summary

HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave

























2035 MD Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frt		0.97			0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2817			2829		1476	2868	1308	1434	2818	
Flt Permitted		1.00			1.00		0.31	1.00	1.00	0.32	1.00	
Satd. Flow (perm)		2817			2829		485	2868	1308	482	2818	
Volume (vph)	40	570	130	50	500	70	60	510	140	60	460	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	42	600	137	53	526	74	63	537	147	63	484	63
RTOR Reduction (vph)	0	19	0	0	10	0	0	0	42	0	10	0
Lane Group Flow (vph)	0	760	0	0	643	0	63	537	105	63	537	0
Heavy Vehicles (%)	4%	5%	4%	2%	6%	2%	3%	6%	4%	6%	6%	6%
Turn Type	Split		Split				Perm		pm+ov	Perm		
Protected Phases	4	4	8				8		2	8	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	30.4		27.1				30.5		30.5	57.6	30.5	
Effective Green, g (s)	30.4		27.1				30.5		30.5	57.6	30.5	
Actuated g/C Ratio	0.30		0.27				0.30		0.30	0.58	0.30	
Clearance Time (s)	4.0		4.0				4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0				3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	856		767				148		875	806	147	
v/s Ratio Prot	c0.27		c0.23						0.19	0.04	c0.19	
v/s Ratio Perm							0.13		0.05	0.13		
v/c Ratio	0.89		0.84				0.43		0.61	0.13	0.43	
Uniform Delay, d1	33.2		34.4				27.8		29.7	9.7	27.8	
Progression Factor	0.51		0.58				0.63		0.62	0.19	1.00	
Incremental Delay, d2	10.3		6.9				4.7		1.7	0.0	8.9	
Delay (s)	27.3		26.9				22.1		20.3	1.9	36.7	
Level of Service	C		C				C		C	A	D	
Approach Delay (s)	27.3		26.9						16.8	33.6		
Approach LOS	C		C						B	C		
Intersection Summary												
HCM Average Control Delay	25.8		HCM Level of Service				C					
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization	80.5%		ICU Level of Service				D					
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
153: Gage Ave & Santa Fe Ave




























2035 MD Peak_Alt 4
6/2/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	2923	1271	1434	2815	1308	2730	2739	1308	2808	2714	1106
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	2923	1271	1434	2815	1308	2730	2739	1308	2808	2714	1106
Volume (vph)	80	450	120	70	630	50	120	720	60	80	720	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	474	126	74	663	53	126	758	63	84	758	95
RTOR Reduction (vph)	0	0	80	0	0	36	0	0	31	0	0	35
Lane Group Flow (vph)	84	474	46	74	663	17	126	758	32	84	758	60
Heavy Vehicles (%)	4%	4%	7%	6%	8%	4%	8%	11%	4%	5%	12%	23%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	9.1	28.4	36.7	8.1	27.4	32.3	8.3	42.6	50.7	4.9	39.2	48.3
Effective Green, g (s)	9.1	28.4	36.7	8.1	27.4	32.3	8.3	42.6	50.7	4.9	39.2	48.3
Actuated g/C Ratio	0.09	0.28	0.37	0.08	0.27	0.32	0.08	0.43	0.51	0.05	0.39	0.48
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	133	830	517	116	771	475	227	1167	715	138	1064	578
v/s Ratio Prot	c0.06	0.16	0.01	0.05	c0.24	0.00	c0.05	c0.28	0.00	0.03	c0.28	0.01
v/s Ratio Perm			0.03			0.01			0.02			0.04
v/c Ratio	0.63	0.57	0.09	0.64	0.86	0.04	0.56	0.65	0.04	0.61	0.71	0.10
Uniform Delay, d1	43.8	30.6	20.7	44.5	34.5	23.2	44.1	22.8	12.4	46.6	25.6	14.1
Progression Factor	1.00	1.00	1.00	1.39	0.58	0.17	1.00	1.00	1.00	1.28	0.58	0.01
Incremental Delay, d2	9.4	1.0	0.1	8.4	7.3	0.0	2.9	2.8	0.0	6.4	3.5	0.1
Delay (s)	53.2	31.5	20.8	70.2	27.5	4.0	47.0	25.6	12.5	65.8	18.4	0.2
Level of Service	D	C	C	E	C	A	D	C	B	E	B	A
Approach Delay (s)		32.2			29.9			27.6			20.8	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay	27.2		HCM Level of Service				C					
HCM Volume to Capacity ratio	0.77											
Actuated Cycle Length (s)	100.0				Sum of lost time (s)				20.0			
Intersection Capacity Utilization	67.0%				ICU Level of Service				C			
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 161: Del Amo Blvd & Susana Road

2035 MD Peak_Alt 4
 7/1/2009


























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1407	4004		1520	2923	1308	1520	1504		2835	1600	2196
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.71	1.00		0.29	1.00	1.00
Satd. Flow (perm)	1407	4004		1520	2923	1308	1134	1504		853	1600	2196
Volume (vph)	310	1120	80	50	650	230	60	90	60	560	70	550
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	1179	84	53	684	242	63	95	63	589	74	579
RTOR Reduction (vph)	0	8	0	0	0	177	0	23	0	0	0	103
Lane Group Flow (vph)	326	1255	0	53	684	65	63	136	0	589	74	476
Heavy Vehicles (%)	8%	8%	8%	0%	4%	4%	0%	0%	0%	4%	0%	9%
Turn Type	Prot			Prot		custom	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	8	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	25.0	45.7		6.3	27.0	27.0	15.9	10.0		36.0	26.1	51.1
Effective Green, g (s)	25.0	45.7		6.3	27.0	27.0	15.9	10.0		36.0	26.1	51.1
Actuated g/C Ratio	0.25	0.46		0.06	0.27	0.27	0.16	0.10		0.36	0.26	0.51
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	352	1830		96	789	353	203	150		743	418	1210
v/s Ratio Prot	c0.23	0.31		0.03	c0.23	0.05	0.02	0.09		c0.17	0.05	0.10
v/s Ratio Perm							0.03			c0.11		0.12
v/c Ratio	0.93	0.69		0.55	0.87	0.19	0.31	0.90		0.79	0.18	0.39
Uniform Delay, d1	36.6	21.5		45.5	34.8	28.0	36.9	44.5		26.4	28.6	15.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	29.6	2.1		6.7	12.3	1.2	0.9	45.9		5.8	0.2	0.2
Delay (s)	66.2	23.6		52.2	47.1	29.2	37.8	90.4		32.2	28.8	15.2
Level of Service	E	C		D	D	C	D	F		C	C	B
Approach Delay (s)		32.3			43.0			75.4			24.0	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: E Anaheim St & Magnolia Avenue

2035 PM Peak_Alt 4
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Fr _t	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.98	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1448	2798		1520	2851		2863	2906		1520	2932	
Fl _t Permitted	0.23	1.00		0.06	1.00		0.48	1.00		0.33	1.00	
Satd. Flow (perm)	345	2798		100	2851		1459	2906		520	2932	
Volume (vph)	110	1500	290	80	970	60	370	340	80	100	250	30
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	1579	305	84	1021	63	389	358	84	105	263	32
RTOR Reduction (vph)	0	16	0	0	5	0	0	20	0	0	9	0
Lane Group Flow (vph)	116	1868	0	84	1080	0	389	422	0	105	286	0
Heavy Vehicles (%)	5%	7%	1%	0%	6%	1%	3%	2%	0%	0%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6			8			4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	70.0	70.0		70.0	70.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)	70.0	70.0		70.0	70.0		22.0	22.0		22.0	22.0	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.22	0.22		0.22	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	242	1959		70	1996		321	639		114	645	
v/s Ratio Prot		0.67			0.38			0.15			0.10	
v/s Ratio Perm	0.34			c0.84			c0.27			0.20		
v/c Ratio	0.48	0.95		1.20	0.54		1.21	0.66		0.92	0.44	
Uniform Delay, d ₁	6.8	13.5		15.0	7.2		39.0	35.6		38.2	33.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	6.7	12.0		171.1	0.3		120.7	2.5		59.8	0.5	
Delay (s)	13.4	25.5		186.1	7.5		159.7	38.1		98.0	34.2	
Level of Service	B	C		F	A		F	D		F	C	
Approach Delay (s)		24.8			20.4			95.0			50.9	
Approach LOS		C			C			F			D	

Intersection Summary

HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: E Anaheim St & Pacific Ave

2035 PM Peak_Alt 4
 8/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1048	2868	1333	1505	2868	1347	2891	2861		2920	2761	
Flt Permitted	0.15	1.00	1.00	0.09	1.00	1.00	0.19	1.00		0.15	1.00	
Satd. Flow (perm)	161	2868	1333	135	2868	1347	571	2861		473	2761	
Volume (vph)	100	1410	220	110	1010	190	170	620	130	165	560	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	1484	232	116	1063	200	179	653	137	174	589	74
RTOR Reduction (vph)	0	0	31	0	0	44	0	18	0	0	10	0
Lane Group Flow (vph)	105	1484	201	116	1063	156	179	772	0	174	653	0
Heavy Vehicles (%)	45%	6%	2%	1%	6%	1%	2%	4%	1%	1%	2%	58%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt			pm+pt		
Protected Phases	5	2	3	1	6	7	3	8		7	4	
Permitted Phases	2		2	6		6	8			4		
Actuated Green, G (s)	57.0	50.0	54.0	51.0	47.0	51.0	30.0	26.0		30.0	26.0	
Effective Green, g (s)	57.0	50.0	54.0	51.0	47.0	51.0	30.0	26.0		30.0	26.0	
Actuated g/C Ratio	0.57	0.50	0.54	0.51	0.47	0.51	0.30	0.26		0.30	0.26	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	1434	773	124	1348	741	264	744		240	718	
v/s Ratio Prot	c0.05	c0.52	0.01	0.04	0.37	0.01	0.03	c0.27		c0.03	0.24	
v/s Ratio Perm	0.34		0.14	0.44		0.11	0.18			0.19		
v/c Ratio	0.68	1.03	0.26	0.94	0.79	0.21	0.68	1.04		0.72	0.91	
Uniform Delay, d1	14.3	25.0	12.3	20.4	22.3	13.4	28.8	37.0		29.3	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.8	33.3	0.2	60.6	3.1	0.1	6.7	43.2		10.4	15.7	
Delay (s)	26.1	58.3	12.5	80.9	25.5	13.6	35.5	80.2		39.7	51.5	
Level of Service	C	E	B	F	C	B	D	F		D	D	
Approach Delay (s)		50.6			28.4			72.0			49.1	
Approach LOS		D			C			E			D	
Intersection Summary												
HCM Average Control Delay			48.4			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			97.7%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: E Anaheim St & Cherry Ave

2035 PM Peak_Alt 4
 6/9/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2895	1333	1505	2845		1490	1569	1347	1505	1584	1333
Flt Permitted	0.12	1.00	1.00	0.11	1.00		0.11	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	192	2895	1333	176	2845		174	1569	1347	445	1584	1333
Volume (vph)	120	1320	70	290	1120	170	50	410	60	200	580	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	1389	74	305	1179	179	53	432	63	211	611	179
RTOR Reduction (vph)	0	0	40	0	12	0	0	0	5	0	0	24
Lane Group Flow (vph)	126	1389	34	305	1346	0	53	432	58	211	611	155
Heavy Vehicles (%)	1%	5%	2%	1%	5%	3%	2%	2%	1%	1%	1%	2%
Turn Type	pm+pt		Perm	pm+pt		Perm		pm+ov	Perm		pm+ov	
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2		2	6		8		8	4		4	4
Actuated Green, G (s)	40.0	40.0	40.0	48.0	48.0		36.0	36.0	48.0	36.0	36.0	40.0
Effective Green, g (s)	40.0	40.0	40.0	48.0	48.0		36.0	36.0	48.0	36.0	36.0	40.0
Actuated g/C Ratio	0.40	0.40	0.40	0.48	0.48		0.36	0.36	0.48	0.36	0.36	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	1158	533	244	1366		63	565	700	160	570	587
v/s Ratio Prot	0.04	c0.48		c0.15	0.47			0.28	0.01		0.39	0.01
v/s Ratio Perm	0.35		0.03	c0.45		0.30		0.03	c0.47		0.11	
v/c Ratio	0.98	1.20	0.06	1.25	0.99		0.84	0.76	0.08	1.32	1.07	0.26
Uniform Delay, d1	36.5	30.0	18.5	46.2	25.7		29.4	28.3	14.1	32.0	32.0	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	71.4	98.3	0.2	141.8	20.7		60.8	6.1	0.1	180.4	58.4	0.2
Delay (s)	107.9	128.3	18.7	188.0	46.4		90.2	34.4	14.1	212.4	90.4	20.4
Level of Service	F	F	B	F	D		F	C	B	F	F	C
Approach Delay (s)		121.6			72.3			37.4			103.6	
Approach LOS		F			E			D			F	


















Intersection Summary

HCM Average Control Delay	91.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	115.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 18: O Street & Alameda St































2035 PM Peak_Alt 4
 12/4/2009

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		 	   			  
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.88	0.91		1.00	0.91
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1520	2216	3162		1394	3551
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1520	2216	3162		1394	3551
Volume (vph)	140	910	680	150	650	650
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	958	716	158	684	684
RTOR Reduction (vph)	0	828	32	0	0	0
Lane Group Flow (vph)	147	130	842	0	684	684
Heavy Vehicles (%)	0%	8%	42%	0%	9%	23%
Turn Type		Prot			Prot	
Protected Phases	4	4	2		1	6
Permitted Phases						
Actuated Green, G (s)	14.7	14.7	29.0		53.0	86.0
Effective Green, g (s)	14.7	14.7	29.0		53.0	86.0
Actuated g/C Ratio	0.14	0.14	0.27		0.49	0.79
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	206	300	844		680	2809
v/s Ratio Prot	c0.10	0.06	c0.27		c0.49	0.19
v/s Ratio Perm						
v/c Ratio	0.71	0.43	1.00		1.01	0.24
Uniform Delay, d1	45.0	43.2	39.8		27.9	2.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.1	1.0	30.5		36.0	0.2
Delay (s)	56.1	44.2	70.4		63.8	3.1
Level of Service	E	D	E		E	A
Approach Delay (s)	45.8		70.4			33.5
Approach LOS	D		E			C
Intersection Summary						
HCM Average Control Delay			47.2		HCM Level of Service	D
HCM Volume to Capacity ratio			0.96			
Actuated Cycle Length (s)			108.7		Sum of lost time (s)	12.0
Intersection Capacity Utilization			81.5%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 20: Pacific Coast Hwy & Pacific Ave

2035 PM Peak_Alt 4
 12/4/2009
































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1369	4160	1347	1505	4200	1347	1505	2868	1333	1505	2923	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.21	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	1369	4160	1347	1505	4200	1347	332	2868	1333	280	2923	1320
Volume (vph)	130	1680	160	80	1010	110	110	790	110	90	730	250
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1768	168	84	1063	116	116	832	116	95	768	263
RTOR Reduction (vph)	0	0	45	0	0	70	0	0	3	0	0	11
Lane Group Flow (vph)	137	1768	123	84	1063	46	116	832	113	95	768	252
Heavy Vehicles (%)	11%	5%	1%	1%	4%	1%	1%	6%	2%	1%	4%	3%
Turn Type	Prot		Perm	Prot		Perm	Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	12.7	45.1	45.1	6.1	38.5	38.5	34.1	34.1	40.2	34.1	34.1	46.8
Effective Green, g (s)	12.7	45.1	45.1	6.1	38.5	38.5	34.1	34.1	40.2	34.1	34.1	46.8
Actuated g/C Ratio	0.13	0.46	0.46	0.06	0.40	0.40	0.35	0.35	0.41	0.35	0.35	0.48
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	179	1928	624	94	1662	533	116	1005	606	98	1024	689
v/s Ratio Prot	0.10	c0.42		0.06	c0.25			0.29	0.01		0.26	0.05
v/s Ratio Perm			0.09			0.03	c0.35		0.07	0.34		0.14
v/c Ratio	0.77	0.92	0.20	0.89	0.64	0.09	1.00	0.83	0.19	0.97	0.75	0.37
Uniform Delay, d1	40.9	24.4	15.4	45.3	23.8	18.4	31.6	28.9	18.2	31.1	27.8	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.6	8.4	0.7	59.2	0.8	0.1	83.6	5.7	0.1	80.0	3.1	0.3
Delay (s)	58.4	32.8	16.1	104.5	24.6	18.5	115.2	34.6	18.3	111.1	31.0	16.2
Level of Service	E	C	B	F	C	B	F	C	B	F	C	B
Approach Delay (s)		33.1			29.4			41.6			34.3	
Approach LOS		C			C			D			C	

Intersection Summary		
HCM Average Control Delay	34.1	HCM Level of Service C
HCM Volume to Capacity ratio	0.91	
Actuated Cycle Length (s)	97.3	Sum of lost time (s) 8.0
Intersection Capacity Utilization	89.0%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 21: Pacific Coast Hwy & Long Beach Blvd























2035 PM Peak_Alt 4
 7/27/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2782	4139		2863	4119		1505	2980	1308	1505	2980	1320
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2782	4139		2863	4119		1505	2980	1308	1505	2980	1320
Volume (vph)	180	1520	70	170	900	230	140	590	50	480	800	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1600	74	179	947	242	147	621	53	505	842	137
RTOR Reduction (vph)	0	5	0	0	45	0	0	0	28	0	0	35
Lane Group Flow (vph)	189	1669	0	179	1144	0	147	621	25	505	842	102
Heavy Vehicles (%)	6%	5%	1%	3%	3%	2%	1%	2%	4%	1%	2%	3%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases								8				4
Actuated Green, G (s)	7.0	35.0		5.0	33.0		11.9	18.0	23.0	26.0	32.1	39.1
Effective Green, g (s)	7.0	35.0		5.0	33.0		11.9	18.0	23.0	26.0	32.1	39.1
Actuated g/C Ratio	0.07	0.35		0.05	0.33		0.12	0.18	0.23	0.26	0.32	0.39
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	195	1449		143	1359		179	536	301	391	957	516
v/s Ratio Prot	0.07	c0.40		0.06	c0.28		0.10	c0.21	0.00	c0.34	0.28	0.01
v/s Ratio Perm									0.02			0.06
v/c Ratio	0.97	1.15		1.25	0.84		0.82	1.16	0.08	1.29	0.88	0.20
Uniform Delay, d1	46.4	32.5		47.5	31.1		43.0	41.0	30.2	37.0	32.1	20.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	54.9	76.7		158.1	4.9		25.1	90.7	0.1	149.1	9.3	0.2
Delay (s)	101.2	109.2		205.6	36.0		68.1	131.7	30.3	186.1	41.4	20.3
Level of Service	F	F		F	D		E	F	C	F	D	C
Approach Delay (s)		108.4			58.2			113.7			88.7	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM Average Control Delay			91.5			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization		106.8%				ICU Level of Service				G		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 25: Sepulveda Blvd & Alameda St Ramp

2035 PM Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95			0.95	1.00		1.00		0.97	1.00	1.00
Frt	1.00	1.00			1.00	0.85		0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1216	2432			2432	1088		987		1966	1067	907
Flt Permitted	0.95	1.00			1.00	1.00		1.00		0.61	1.00	1.00
Satd. Flow (perm)	1216	2432			2432	1088		987		1258	1067	907
Volume (vph)	220	770	0	0	490	290	0	10	10	690	20	190
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	811	0	0	516	305	0	11	11	726	21	200
RTOR Reduction (vph)	0	0	0	0	0	165	0	9	0	0	0	61
Lane Group Flow (vph)	232	811	0	0	516	140	0	13	0	726	21	139
Heavy Vehicles (%)	25%	25%	25%	25%	25%	25%	50%	50%	50%	50%	50%	50%
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	20.0	46.0			22.0	46.0		18.0		46.0	46.0	66.0
Effective Green, g (s)	20.0	46.0			22.0	46.0		18.0		46.0	46.0	66.0
Actuated g/C Ratio	0.20	0.46			0.22	0.46		0.18		0.46	0.46	0.66
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	243	1119			535	544		178		749	491	635
v/s Ratio Prot	c0.19	0.33			c0.21	0.06		0.01		c0.23	0.02	0.04
v/s Ratio Perm						0.07				c0.21		0.11
v/c Ratio	0.95	0.72			0.96	0.26		0.07		0.97	0.04	0.22
Uniform Delay, d1	39.6	21.9			38.6	16.5		34.1		24.5	14.9	6.8
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.01	1.03	1.01
Incremental Delay, d2	44.9	2.4			29.8	0.3		0.8		12.7	0.1	0.1
Delay (s)	84.4	24.2			68.4	16.8		34.9		37.3	15.4	6.9
Level of Service	F	C			E	B		C		D	B	A
Approach Delay (s)		37.6			49.3			34.9			30.4	
Approach LOS		D			D			C			C	

































Intersection Summary

HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 28: Willow St & Long Beach Blvd

2035 PM Peak_Alt 4
 12/4/2009

































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			  			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2920	4325	1347	2863	4325	1333	1490	4066		1505	2980	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	2920	4325	1347	2863	4325	1333	1490	4066		1505	2980	1347
Volume (vph)	260	1240	220	290	1330	120	230	800	260	300	890	290
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	1305	232	305	1400	126	242	842	274	316	937	305
RTOR Reduction (vph)	0	0	8	0	0	6	0	54	0	0	0	30
Lane Group Flow (vph)	274	1305	224	305	1400	120	242	1062	0	316	937	275
Heavy Vehicles (%)	1%	1%	1%	3%	1%	2%	2%	2%	8%	1%	2%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8		7	4	5
Permitted Phases			2			6						4
Actuated Green, G (s)	10.0	34.0	51.0	11.0	35.0	56.0	17.0	28.0		21.0	32.0	42.0
Effective Green, g (s)	10.0	34.0	51.0	11.0	35.0	56.0	17.0	28.0		21.0	32.0	42.0
Actuated g/C Ratio	0.09	0.31	0.46	0.10	0.32	0.51	0.15	0.25		0.19	0.29	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	265	1337	625	286	1376	679	230	1035		287	867	514
v/s Ratio Prot	0.09	0.30	0.06	c0.11	c0.32	0.03	0.16	0.26		c0.21	c0.31	0.05
v/s Ratio Perm			0.11			0.06						0.16
v/c Ratio	1.03	0.98	0.36	1.07	1.02	0.18	1.05	1.03		1.10	1.08	0.54
Uniform Delay, d1	50.0	37.6	19.0	49.5	37.5	14.6	46.5	41.0		44.5	39.0	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	64.4	19.5	0.4	71.9	28.7	0.1	73.7	34.9		82.9	54.8	1.1
Delay (s)	114.4	57.1	19.3	121.4	66.2	14.7	120.2	75.9		127.4	93.8	27.5
Level of Service	F	E	B	F	E	B	F	E		F	F	C
Approach Delay (s)		60.9			71.9			83.8			87.6	
Approach LOS		E			E			F			F	

Intersection Summary		
HCM Average Control Delay	75.1	HCM Level of Service E
HCM Volume to Capacity ratio	1.04	
Actuated Cycle Length (s)	110.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	97.6%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 29: Willow St & Atlantic Ave



































2035 PM Peak_Alt 4
 12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2681	4269		1476	4271		2891	2923	1333	2891	2980	1347
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2681	4269		1476	4271		2891	2923	1333	2891	2980	1347
Volume (vph)	150	1270	120	150	1110	100	240	690	170	280	680	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1337	126	158	1168	105	253	726	179	295	716	221
RTOR Reduction (vph)	0	12	0	0	12	0	0	0	126	0	0	131
Lane Group Flow (vph)	158	1451	0	158	1261	0	253	726	53	295	716	90
Heavy Vehicles (%)	10%	1%	1%	3%	1%	1%	2%	4%	2%	2%	2%	1%
Turn Type	Prot		Prot		Prot		Perm		Prot		Perm	
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases									8			4
Actuated Green, G (s)	7.0	31.0		10.0	34.0		8.0	23.0	23.0	10.0	25.0	25.0
Effective Green, g (s)	7.0	31.0		10.0	34.0		8.0	23.0	23.0	10.0	25.0	25.0
Actuated g/C Ratio	0.08	0.34		0.11	0.38		0.09	0.26	0.26	0.11	0.28	0.28
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	209	1470		164	1613		257	747	341	321	828	374
v/s Ratio Prot	0.06	c0.34		c0.11	c0.30		0.09	c0.25		0.10	c0.24	
v/s Ratio Perm									0.04			0.07
v/c Ratio	0.76	0.99		0.96	0.78		0.98	0.97	0.16	0.92	0.86	0.24
Uniform Delay, d1	40.7	29.3		39.8	24.7		40.9	33.2	26.0	39.6	30.9	25.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.4	20.5		59.0	2.5		51.4	26.0	0.2	29.9	9.3	0.3
Delay (s)	55.1	49.8		98.8	27.3		92.4	59.2	26.2	69.5	40.2	25.5
Level of Service	E	D		F	C		F	E	C	E	D	C
Approach Delay (s)		50.3			35.2			61.3			44.6	
Approach LOS		D			D			E			D	
Intersection Summary												
HCM Average Control Delay			47.4	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			87.6%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
30: Willow St & Cherry Ave

2035 PM Peak_Alt 4
12/4/2009



































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	2863	4282	1347	2891	4282	1333	2891	4241	1295	2891	4210	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	2863	4282	1347	2891	4282	1333	2891	4241	1295	2891	4210	
Volume (vph)	150	1530	380	330	1030	220	350	840	230	430	1010	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1611	400	347	1084	232	368	884	242	453	1063	126
RTOR Reduction (vph)	0	0	3	0	0	12	0	0	156	0	17	0
Lane Group Flow (vph)	158	1611	397	347	1084	220	368	884	86	453	1172	0
Heavy Vehicles (%)	3%	2%	1%	2%	2%	2%	2%	3%	5%	2%	2%	3%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Over		Prot	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.0	33.0	43.0	9.0	35.0	49.0	10.0	18.0	9.0	14.0	22.0	
Effective Green, g (s)	7.0	33.0	43.0	9.0	35.0	49.0	10.0	18.0	9.0	14.0	22.0	
Actuated g/C Ratio	0.08	0.37	0.48	0.10	0.39	0.54	0.11	0.20	0.10	0.16	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	223	1570	703	289	1665	785	321	848	130	450	1029	
v/s Ratio Prot	0.06	c0.38	0.06	c0.12	0.25	0.04	0.13	c0.21	0.07	0.16	c0.28	
v/s Ratio Perm			0.23			0.12						
v/c Ratio	0.71	1.03	0.57	1.20	0.65	0.28	1.15	1.04	0.66	1.01	1.14	
Uniform Delay, d1	40.5	28.5	16.8	40.5	22.5	11.0	40.0	36.0	39.0	38.0	34.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.9	29.6	1.0	118.7	0.9	0.2	96.0	42.5	12.1	44.1	74.7	
Delay (s)	50.4	58.1	17.9	159.2	23.4	11.2	136.0	78.5	51.1	82.1	108.7	
Level of Service	D	E	B	F	C	B	F	E	D	F	F	
Approach Delay (s)		50.1			50.0			88.2			101.4	
Approach LOS		D			D			F			F	

Intersection Summary		
HCM Average Control Delay	70.4	HCM Level of Service E
HCM Volume to Capacity ratio	1.06	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 12.0
Intersection Capacity Utilization	97.8%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 35: Del Amo Blvd & Long Beach Blvd

2035 PM Peak_Alt 4
 12/4/2009

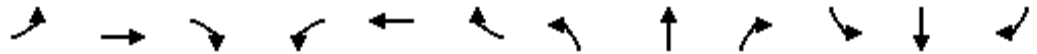
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4282	1333	2949	4282	1333	2891	2980	1347	2920	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4282	1333	2949	4282	1333	2891	2980	1347	2920	2980	1333
Volume (vph)	250	1700	220	160	880	200	230	740	210	210	670	150
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	263	1789	232	168	926	211	242	779	221	221	705	158
RTOR Reduction (vph)	0	0	10	0	0	34	0	0	5	0	0	16
Lane Group Flow (vph)	263	1789	222	168	926	177	242	779	216	221	705	142
Heavy Vehicles (%)	2%	2%	2%	0%	2%	2%	2%	2%	1%	1%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		6		8		4		4		4	
Actuated Green, G (s)	12.5	39.0	47.0	5.0	31.5	38.5	8.0	23.0	28.0	7.0	22.0	34.5
Effective Green, g (s)	12.5	39.0	47.0	5.0	31.5	38.5	8.0	23.0	28.0	7.0	22.0	34.5
Actuated g/C Ratio	0.14	0.43	0.52	0.06	0.35	0.43	0.09	0.26	0.31	0.08	0.24	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	402	1856	755	164	1499	629	257	762	419	227	728	511
v/s Ratio Prot	0.09	c0.42	0.03	c0.06	0.22	0.02	0.08	c0.26	0.03	0.08	c0.24	0.04
v/s Ratio Perm	0.14		0.11		0.13		0.07		0.07		0.07	
v/c Ratio	0.65	0.96	0.29	1.02	0.62	0.28	0.94	1.02	0.52	0.97	0.97	0.28
Uniform Delay, d1	36.7	24.8	12.1	42.5	24.3	16.8	40.8	33.5	25.4	41.4	33.7	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	13.9	0.2	76.8	0.8	0.2	40.3	38.4	1.1	51.9	25.4	0.3
Delay (s)	40.5	38.8	12.4	119.3	25.0	17.0	81.1	71.9	26.5	93.3	59.1	19.5
Level of Service	D	D	B	F	C	B	F	E	C	F	E	B
Approach Delay (s)	36.3			35.9			65.6			60.3		
Approach LOS	D			D			E			E		

Intersection Summary			
HCM Average Control Delay	46.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 36: Del Amo Blvd & Atlantic Ave

2035 PM Peak_Alt 4
 12/4/2009





































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↑↑	↗	↘	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	4282	1347	1505	4195		2891	3010	1347	2920	3010	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	4282	1347	1505	4195		2891	3010	1347	2920	3010	1333
Volume (vph)	260	1560	300	180	700	120	360	1230	180	140	630	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	274	1642	316	189	737	126	379	1295	189	147	663	179
RTOR Reduction (vph)	0	0	25	0	24	0	0	0	1	0	0	14
Lane Group Flow (vph)	274	1642	291	189	839	0	379	1295	188	147	663	165
Heavy Vehicles (%)	1%	2%	1%	1%	2%	1%	2%	1%	1%	1%	1%	2%
Turn Type	Prot	pm+ov		Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2						8				4
Actuated Green, G (s)	20.6	35.0	49.7	10.0	24.4		14.7	35.0	45.0	4.0	24.3	44.9
Effective Green, g (s)	20.6	35.0	49.7	10.0	24.4		14.7	35.0	45.0	4.0	24.3	44.9
Actuated g/C Ratio	0.21	0.35	0.50	0.10	0.24		0.15	0.35	0.45	0.04	0.24	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	310	1499	723	151	1024		425	1054	606	117	731	652
v/s Ratio Prot	0.18	c0.38	0.06	c0.13	0.20		0.13	c0.43	0.03	c0.05	0.22	0.05
v/s Ratio Perm			0.16						0.11			0.07
v/c Ratio	0.88	1.10	0.40	1.25	0.82		0.89	1.23	0.31	1.26	0.91	0.25
Uniform Delay, d1	38.5	32.5	15.8	45.0	35.7		41.9	32.5	17.6	48.0	36.8	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.4	53.9	0.4	156.2	5.2		20.3	111.4	0.3	167.4	14.9	0.2
Delay (s)	62.9	86.4	16.2	201.2	40.9		62.2	143.9	17.9	215.4	51.6	17.3
Level of Service	E	F	B	F	D		E	F	B	F	D	B
Approach Delay (s)		73.6			69.7			114.5			69.8	
Approach LOS		E			E			F			E	

Intersection Summary		
HCM Average Control Delay	84.7	HCM Level of Service F
HCM Volume to Capacity ratio	1.18	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	106.1%	ICU Level of Service G
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 37: Del Amo Blvd & Cherry Ave

2035 PM Peak_Alt 4
 12/4/2009


































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  			  		 	  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91		1.00	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4282	1333	2920	4219		1490	4241	1333	2920	4282	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4282	1333	2920	4219		1490	4241	1333	2920	4282	1333
Volume (vph)	180	1420	150	330	1100	130	180	1170	520	200	870	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1495	158	347	1158	137	189	1232	547	211	916	116
RTOR Reduction (vph)	0	0	5	0	15	0	0	0	4	0	0	31
Lane Group Flow (vph)	189	1495	153	347	1280	0	189	1232	543	211	916	85
Heavy Vehicles (%)	2%	2%	2%	1%	2%	1%	2%	3%	2%	1%	2%	2%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2					8				4
Actuated Green, G (s)	11.5	36.0	49.0	12.0	36.5		13.0	29.0	41.0	7.0	23.0	34.5
Effective Green, g (s)	11.5	36.0	49.0	12.0	36.5		13.0	29.0	41.0	7.0	23.0	34.5
Actuated g/C Ratio	0.12	0.36	0.49	0.12	0.36		0.13	0.29	0.41	0.07	0.23	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	332	1542	706	350	1540		194	1230	600	204	985	460
v/s Ratio Prot	0.07	c0.35	0.03	0.12	0.30		c0.13	c0.29	c0.11	0.07	0.21	0.02
v/s Ratio Perm			0.09						0.30			0.04
v/c Ratio	0.57	0.97	0.22	0.99	0.83		0.97	1.00	0.91	1.03	0.93	0.18
Uniform Delay, d1	41.9	31.5	14.5	43.9	28.9		43.3	35.5	27.7	46.5	37.7	22.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	16.7	0.2	45.6	4.0		56.7	26.1	17.2	72.3	14.5	0.2
Delay (s)	44.1	48.2	14.7	89.6	32.9		100.0	61.6	44.9	118.8	52.2	23.1
Level of Service	D	D	B	F	C		F	E	D	F	D	C
Approach Delay (s)		44.9			44.9			60.6			60.8	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM Average Control Delay	52.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
38: Del Amo Blvd & Lakewood Blvd

2035 PM Peak_Alt 4
12/4/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	  		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4207		2920	2980	1347	2920	4241	1333	2920	2951	1347
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4207		2920	2980	1347	2920	4241	1333	2920	2951	1347
Volume (vph)	570	1260	180	390	1610	530	290	1170	290	560	1160	270
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	600	1326	189	411	1695	558	305	1232	305	589	1221	284
RTOR Reduction (vph)	0	19	0	0	0	1	0	0	3	0	0	1
Lane Group Flow (vph)	600	1496	0	411	1695	557	305	1232	302	589	1221	283
Heavy Vehicles (%)	2%	2%	1%	1%	2%	1%	1%	3%	2%	1%	3%	1%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2		1	6	7	3	8	1	7	4	5
Permitted Phases						6			8			4
Actuated Green, G (s)	12.0	35.0		14.0	37.0	49.0	7.0	23.0	37.0	12.0	28.0	40.0
Effective Green, g (s)	12.0	35.0		14.0	37.0	49.0	7.0	23.0	37.0	12.0	28.0	40.0
Actuated g/C Ratio	0.12	0.35		0.14	0.37	0.49	0.07	0.23	0.37	0.12	0.28	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	347	1472		409	1103	660	204	975	493	350	826	593
v/s Ratio Prot	c0.21	0.36		0.14	c0.57	0.10	0.10	c0.29	0.09	c0.20	c0.41	0.06
v/s Ratio Perm						0.31			0.14			0.15
v/c Ratio	1.73	1.02		1.00	1.54	0.84	1.50	1.26	0.61	1.68	1.48	0.48
Uniform Delay, d1	44.0	32.5		43.0	31.5	22.2	46.5	38.5	25.7	44.0	36.0	22.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	340.0	27.6		45.7	246.1	9.7	246.8	126.9	2.3	319.5	221.7	0.6
Delay (s)	384.0	60.1		88.7	277.6	31.9	293.3	165.4	27.9	363.5	257.7	22.9
Level of Service	F	E		F	F	C	F	F	C	F	F	C
Approach Delay (s)		152.0			197.0			163.8			255.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	193.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	133.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 39: Artesia Blvd & Long Beach Blvd

2035 PM Peak_Alt 4
 6/9/2011





























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1347	2891	2951	1308	2756	2951	1347	1490	2980	1320
Flt Permitted	0.42	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	663	2951	1347	2891	2951	1308	2756	2951	1347	1490	2980	1320
Volume (vph)	180	970	130	220	340	130	120	830	250	180	600	60
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1021	137	232	358	137	126	874	263	189	632	63
RTOR Reduction (vph)	0	0	41	0	0	67	0	0	39	0	0	35
Lane Group Flow (vph)	189	1021	96	232	358	70	126	874	224	189	632	28
Heavy Vehicles (%)	2%	3%	1%	2%	3%	4%	7%	3%	1%	2%	2%	3%
Turn Type	pm+pt		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6			8			4
Actuated Green, G (s)	45.2	34.0	42.5	8.0	30.8	43.8	8.5	29.0	37.0	13.0	33.5	44.7
Effective Green, g (s)	45.2	34.0	42.5	8.0	30.8	43.8	8.5	29.0	37.0	13.0	33.5	44.7
Actuated g/C Ratio	0.45	0.34	0.42	0.08	0.31	0.44	0.08	0.29	0.37	0.13	0.34	0.45
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	392	1003	626	231	909	573	234	856	498	194	998	643
v/s Ratio Prot	c0.05	c0.35	0.01	c0.08	0.12	0.02	0.05	c0.30	0.04	c0.13	0.21	0.00
v/s Ratio Perm	0.16		0.06			0.04			0.13			0.02
v/c Ratio	0.48	1.02	0.15	1.00	0.39	0.12	0.54	1.02	0.45	0.97	0.63	0.04
Uniform Delay, d1	17.5	33.0	17.7	46.0	27.2	16.7	43.9	35.5	23.8	43.3	28.1	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	33.0	0.1	60.3	0.3	0.1	2.4	36.2	0.6	56.7	1.3	0.0
Delay (s)	18.5	66.0	17.8	106.3	27.5	16.8	46.2	71.7	24.5	100.0	29.4	15.6
Level of Service	B	E	B	F	C	B	D	E	C	F	C	B
Approach Delay (s)		54.4			50.7			59.3			43.5	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM Average Control Delay	52.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 41: Alondra Blvd & Santa Fe Ave

2035 PM Peak_Alt 4
 7/1/2009






























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.97
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1462	2951	1295	1462	2951	1333	1476	2868	1283	1462	2788	2788
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1462	2951	1295	1462	2951	1333	1476	2868	1283	1462	2788	2788
Volume (vph)	90	850	70	70	480	130	90	970	190	180	520	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	895	74	74	505	137	95	1021	200	189	547	116
RTOR Reduction (vph)	0	0	44	0	0	39	0	0	40	0	16	0
Lane Group Flow (vph)	95	895	30	74	505	98	95	1021	160	189	647	0
Heavy Vehicles (%)	4%	3%	5%	4%	3%	2%	3%	6%	6%	4%	6%	7%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases		4			8			2				
Actuated Green, G (s)	8.0	30.2	39.9	5.0	27.2	40.2	9.7	35.8	40.8	13.0	39.1	
Effective Green, g (s)	8.0	30.2	39.9	5.0	27.2	40.2	9.7	35.8	40.8	13.0	39.1	
Actuated g/C Ratio	0.08	0.30	0.40	0.05	0.27	0.40	0.10	0.36	0.41	0.13	0.39	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	117	891	569	73	803	589	143	1027	575	190	1090	
v/s Ratio Prot	c0.06	c0.30	0.01	0.05	0.17	0.02	0.06	c0.36	0.01	c0.13	c0.23	
v/s Ratio Perm			0.02			0.05			0.11			
v/c Ratio	0.81	1.00	0.05	1.01	0.63	0.17	0.66	0.99	0.28	0.99	0.59	
Uniform Delay, d1	45.3	34.9	18.4	47.5	32.0	19.2	43.6	32.0	19.8	43.5	24.1	
Progression Factor	1.27	0.47	0.22	1.30	0.63	0.02	1.00	1.00	1.00	1.52	0.26	
Incremental Delay, d2	28.4	28.4	0.0	90.9	2.6	0.1	11.1	26.7	0.3	49.7	1.5	
Delay (s)	85.7	44.8	4.1	152.4	22.8	0.5	54.6	58.7	20.0	115.8	7.9	
Level of Service	F	D	A	F	C	A	D	E	C	F	A	
Approach Delay (s)		45.6			31.9			52.5			31.8	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	42.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
44: Alondra Blvd & Garfield Ave

























2035 PM Peak_Alt 4
6/28/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95	1.00	0.97	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1476	2923	1333	1505	2864		2863	2923	1333	2863	2891	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1476	2923	1333	1505	2864		2863	2923	1333	2863	2891	
Volume (vph)	120	1100	100	210	810	200	210	500	200	340	640	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	1158	105	221	853	211	221	526	211	358	674	116
RTOR Reduction (vph)	0	0	39	0	23	0	0	0	10	0	14	0
Lane Group Flow (vph)	126	1158	66	221	1041	0	221	526	201	358	776	0
Heavy Vehicles (%)	3%	4%	2%	1%	3%	3%	3%	4%	2%	3%	3%	2%
Turn Type	Prot		pm+ov	Prot			Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8		5	2	3	1	6	
Permitted Phases			4						2			
Actuated Green, G (s)	10.9	36.0	43.0	14.0	39.1		7.0	21.0	35.0	13.0	27.0	
Effective Green, g (s)	10.9	36.0	43.0	14.0	39.1		7.0	21.0	35.0	13.0	27.0	
Actuated g/C Ratio	0.11	0.36	0.43	0.14	0.39		0.07	0.21	0.35	0.13	0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	161	1052	627	211	1120		200	614	520	372	781	
v/s Ratio Prot	0.09	c0.40	0.01	c0.15	0.36		0.08	0.18	0.05	c0.13	c0.27	
v/s Ratio Perm			0.04						0.10			
v/c Ratio	0.78	1.10	0.11	1.05	0.93		1.10	0.86	0.39	0.96	0.99	
Uniform Delay, d1	43.4	32.0	17.0	43.0	29.1		46.5	38.1	24.4	43.3	36.4	
Progression Factor	0.90	0.60	0.19	0.90	0.45		1.00	1.00	1.00	0.80	0.46	
Incremental Delay, d2	16.9	56.6	0.1	63.8	9.6		94.6	14.3	0.5	22.3	20.1	
Delay (s)	55.8	76.0	3.3	102.4	22.6		141.1	52.4	24.9	56.7	36.8	
Level of Service	E	E	A	F	C		F	D	C	E	D	
Approach Delay (s)		68.6			36.3			66.8			43.0	
Approach LOS		E			D			E			D	
Intersection Summary												
HCM Average Control Delay			53.4			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			95.5%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
45: Alondra Blvd & Paramount Blvd

2035 PM Peak_Alt 4
7/1/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2923	1320	2891	2951	1320	1476	2980	1347	1490	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2923	1320	2891	2951	1320	1476	2980	1347	1490	2980	1333
Volume (vph)	140	1150	160	210	760	110	180	710	100	180	690	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	1211	168	221	800	116	189	747	105	189	726	95
RTOR Reduction (vph)	0	0	11	0	0	47	0	0	31	0	0	39
Lane Group Flow (vph)	147	1211	157	221	800	69	189	747	74	189	726	56
Heavy Vehicles (%)	3%	4%	3%	2%	3%	3%	3%	2%	1%	2%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	15.6	39.0	51.0	7.0	30.4	42.4	12.0	26.0	33.0	12.0	26.0	41.6
Effective Green, g (s)	15.6	39.0	51.0	7.0	30.4	42.4	12.0	26.0	33.0	12.0	26.0	41.6
Actuated g/C Ratio	0.16	0.39	0.51	0.07	0.30	0.42	0.12	0.26	0.33	0.12	0.26	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	230	1140	726	202	897	612	177	775	498	179	775	608
v/s Ratio Prot	0.10	c0.41	0.03	c0.08	0.27	0.01	c0.13	c0.25	0.01	0.13	0.24	0.01
v/s Ratio Perm			0.09			0.04			0.04			0.03
v/c Ratio	0.64	1.06	0.22	1.09	0.89	0.11	1.07	0.96	0.15	1.06	0.94	0.09
Uniform Delay, d1	39.6	30.5	13.5	46.5	33.2	17.4	44.0	36.5	23.6	44.0	36.2	17.7
Progression Factor	0.87	0.47	0.15	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.35	0.05
Incremental Delay, d2	0.5	30.3	0.0	90.7	11.1	0.1	86.8	24.6	0.1	62.0	11.7	0.0
Delay (s)	35.1	44.8	2.0	137.2	44.3	17.5	130.8	61.2	23.7	95.7	24.4	0.9
Level of Service	D	D	A	F	D	B	F	E	C	F	C	A
Approach Delay (s)		39.1			59.6			70.0			35.6	
Approach LOS		D			E			E			D	

Intersection Summary			
HCM Average Control Delay	50.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
48: Rosecrans Ave & Santa Fe Ave

2035 PM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2980	1333	2835	2980	1320	1490	2841	1320	1476	2895	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2980	1333	2835	2980	1320	1490	2841	1320	1476	2895	1347
Volume (vph)	90	1090	100	340	1010	80	220	610	80	170	370	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	1147	105	358	1063	84	232	642	84	179	389	74
RTOR Reduction (vph)	0	0	23	0	0	41	0	0	32	0	0	45
Lane Group Flow (vph)	95	1147	82	358	1063	43	232	642	52	179	389	29
Heavy Vehicles (%)	1%	2%	2%	4%	2%	3%	2%	7%	3%	3%	5%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.0	37.0	53.0	13.0	39.0	51.0	16.0	22.0	35.0	12.0	18.0	29.0
Effective Green, g (s)	11.0	37.0	53.0	13.0	39.0	51.0	16.0	22.0	35.0	12.0	18.0	29.0
Actuated g/C Ratio	0.11	0.37	0.53	0.13	0.39	0.51	0.16	0.22	0.35	0.12	0.18	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	166	1103	760	369	1162	726	238	625	515	177	521	445
v/s Ratio Prot	0.06	c0.38	0.02	c0.13	0.36	0.01	c0.16	c0.23	0.01	0.12	0.13	0.01
v/s Ratio Perm	0.04			0.03			0.03			0.01		
v/c Ratio	0.57	1.04	0.11	0.97	0.91	0.06	0.97	1.03	0.10	1.01	0.75	0.06
Uniform Delay, d1	42.3	31.5	11.7	43.3	28.9	12.4	41.8	39.0	21.9	44.0	38.8	25.7
Progression Factor	1.00	1.00	1.00	0.99	0.59	0.02	0.65	0.44	0.05	1.00	1.00	1.00
Incremental Delay, d2	4.7	38.0	0.1	8.4	1.2	0.0	30.6	30.2	0.0	70.6	9.4	0.1
Delay (s)	47.0	69.5	11.8	51.3	18.2	0.2	58.0	47.5	1.1	114.6	48.2	25.7
Level of Service	D	E	B	D	B	A	E	D	A	F	D	C
Approach Delay (s)	63.4			25.1			45.9			64.2		
Approach LOS	E			C			D			E		

























Intersection Summary

HCM Average Control Delay	46.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
49: Rosecrans Ave & Long Beach Blvd

































2035 PM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95		0.97	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1490	2951	1283	1434	2980	1320	2633	2855		2920	2887	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1490	2951	1283	1434	2980	1320	2633	2855		2920	2887	
Volume (vph)	160	930	190	90	1070	200	190	790	190	220	700	140
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	979	200	95	1126	211	200	832	200	232	737	147
RTOR Reduction (vph)	0	0	41	0	0	30	0	21	0	0	16	0
Lane Group Flow (vph)	168	979	159	95	1126	181	200	1011	0	232	868	0
Heavy Vehicles (%)	2%	3%	6%	6%	2%	3%	12%	3%	5%	1%	3%	1%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot				Prot	
Protected Phases	7	4	5	3	8	1	5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	10.0	36.3	44.3	7.7	34.0	41.0	8.0	33.0		7.0	32.0	
Effective Green, g (s)	10.0	36.3	44.3	7.7	34.0	41.0	8.0	33.0		7.0	32.0	
Actuated g/C Ratio	0.10	0.36	0.44	0.08	0.34	0.41	0.08	0.33		0.07	0.32	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1071	620	110	1013	594	211	942		204	924	
v/s Ratio Prot	c0.11	0.33	0.02	0.07	c0.38	0.02	0.08	c0.35		c0.08	0.30	
v/s Ratio Perm			0.10			0.12						
v/c Ratio	1.13	0.91	0.26	0.86	1.11	0.30	0.95	1.07		1.14	0.94	
Uniform Delay, d1	45.0	30.4	17.5	45.6	33.0	19.9	45.8	33.5		46.5	33.1	
Progression Factor	0.71	0.22	0.01	0.96	0.56	0.21	0.74	0.57		0.79	0.41	
Incremental Delay, d2	77.7	3.6	0.1	6.5	51.7	0.0	28.3	42.7		82.2	8.5	
Delay (s)	109.5	10.4	0.3	50.5	70.1	4.2	62.2	61.7		118.7	22.0	
Level of Service	F	B	A	D	E	A	E	E		F	C	
Approach Delay (s)		21.3			59.1			61.8			42.1	
Approach LOS		C			E			E			D	
Intersection Summary												
HCM Average Control Delay			46.1				HCM Level of Service				D	
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			99.6%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
50: Rosecrans Ave & Atlantic Ave

2035 PM Peak_Alt 4
7/1/2009
























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2920	2951	1283	2891	2951	1347	2782	2980	1333	2891	2980	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2920	2951	1283	2891	2951	1347	2782	2980	1333	2891	2980	1333
Volume (vph)	130	1270	140	60	1580	280	150	790	90	230	430	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1337	147	63	1663	295	158	832	95	242	453	84
RTOR Reduction (vph)	0	0	50	0	0	7	0	0	13	0	0	13
Lane Group Flow (vph)	137	1337	97	63	1663	288	158	832	82	242	453	71
Heavy Vehicles (%)	1%	3%	6%	2%	3%	1%	6%	2%	2%	2%	2%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	4.0	47.6	55.6	3.2	46.8	53.8	8.0	26.2	29.4	7.0	25.2	29.2
Effective Green, g (s)	4.0	47.6	55.6	3.2	46.8	53.8	8.0	26.2	29.4	7.0	25.2	29.2
Actuated g/C Ratio	0.04	0.48	0.56	0.03	0.47	0.54	0.08	0.26	0.29	0.07	0.25	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	1405	765	93	1381	779	223	781	392	202	751	389
v/s Ratio Prot	0.05	c0.45	0.01	0.02	c0.56	0.03	0.06	c0.28	0.01	c0.08	0.15	0.01
v/s Ratio Perm			0.07			0.19			0.05			0.05
v/c Ratio	1.17	0.95	0.13	0.68	1.20	0.37	0.71	1.07	0.21	1.20	0.60	0.18
Uniform Delay, d1	48.0	25.1	10.6	47.9	26.6	13.3	44.9	36.9	26.5	46.5	33.0	26.5
Progression Factor	1.18	0.65	0.02	1.00	1.00	1.00	0.69	0.61	0.55	0.66	0.51	0.49
Incremental Delay, d2	113.0	8.4	0.0	17.8	99.0	0.3	7.2	46.4	0.2	93.7	0.3	0.0
Delay (s)	169.6	24.7	0.2	65.7	125.6	13.6	38.3	69.0	14.9	124.4	17.1	13.1
Level of Service	F	C	A	E	F	B	D	E	B	F	B	B
Approach Delay (s)		34.7			107.4			59.8			50.0	
Approach LOS		C			F			E			D	

Intersection Summary		
HCM Average Control Delay	68.5	HCM Level of Service E
HCM Volume to Capacity ratio	1.17	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	103.3%	ICU Level of Service G
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 51: Rosecrans Ave & Garfield Ave

2035 PM Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2863	4122		1462	2951	1333	2863	2951	1320	2891	2951	1333
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2863	4122		1462	2951	1333	2863	2951	1320	2891	2951	1333
Volume (vph)	240	980	150	170	850	230	490	710	140	270	680	250
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	1032	158	179	895	242	516	747	147	284	716	263
RTOR Reduction (vph)	0	20	0	0	0	24	0	0	10	0	0	14
Lane Group Flow (vph)	253	1170	0	179	895	218	516	747	137	284	716	249
Heavy Vehicles (%)	3%	4%	3%	4%	3%	2%	3%	3%	3%	2%	3%	2%
Turn Type	Prot			Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4		3	8	1	5	2	3	1	6	7
Permitted Phases						8			2			6
Actuated Green, G (s)	9.0	28.0		12.0	31.0	43.0	18.0	32.0	44.0	12.0	26.0	35.0
Effective Green, g (s)	9.0	28.0		12.0	31.0	43.0	18.0	32.0	44.0	12.0	26.0	35.0
Actuated g/C Ratio	0.09	0.28		0.12	0.31	0.43	0.18	0.32	0.44	0.12	0.26	0.35
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	258	1154		175	915	627	515	944	634	347	767	520
v/s Ratio Prot	0.09	0.28		c0.12	c0.30	0.04	c0.18	c0.25	0.03	0.10	c0.24	0.04
v/s Ratio Perm						0.12			0.08			0.14
v/c Ratio	0.98	1.01		1.02	0.98	0.35	1.00	0.79	0.22	0.82	0.93	0.48
Uniform Delay, d1	45.4	36.0		44.0	34.2	19.1	41.0	31.0	17.3	42.9	36.2	25.4
Progression Factor	1.00	1.00		0.77	0.46	0.18	0.92	0.68	0.56	0.88	0.69	0.59
Incremental Delay, d2	50.4	29.9		54.4	16.1	0.2	38.0	6.1	0.2	13.2	19.0	0.7
Delay (s)	95.8	65.9		88.2	31.9	3.5	75.8	27.2	9.9	50.9	43.9	15.5
Level of Service	F	E		F	C	A	E	C	A	D	D	B
Approach Delay (s)		71.2			34.4			43.2			39.6	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM Average Control Delay	47.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
52: Rosecrans Ave & Paramount Blvd

2035 PM Peak_Alt 4
7/1/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1434	2951	1308	1476	2951	1347	1476	2980	1308	1490	2980	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1434	2951	1308	1476	2951	1347	1476	2980	1308	1490	2980	1320
Volume (vph)	320	880	240	200	760	170	210	650	240	170	590	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	337	926	253	211	800	179	221	684	253	179	621	189
RTOR Reduction (vph)	0	0	42	0	0	54	0	0	39	0	0	35
Lane Group Flow (vph)	337	926	211	211	800	125	221	684	214	179	621	154
Heavy Vehicles (%)	6%	3%	4%	3%	3%	1%	3%	2%	4%	2%	2%	3%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.0	33.9	48.9	15.1	26.0	38.0	15.0	23.0	38.1	12.0	20.0	43.0
Effective Green, g (s)	23.0	33.9	48.9	15.1	26.0	38.0	15.0	23.0	38.1	12.0	20.0	43.0
Actuated g/C Ratio	0.23	0.34	0.49	0.15	0.26	0.38	0.15	0.23	0.38	0.12	0.20	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	330	1000	692	223	767	566	221	685	551	179	596	620
v/s Ratio Prot	c0.24	c0.31	0.05	0.14	c0.27	0.03	c0.15	c0.23	0.06	0.12	0.21	0.06
v/s Ratio Perm	0.12			0.07			0.10			0.06		
v/c Ratio	1.02	0.93	0.30	0.95	1.04	0.22	1.00	1.00	0.39	1.00	1.04	0.25
Uniform Delay, d1	38.5	31.8	15.3	42.0	37.0	21.0	42.5	38.5	22.5	44.0	40.0	18.2
Progression Factor	0.79	0.31	0.03	1.00	1.00	1.00	0.68	0.39	0.13	0.61	1.12	1.68
Incremental Delay, d2	39.5	7.6	0.1	44.9	44.3	0.2	49.8	28.0	0.3	51.3	39.6	0.1
Delay (s)	69.8	17.5	0.7	87.0	81.3	21.2	78.6	43.1	3.3	78.2	84.3	30.7
Level of Service	E	B	A	F	F	C	E	D	A	E	F	C
Approach Delay (s)	26.3			73.2			41.2			72.9		
Approach LOS	C			E			D			E		































Intersection Summary

HCM Average Control Delay	50.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
54: Imperial Hwy & Long Beach Blvd




























2035 PM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 			  			  	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1520	2980	1320	2808	2980	1347	1476	4200	1333	1505	4204	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1520	2980	1320	2808	2980	1347	1476	4200	1333	1505	4204	
Volume (vph)	180	980	250	300	800	90	270	1230	410	100	900	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	1032	263	316	842	95	284	1295	432	105	947	74
RTOR Reduction (vph)	0	0	5	0	0	33	0	0	30	0	9	0
Lane Group Flow (vph)	189	1032	259	316	842	62	284	1295	402	105	1012	0
Heavy Vehicles (%)	0%	2%	3%	5%	2%	1%	3%	4%	2%	1%	3%	0%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	13.0	32.0	50.0	11.0	30.0	38.0	18.0	33.0	44.0	8.0	23.0	
Effective Green, g (s)	13.0	32.0	50.0	11.0	30.0	38.0	18.0	33.0	44.0	8.0	23.0	
Actuated g/C Ratio	0.13	0.32	0.50	0.11	0.30	0.38	0.18	0.33	0.44	0.08	0.23	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	198	954	713	309	894	512	266	1386	640	120	967	
v/s Ratio Prot	0.12	c0.35	0.07	0.11	c0.28	0.01	c0.19	0.31	0.07	0.07	c0.24	
v/s Ratio Perm			0.13			0.04			0.23			
v/c Ratio	0.95	1.08	0.36	1.02	0.94	0.12	1.07	0.93	0.63	0.88	1.05	
Uniform Delay, d1	43.2	34.0	15.3	44.5	34.1	20.1	41.0	32.5	21.7	45.5	38.5	
Progression Factor	0.61	0.54	0.21	0.66	0.56	0.45	0.89	0.73	0.54	0.68	0.65	
Incremental Delay, d2	37.5	48.3	0.2	32.6	6.5	0.0	69.2	11.1	1.6	26.7	33.3	
Delay (s)	64.0	66.8	3.4	62.0	25.5	9.2	105.7	34.8	13.4	57.5	58.4	
Level of Service	E	E	A	E	C	A	F	C	B	E	E	
Approach Delay (s)		55.2			33.5			40.2			58.3	
Approach LOS		E			C			D			E	
Intersection Summary												
HCM Average Control Delay			46.0				HCM Level of Service				D	
HCM Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			95.9%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
55: Imperial Hwy & Atlantic Ave























2035 PM Peak_Alt 4
5/25/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2946		1505	2921		2949	2980	1333	2891	2923	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2946		1505	2921		2949	2980	1333	2891	2923	1333
Volume (vph)	130	1120	110	170	1110	160	140	460	230	280	640	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	1179	116	179	1168	168	147	484	242	295	674	189
RTOR Reduction (vph)	0	7	0	0	11	0	0	0	19	0	0	23
Lane Group Flow (vph)	137	1288	0	179	1325	0	147	484	223	295	674	166
Heavy Vehicles (%)	2%	2%	0%	1%	2%	3%	0%	2%	2%	2%	4%	2%
Turn Type	Prot			Prot			Prot	pm+ov		Prot		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	9.0	43.0		12.0	46.0		5.0	18.0	30.0	11.0	24.0	33.0
Effective Green, g (s)	9.0	43.0		12.0	46.0		5.0	18.0	30.0	11.0	24.0	33.0
Actuated g/C Ratio	0.09	0.43		0.12	0.46		0.05	0.18	0.30	0.11	0.24	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1267		181	1344		147	536	400	318	702	440
v/s Ratio Prot	0.09	c0.44		0.12	c0.45		0.05	c0.16	0.07	0.10	c0.23	0.03
v/s Ratio Perm								0.10				0.09
v/c Ratio	1.02	1.02		0.99	0.99		1.00	0.90	0.56	0.93	0.96	0.38
Uniform Delay, d1	45.5	28.5		43.9	26.7		47.5	40.1	29.4	44.1	37.5	25.6
Progression Factor	0.73	0.55		1.32	0.35		0.80	1.01	2.16	0.75	0.70	0.37
Incremental Delay, d2	50.2	18.7		39.5	12.5		48.2	10.6	0.7	4.9	4.5	0.0
Delay (s)	83.4	34.4		97.5	21.8		86.2	51.1	64.1	37.8	30.6	9.7
Level of Service	F	C		F	C		F	D	E	D	C	A
Approach Delay (s)		39.1			30.8			60.6			29.0	
Approach LOS		D			C			E			C	
Intersection Summary												
HCM Average Control Delay			38.0			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			91.2%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
57: Imperial Hwy & Paramount Blvd

2035 PM Peak_Alt 4
5/25/2011

																									
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR													
Lane Configurations																									
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	2835	4193		2920	4198		2920	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	1347
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	2835	4193		2920	4198		2920	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	2891	2923	1347	1347
Volume (vph)	490	1320	230	240	990	150	320	990	110	280	770	210													
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	516	1389	242	253	1042	158	337	1042	116	295	811	221													
RTOR Reduction (vph)	0	24	0	0	20	0	0	0	4	0	0	5													
Lane Group Flow (vph)	516	1607	0	253	1180	0	337	1042	112	295	811	216													
Heavy Vehicles (%)	4%	2%	1%	1%	2%	2%	1%	4%	1%	2%	4%	1%													
Turn Type	Prot			Prot			Prot		pm+ov	Prot		pm+ov													
Protected Phases	7	4		3	8		5	2	3	1	6	7													
Permitted Phases									2			6													6
Actuated Green, G (s)	16.0	34.0		7.0	25.0		12.0	34.0	41.0	9.0	31.0	47.0													
Effective Green, g (s)	16.0	34.0		7.0	25.0		12.0	34.0	41.0	9.0	31.0	47.0													
Actuated g/C Ratio	0.16	0.34		0.07	0.25		0.12	0.34	0.41	0.09	0.31	0.47													
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0													
Lane Grp Cap (vph)	454	1426		204	1050		350	994	552	260	906	687													
v/s Ratio Prot	c0.18	c0.38		0.09	0.28		0.12	c0.36	0.01	c0.10	0.28	0.05													
v/s Ratio Perm									0.07			0.11													
v/c Ratio	1.14	1.13		1.24	1.12		0.96	1.05	0.20	1.13	0.90	0.31													
Uniform Delay, d1	42.0	33.0		46.5	37.5		43.8	33.0	19.0	45.5	32.9	16.5													
Progression Factor	0.68	0.51		1.00	1.00		0.77	0.69	0.42	0.67	0.82	0.45													
Incremental Delay, d2	71.8	60.8		142.6	68.3		30.1	37.2	0.1	81.5	7.1	0.1													
Delay (s)	100.4	77.6		189.1	105.8		63.7	60.0	8.1	111.8	34.0	7.6													
Level of Service	F	E		F	F		E	E	A	F	C	A													
Approach Delay (s)		83.1			120.3			56.8			46.9														
Approach LOS		F			F			E			D														
Intersection Summary																									
HCM Average Control Delay			77.9				HCM Level of Service					E													
HCM Volume to Capacity ratio			1.08																						
Actuated Cycle Length (s)			100.0				Sum of lost time (s)					12.0													
Intersection Capacity Utilization			99.8%				ICU Level of Service					F													
Analysis Period (min)			15																						

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
59: Firestone Blvd & California Ave

2035 PM Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘↗	↑↑	↗	↘↗	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2980	1347	1505	2980	1347	2920	2980	1333	2920	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2980	1347	1505	2980	1347	2920	2980	1333	2920	2951	1333
Volume (vph)	70	1350	130	110	1570	90	80	670	60	130	430	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1421	137	116	1653	95	84	705	63	137	453	95
RTOR Reduction (vph)	0	0	49	0	0	20	0	0	14	0	0	12
Lane Group Flow (vph)	74	1421	88	116	1653	75	84	705	49	137	453	83
Heavy Vehicles (%)	1%	2%	1%	1%	2%	1%	1%	2%	2%	1%	3%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	5.0	48.0	52.0	8.0	51.0	56.0	4.0	23.0	31.0	5.0	24.0	29.0
Effective Green, g (s)	5.0	48.0	52.0	8.0	51.0	56.0	4.0	23.0	31.0	5.0	24.0	29.0
Actuated g/C Ratio	0.05	0.48	0.52	0.08	0.51	0.56	0.04	0.23	0.31	0.05	0.24	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	75	1430	754	120	1520	754	117	685	413	146	708	440
v/s Ratio Prot	0.05	0.48	0.00	c0.08	c0.55	0.00	0.03	c0.24	0.01	c0.05	0.15	0.01
v/s Ratio Perm			0.06			0.05			0.03			0.05
v/c Ratio	0.99	0.99	0.12	0.97	1.09	0.10	0.72	1.03	0.12	0.94	0.64	0.19
Uniform Delay, d1	47.5	25.8	12.3	45.9	24.5	10.3	47.4	38.5	24.7	47.3	34.1	26.7
Progression Factor	1.09	0.91	0.26	0.80	0.42	0.29	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.8	17.8	0.0	17.1	40.7	0.0	18.9	42.1	0.1	55.5	4.4	0.2
Delay (s)	131.5	41.2	3.2	53.9	50.9	3.0	66.3	80.6	24.8	102.9	38.5	26.9
Level of Service	F	D	A	D	D	A	E	F	C	F	D	C
Approach Delay (s)		42.1			48.7			75.0			49.8	
Approach LOS		D			D			E			D	


































Intersection Summary

HCM Average Control Delay	51.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
60: Firestone Blvd & Atlantic Ave

2035 PM Peak_Alt 4
7/26/2011










































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	 		 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2920	4282	1347	2920	2980	1320	2891	2951	1333	2863	2951	1347
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2920	4282	1347	2920	2980	1320	2891	2951	1333	2863	2951	1347
Volume (vph)	220	1550	160	110	2110	370	290	490	80	1090	930	260
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1632	168	116	2221	389	305	516	84	1147	979	274
RTOR Reduction (vph)	0	0	12	0	0	7	0	0	2	0	0	1
Lane Group Flow (vph)	232	1632	156	116	2221	382	305	516	82	1147	979	273
Heavy Vehicles (%)	1%	2%	1%	1%	2%	3%	2%	3%	2%	3%	3%	1%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	5.0	41.0	47.0	5.0	41.0	61.0	6.0	18.0	23.0	20.0	32.0	37.0
Effective Green, g (s)	5.0	41.0	47.0	5.0	41.0	61.0	6.0	18.0	23.0	20.0	32.0	37.0
Actuated g/C Ratio	0.05	0.41	0.47	0.05	0.41	0.61	0.06	0.18	0.23	0.20	0.32	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1756	633	146	1222	858	173	531	360	573	944	498
v/s Ratio Prot	c0.08	0.38	0.01	0.04	c0.75	0.09	c0.11	0.17	0.01	c0.40	c0.33	0.03
v/s Ratio Perm			0.10			0.20			0.05			0.18
v/c Ratio	1.59	0.93	0.25	0.79	1.82	0.45	1.76	0.97	0.23	2.00	1.04	0.55
Uniform Delay, d1	47.5	28.1	15.9	47.0	29.5	10.4	47.0	40.7	31.3	40.0	34.0	24.9
Progression Factor	0.85	1.00	0.67	0.90	1.19	1.20	0.54	0.45	0.46	0.78	0.87	0.99
Incremental Delay, d2	284.4	6.2	0.1	2.8	368.2	0.0	355.9	22.7	0.2	456.5	38.3	1.2
Delay (s)	324.8	34.4	10.7	44.9	403.3	12.6	381.2	41.2	14.6	487.6	67.8	25.8
Level of Service	F	C	B	D	F	B	F	D	B	F	E	C
Approach Delay (s)		65.6			332.3			153.3			263.6	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	224.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	143.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
61: Firestone Blvd & Garfield Ave

2035 PM Peak_Alt 4
8/2/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	  	  	 	  	  	 	 	  	  	 	 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.94	0.91	1.00	0.97	0.91	1.00	0.97	0.95		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3969	4241	1333	2949	4241	1333	2863	2909		2891	2923	1320
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3969	4241	1333	2949	4241	1333	2863	2909		2891	2923	1320
Volume (vph)	740	1370	530	110	860	180	550	600	80	140	520	350
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	779	1442	558	116	905	189	579	632	84	147	547	368
RTOR Reduction (vph)	0	0	9	0	0	39	0	10	0	0	0	9
Lane Group Flow (vph)	779	1442	549	116	905	150	579	706	0	147	547	359
Heavy Vehicles (%)	8%	3%	2%	0%	3%	2%	3%	3%	0%	2%	4%	3%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	20.0	40.0	61.0	4.0	24.0	31.0	21.0	33.0		7.0	19.0	39.0
Effective Green, g (s)	20.0	40.0	61.0	4.0	24.0	31.0	21.0	33.0		7.0	19.0	39.0
Actuated g/C Ratio	0.20	0.40	0.61	0.04	0.24	0.31	0.21	0.33		0.07	0.19	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	794	1696	866	118	1018	467	601	960		202	555	568
v/s Ratio Prot	c0.20	c0.34	0.13	0.04	0.21	0.02	c0.20	0.24		0.05	c0.19	0.13
v/s Ratio Perm			0.28			0.09						0.15
v/c Ratio	0.98	0.85	0.63	0.98	0.89	0.32	0.96	0.74		0.73	0.99	0.63
Uniform Delay, d1	39.8	27.3	12.4	48.0	36.7	26.4	39.1	29.6		45.6	40.4	24.7
Progression Factor	0.79	1.04	1.49	0.98	0.88	0.55	0.90	0.73		1.33	0.72	0.76
Incremental Delay, d2	6.0	0.5	0.1	35.9	3.2	0.1	23.5	3.9		7.8	26.6	1.4
Delay (s)	37.5	28.9	18.6	83.0	35.4	14.7	58.9	25.6		68.4	55.5	20.3
Level of Service	D	C	B	F	D	B	E	C		E	E	C
Approach Delay (s)		29.2			36.7			40.5			45.1	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
62: Firestone Blvd & Paramount Blvd

2035 PM Peak_Alt 4
5/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91		0.97	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2891	4115		2891	4122		2920	2923	1333	2891	2923	1320
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2891	4115		2891	4122		2920	2923	1333	2891	2923	1320
Volume (vph)	380	920	270	210	1000	230	360	850	110	180	840	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	400	968	284	221	1053	242	379	895	116	189	884	211
RTOR Reduction (vph)	0	53	0	0	37	0	0	0	12	0	0	4
Lane Group Flow (vph)	400	1199	0	221	1258	0	379	895	104	189	884	207
Heavy Vehicles (%)	2%	3%	1%	2%	3%	3%	1%	4%	2%	2%	4%	3%
Turn Type	Prot		Prot		Prot		pm+ov		Prot		pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases									2			6
Actuated Green, G (s)	13.0	33.0		8.0	28.0		12.0	36.0	44.0	7.0	31.0	44.0
Effective Green, g (s)	13.0	33.0		8.0	28.0		12.0	36.0	44.0	7.0	31.0	44.0
Actuated g/C Ratio	0.13	0.33		0.08	0.28		0.12	0.36	0.44	0.07	0.31	0.44
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	1358		231	1154		350	1052	640	202	906	581
v/s Ratio Prot	c0.14	0.29		0.08	c0.31		c0.13	0.31	0.01	0.07	c0.30	0.05
v/s Ratio Perm									0.06			0.11
v/c Ratio	1.06	0.88		0.96	1.09		1.08	0.85	0.16	0.94	0.98	0.36
Uniform Delay, d1	43.5	31.7		45.8	36.0		44.0	29.5	16.9	46.3	34.1	18.6
Progression Factor	0.59	0.40		1.00	1.00		0.90	0.91	1.43	1.00	1.00	1.00
Incremental Delay, d2	53.2	4.2		46.7	54.4		42.6	0.9	0.0	45.0	24.6	0.4
Delay (s)	78.7	16.9		92.5	90.4		82.0	27.8	24.1	91.3	58.7	19.0
Level of Service	E	B		F	F		F	C	C	F	E	B
Approach Delay (s)		31.9			90.7			42.3			57.0	
Approach LOS		C			F			D			E	

























Intersection Summary

HCM Average Control Delay	55.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
63: Florence Ave & Alameda St

2035 PM Peak_Alt 4
7/1/2009

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1505	2980	1320	2863	2980	1333	1476	2923	1308	1505	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1505	2980	1320	2863	2980	1333	1476	2923	1308	1505	2951	1333
Volume (vph)	70	1040	210	220	890	110	180	720	410	100	870	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	74	1095	221	232	937	116	189	758	432	105	916	126
RTOR Reduction (vph)	0	0	10	0	0	46	0	0	49	0	0	41
Lane Group Flow (vph)	74	1095	211	232	937	70	189	758	383	105	916	85
Heavy Vehicles (%)	1%	2%	3%	3%	2%	2%	3%	4%	4%	1%	3%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.0	35.0	47.0	9.0	37.0	47.0	12.0	30.0	39.0	10.0	28.0	35.0
Effective Green, g (s)	7.0	35.0	47.0	9.0	37.0	47.0	12.0	30.0	39.0	10.0	28.0	35.0
Actuated g/C Ratio	0.07	0.35	0.47	0.09	0.37	0.47	0.12	0.30	0.39	0.10	0.28	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	1043	673	258	1103	680	177	877	510	151	826	467
v/s Ratio Prot	0.05	c0.37	0.04	0.08	c0.31	0.01	c0.13	0.26	0.07	0.07	c0.31	0.01
v/s Ratio Perm	0.12		0.04		0.23		0.05					
v/c Ratio	0.70	1.05	0.31	0.90	0.85	0.10	1.07	0.86	0.75	0.70	1.11	0.18
Uniform Delay, d1	45.5	32.5	16.5	45.1	28.9	14.8	44.0	33.1	26.3	43.5	36.0	22.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.48	1.04	0.65	0.58	0.28
Incremental Delay, d2	19.3	41.9	0.3	30.6	8.2	0.1	61.2	4.7	2.4	8.6	60.5	0.1
Delay (s)	64.8	74.4	16.7	75.7	37.2	14.8	99.6	20.5	29.7	36.7	81.4	6.5
Level of Service	E	E	B	E	D	B	F	C	C	D	F	A
Approach Delay (s)	64.7			42.1			34.2			69.1		
Approach LOS	E			D			C			E		

Intersection Summary			
HCM Average Control Delay	52.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
64: Florence Ave & Atlantic Ave

2035 PM Peak_Alt 4
5/26/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2923	1347	1505	2980	1333	2920	2951	1333	2891	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2923	1347	1505	2980	1333	2920	2951	1333	2891	2951	1333
Volume (vph)	150	1110	120	200	1140	210	150	530	150	230	710	70
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	1168	126	211	1200	221	158	558	158	242	747	74
RTOR Reduction (vph)	0	0	39	0	0	42	0	0	13	0	0	15
Lane Group Flow (vph)	158	1168	87	211	1200	179	158	558	145	242	747	59
Heavy Vehicles (%)	2%	4%	1%	1%	2%	2%	1%	3%	2%	2%	3%	2%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	39.0	45.0	14.0	42.0	51.0	6.0	22.0	36.0	9.0	25.0	36.0
Effective Green, g (s)	11.0	39.0	45.0	14.0	42.0	51.0	6.0	22.0	36.0	9.0	25.0	36.0
Actuated g/C Ratio	0.11	0.39	0.45	0.14	0.42	0.51	0.06	0.22	0.36	0.09	0.25	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	1140	660	211	1252	733	175	649	480	260	738	480
v/s Ratio Prot	0.11	c0.40	0.01	0.14	c0.40	0.02	0.05	c0.19	0.04	0.08	c0.25	0.01
v/s Ratio Perm			0.06			0.11			0.07			0.03
v/c Ratio	0.96	1.02	0.13	1.00	0.96	0.24	0.90	0.86	0.30	0.93	1.01	0.12
Uniform Delay, d1	44.3	30.5	16.1	43.0	28.2	13.7	46.7	37.5	23.0	45.2	37.5	21.4
Progression Factor	0.71	1.00	0.69	0.90	0.85	0.65	0.72	0.65	0.73	0.66	0.77	0.69
Incremental Delay, d2	49.7	29.3	0.1	18.6	2.4	0.0	22.7	6.6	0.2	26.4	28.5	0.1
Delay (s)	81.0	60.0	11.2	57.3	26.3	9.0	56.4	31.1	17.0	56.4	57.4	14.8
Level of Service	F	E	B	E	C	A	E	C	B	E	E	B
Approach Delay (s)		58.0			28.0			33.1			54.2	
Approach LOS		E			C			C			D	
Intersection Summary												
HCM Average Control Delay			43.1			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			91.3%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
68: Slauson Ave & Alameda St

2035 PM Peak_Alt 4
7/1/2009

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1462	2930		1476	2924		1476	2884		1476	2951	1320
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1462	2930		1476	2924		1476	2884		1476	2951	1320
Volume (vph)	80	1260	70	100	1340	90	70	510	50	90	520	110
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	1326	74	105	1411	95	74	537	53	95	547	116
RTOR Reduction (vph)	0	4	0	0	5	0	0	7	0	0	0	35
Lane Group Flow (vph)	84	1396	0	105	1501	0	74	583	0	95	547	81
Heavy Vehicles (%)	4%	3%	2%	3%	3%	3%	3%	4%	4%	3%	3%	3%
Turn Type	Prot			Prot			Prot			Prot		pm+ov
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases												6
Actuated Green, G (s)	6.0	49.0		8.0	51.0		6.0	20.0		7.0	21.0	27.0
Effective Green, g (s)	6.0	49.0		8.0	51.0		6.0	20.0		7.0	21.0	27.0
Actuated g/C Ratio	0.06	0.49		0.08	0.51		0.06	0.20		0.07	0.21	0.27
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	88	1436		118	1491		89	577		103	620	356
v/s Ratio Prot	0.06	c0.48		0.07	c0.51		0.05	c0.20		c0.06	0.19	0.01
v/s Ratio Perm												0.05
v/c Ratio	0.95	0.97		0.89	1.01		0.83	1.01		0.92	0.88	0.23
Uniform Delay, d1	46.9	24.8		45.6	24.5		46.5	40.0		46.2	38.3	28.4
Progression Factor	1.00	1.00		1.00	1.00		0.54	0.53		1.00	1.00	1.00
Incremental Delay, d2	80.3	18.0		49.7	25.0		36.4	34.8		64.0	16.6	0.3
Delay (s)	127.1	42.8		95.3	49.5		61.5	55.9		110.2	54.9	28.7
Level of Service	F	D		F	D		E	E		F	D	C
Approach Delay (s)		47.6			52.4			56.5			57.8	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay			52.3			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			90.5%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: Slauson Ave & Soto St

2035 PM Peak_Alt 4
7/1/2009



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1434	2951	1333	1505	2980	1333	1505	2951	1333	1490	2980	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1434	2951	1333	1505	2980	1333	1505	2951	1333	1490	2980	1308
Volume (vph)	200	1070	90	140	1210	100	50	320	180	170	840	220
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	1126	95	147	1274	105	53	337	189	179	884	232
RTOR Reduction (vph)	0	0	30	0	0	50	0	0	50	0	0	17
Lane Group Flow (vph)	211	1126	65	147	1274	55	53	337	139	179	884	215
Heavy Vehicles (%)	6%	3%	2%	1%	2%	2%	1%	3%	2%	2%	2%	4%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases		4			8			2			6	
Actuated Green, G (s)	14.0	43.0	47.0	10.0	39.0	52.0	4.0	18.0	28.0	13.0	27.0	41.0
Effective Green, g (s)	14.0	43.0	47.0	10.0	39.0	52.0	4.0	18.0	28.0	13.0	27.0	41.0
Actuated g/C Ratio	0.14	0.43	0.47	0.10	0.39	0.52	0.04	0.18	0.28	0.13	0.27	0.41
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1269	627	151	1162	746	60	531	427	194	805	536
v/s Ratio Prot	c0.15	0.38	0.00	0.10	c0.43	0.01	c0.04	0.11	0.03	0.12	c0.30	0.06
v/s Ratio Perm			0.04			0.03			0.07			0.11
v/c Ratio	1.05	0.89	0.10	0.97	1.10	0.07	0.88	0.63	0.33	0.92	1.10	0.40
Uniform Delay, d1	43.0	26.3	14.8	44.9	30.5	12.0	47.8	38.0	28.5	43.0	36.5	20.8
Progression Factor	0.71	0.37	0.35	0.71	0.42	0.26	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	58.7	4.2	0.0	45.3	51.2	0.0	75.4	5.7	0.4	43.1	62.0	0.5
Delay (s)	89.0	13.9	5.2	77.2	64.1	3.1	123.1	43.6	29.0	86.1	98.5	21.3
Level of Service	F	B	A	E	E	A	F	D	C	F	F	C
Approach Delay (s)		24.4			61.2			46.1			83.0	
Approach LOS		C			E			D			F	




























Intersection Summary

HCM Average Control Delay	54.3	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
71: Slauson Ave & Eastern Ave
























2035 PM Peak_Alt 4
9/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 					 	 	 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	4090		1448	4147		2920	2895	1183	2730	2951	1333
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	4090		1448	4147		2920	2895	1183	2730	2951	1333
Volume (vph)	140	1050	390	130	740	70	430	880	130	210	720	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	1105	411	137	779	74	453	926	137	221	758	95
RTOR Reduction (vph)	0	67	0	0	11	0	0	0	9	0	0	19
Lane Group Flow (vph)	147	1449	0	137	842	0	453	926	128	221	758	76
Heavy Vehicles (%)	3%	3%	1%	5%	3%	14%	1%	5%	15%	8%	3%	2%
Turn Type	Prot			Prot			Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases								2				6
Actuated Green, G (s)	12.4	34.0		10.0	31.6		15.0	32.0	42.0	8.0	25.0	37.4
Effective Green, g (s)	12.4	34.0		10.0	31.6		15.0	32.0	42.0	8.0	25.0	37.4
Actuated g/C Ratio	0.12	0.34		0.10	0.32		0.15	0.32	0.42	0.08	0.25	0.37
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	1391		145	1310		438	926	497	218	738	552
v/s Ratio Prot	0.10	c0.35		c0.09	0.20		0.16	c0.32	0.03	0.08	c0.26	0.02
v/s Ratio Perm								0.08				0.04
v/c Ratio	0.80	1.04		0.94	0.64		1.03	1.00	0.26	1.01	1.03	0.14
Uniform Delay, d1	42.6	33.0		44.7	29.4		42.5	34.0	18.9	46.0	37.5	20.7
Progression Factor	1.37	0.52		0.77	1.16		0.99	0.61	0.53	0.64	0.56	0.24
Incremental Delay, d2	18.7	33.8		55.5	1.0		46.1	25.4	0.2	56.4	35.8	0.1
Delay (s)	76.9	51.1		89.8	35.2		88.1	46.3	10.2	85.9	56.9	5.0
Level of Service	E	D		F	D		F	D	B	F	E	A
Approach Delay (s)		53.4			42.8			55.5			58.3	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay			53.0				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			94.5%				ICU Level of Service				F	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
73: Slauson Ave & Garfield Ave

2035 PM Peak_Alt 4
7/6/2011

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1476	2923	1333	1505	2895	1360	1476	2923	1333	1520	2951	1333
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1476	2923	1333	1505	2895	1360	1476	2923	1333	1520	2951	1333
Volume (vph)	220	1100	140	160	510	130	50	670	50	80	800	160
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	1158	147	168	537	137	53	705	53	84	842	168
RTOR Reduction (vph)	0	0	34	0	0	69	0	0	21	0	0	59
Lane Group Flow (vph)	232	1158	113	168	537	68	53	705	32	84	842	109
Heavy Vehicles (%)	3%	4%	2%	1%	5%	0%	3%	4%	2%	0%	3%	2%
Turn Type	Prot	pm+ov		Prot	pm+ov		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.9	39.0	43.0	11.0	32.1	38.1	4.0	28.0	39.0	6.0	30.0	47.9
Effective Green, g (s)	17.9	39.0	43.0	11.0	32.1	38.1	4.0	28.0	39.0	6.0	30.0	47.9
Actuated g/C Ratio	0.18	0.39	0.43	0.11	0.32	0.38	0.04	0.28	0.39	0.06	0.30	0.48
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	264	1140	627	166	929	573	59	818	573	91	885	692
v/s Ratio Prot	c0.16	c0.40	0.01	c0.11	0.19	0.01	0.04	0.24	0.01	c0.06	c0.29	0.03
v/s Ratio Perm			0.08			0.04			0.02			0.05
v/c Ratio	0.88	1.02	0.18	1.01	0.58	0.12	0.90	0.86	0.06	0.92	0.95	0.16
Uniform Delay, d1	40.0	30.5	17.6	44.5	28.3	20.1	47.8	34.2	19.0	46.8	34.3	14.7
Progression Factor	0.75	0.97	1.06	1.00	1.00	1.00	0.71	0.85	1.25	1.44	0.60	0.01
Incremental Delay, d2	12.2	20.5	0.1	73.0	0.9	0.1	68.5	9.2	0.0	66.0	19.5	0.1
Delay (s)	42.4	50.3	18.8	117.5	29.2	20.2	102.5	38.4	23.8	133.3	40.0	0.3
Level of Service	D	D	B	F	C	C	F	D	C	F	D	A
Approach Delay (s)		46.1			45.3			41.6			41.1	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			43.8	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			89.6%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 106: Cesar Chavez Ave & Humphreys Ave

2035 PM Peak_Alt 4
 8/9/2011



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Volume (veh/h)	42	1046	7	24	846	55	7	4	34	53	6	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	44	1101	7	25	891	58	7	4	36	56	6	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh		2			2							
Upstream signal (ft)		663										
pX, platoon unblocked				0.91			0.91	0.91	0.91	0.91	0.91	
vC, conflicting volume	948			1108			1732	2192	554	1647	2167	474
vC1, stage 1 conf vol							1193	1193		970	970	
vC2, stage 2 conf vol							539	999		677	1197	
vCu, unblocked vol	948			927			1611	2115	320	1517	2087	474
tC, single (s)	4.3			4.3			7.7	6.7	7.1	7.7	6.7	7.1
tC, 2 stage (s)							6.7	5.7		6.7	5.7	
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	93			96			96	98	94	73	96	92
cM capacity (veh/h)	672			625			178	174	596	210	178	516

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	595	558	471	503	47	102
Volume Left	44	0	25	0	7	56
Volume Right	0	7	0	58	36	40
cSH	672	1700	625	1700	377	270
Volume to Capacity	0.07	0.33	0.04	0.30	0.13	0.38
Queue Length 95th (ft)	5	0	3	0	11	42
Control Delay (s)	1.8	0.0	1.2	0.0	15.9	26.2
Lane LOS	A		A		C	D
Approach Delay (s)	0.9		0.6		15.9	26.2
Approach LOS					C	D

Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			80.1%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 146: 223rd St & Santa Fe Ave

2035 PM Peak_Alt 4
 12/4/2009































												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2980	1347	2920	2980	1347	2863	2895	1347	2920	2951	2324
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2980	1347	2920	2980	1347	2863	2895	1347	2920	2951	2324
Volume (vph)	80	620	260	250	260	220	520	590	220	440	840	910
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	84	653	274	263	274	232	547	621	232	463	884	958
RTOR Reduction (vph)	0	0	10	0	0	0	0	0	29	0	0	402
Lane Group Flow (vph)	84	653	264	263	274	232	547	621	203	463	884	556
Heavy Vehicles (%)	2%	2%	1%	1%	2%	1%	3%	5%	1%	1%	3%	3%
Turn Type	Prot	pm+ov		Prot	Free		Prot	pm+ov		Prot	Over	
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases		2			Free			8				
Actuated Green, G (s)	23.7	28.0	46.0	10.0	14.3	100.0	18.0	25.1	35.1	20.9	28.0	23.7
Effective Green, g (s)	23.7	28.0	46.0	10.0	14.3	100.0	18.0	25.1	35.1	20.9	28.0	23.7
Actuated g/C Ratio	0.24	0.28	0.46	0.10	0.14	1.00	0.18	0.25	0.35	0.21	0.28	0.24
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	353	834	620	292	426	1347	515	727	527	610	826	551
v/s Ratio Prot	0.06	c0.22	0.08	0.09	0.09		c0.19	0.21	0.04	0.16	c0.30	c0.24
v/s Ratio Perm			0.12			0.17			0.11			
v/c Ratio	0.24	0.78	0.43	0.90	0.64	0.17	1.06	0.85	0.38	0.76	1.07	1.01
Uniform Delay, d1	30.8	33.2	18.1	44.5	40.4	0.0	41.0	35.7	24.3	37.2	36.0	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	7.2	0.5	28.6	3.3	0.3	57.2	9.6	0.5	5.4	51.8	40.6
Delay (s)	31.2	40.4	18.6	73.1	43.8	0.3	98.2	45.3	24.8	42.6	87.8	78.7
Level of Service	C	D	B	E	D	A	F	D	C	D	F	E
Approach Delay (s)		33.8			40.7			62.6			75.0	
Approach LOS		C			D			E			E	

Intersection Summary		
HCM Average Control Delay	59.4	HCM Level of Service E
HCM Volume to Capacity ratio	1.02	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	87.3%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 151: Slauson Ave & Santa Fe Ave

2035 PM Peak_Alt 4
 05/27/2011



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 			 			 	
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2782	2951	1347	2863	2951	1308	1490	2868	1320	1434	2951	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2782	2951	1347	2863	2951	1308	1490	2868	1320	1434	2951	1308
Volume (vph)	160	1010	140	170	1070	40	90	560	100	90	960	320
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	1063	147	179	1126	42	95	589	105	95	1011	337
RTOR Reduction (vph)	0	0	11	0	0	23	0	0	56	0	0	28
Lane Group Flow (vph)	168	1063	136	179	1126	19	95	589	49	95	1011	309
Heavy Vehicles (%)	6%	3%	1%	3%	3%	4%	2%	6%	3%	6%	3%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.0	37.0	44.8	7.0	37.0	45.0	7.8	32.0	39.0	8.0	32.2	39.2
Effective Green, g (s)	7.0	37.0	44.8	7.0	37.0	45.0	7.8	32.0	39.0	8.0	32.2	39.2
Actuated g/C Ratio	0.07	0.37	0.45	0.07	0.37	0.45	0.08	0.32	0.39	0.08	0.32	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	195	1092	657	200	1092	641	116	918	515	115	950	513
v/s Ratio Prot	0.06	c0.36	0.02	0.06	c0.38	0.00	0.06	c0.21	0.01	0.07	c0.34	0.04
v/s Ratio Perm			0.08			0.01			0.03			0.19
v/c Ratio	0.86	0.97	0.21	0.90	1.03	0.03	0.82	0.64	0.10	0.83	1.06	0.60
Uniform Delay, d1	46.0	31.0	16.8	46.1	31.5	15.3	45.4	29.1	19.3	45.3	33.9	24.2
Progression Factor	1.00	1.00	1.00	0.57	0.35	0.02	0.60	0.40	0.27	0.74	0.86	1.54
Incremental Delay, d2	30.1	20.9	0.2	12.4	22.4	0.0	29.5	2.8	0.1	4.5	31.5	0.2
Delay (s)	76.1	51.9	16.9	38.5	33.6	0.3	56.8	14.6	5.3	38.0	60.5	37.3
Level of Service	E	D	B	D	C	A	E	B	A	D	E	D
Approach Delay (s)		51.1			33.2			18.4			53.6	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 152: Gage Ave & Pacific Ave

2035 PM Peak_Alt 4
 7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frt		0.98			0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected		1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		2900			2899		1476	2895	1333	1476	2890	
Flt Permitted		1.00			1.00		0.20	1.00	1.00	0.34	1.00	
Satd. Flow (perm)		2900			2899		304	2895	1333	532	2890	
Volume (vph)	20	880	130	50	540	80	80	460	100	90	560	90
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	926	137	53	568	84	84	484	105	95	589	95
RTOR Reduction (vph)	0	11	0	0	11	0	0	0	18	0	13	0
Lane Group Flow (vph)	0	1073	0	0	694	0	84	484	87	95	671	0
Heavy Vehicles (%)	3%	3%	1%	1%	3%	1%	3%	5%	2%	3%	3%	3%
Turn Type	Split		Split				Perm		pm+ov	Perm		
Protected Phases	4	4	8				8		2	8	6	
Permitted Phases							2		2	6		
Actuated Green, G (s)	37.0		23.0				28.0		51.0	28.0	28.0	
Effective Green, g (s)	37.0		23.0				28.0		51.0	28.0	28.0	
Actuated g/C Ratio	0.37		0.23				0.28		0.51	0.28	0.28	
Clearance Time (s)	4.0		4.0				4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0		3.0				3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1073		667				85		811	733	149	809
v/s Ratio Prot	c0.37		c0.24						0.17	0.03	0.23	
v/s Ratio Perm							c0.28		0.04	0.18		
v/c Ratio	1.00		1.04				0.99		0.60	0.12	0.64	0.83
Uniform Delay, d1	31.5		38.5				35.8		31.1	12.8	31.6	33.8
Progression Factor	0.11		0.61				0.56		0.59	0.69	1.00	1.00
Incremental Delay, d2	13.9		36.2				69.5		1.8	0.0	19.0	9.6
Delay (s)	17.3		59.8				89.7		20.0	8.9	50.6	43.4
Level of Service	B		E				F		C	A	D	D
Approach Delay (s)	17.3		59.8						27.0	44.3		
Approach LOS	B		E						C	D		
Intersection Summary												
HCM Average Control Delay	35.0		HCM Level of Service				D					
HCM Volume to Capacity ratio	1.01											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)				12.0					
Intersection Capacity Utilization	97.4%		ICU Level of Service				F					
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
153: Gage Ave & Santa Fe Ave

2035 PM Peak_Alt 4
05/27/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1490	2951	1333	1505	2951	1320	2863	2789	1333	2891	2923	1308
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1490	2951	1333	1505	2951	1320	2863	2789	1333	2891	2923	1308
Volume (vph)	110	920	140	90	540	50	210	650	90	100	1210	130
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	968	147	95	568	53	221	684	95	105	1274	137
RTOR Reduction (vph)	0	0	20	0	0	37	0	0	28	0	0	20
Lane Group Flow (vph)	116	968	127	95	568	16	221	684	67	105	1274	117
Heavy Vehicles (%)	2%	3%	2%	1%	3%	3%	3%	9%	2%	2%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.5	30.0	37.0	6.0	22.5	30.5	7.0	40.0	46.0	8.0	41.0	54.5
Effective Green, g (s)	13.5	30.0	37.0	6.0	22.5	30.5	7.0	40.0	46.0	8.0	41.0	54.5
Actuated g/C Ratio	0.14	0.30	0.37	0.06	0.22	0.30	0.07	0.40	0.46	0.08	0.41	0.54
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	885	547	90	664	455	200	1116	667	231	1198	765
v/s Ratio Prot	0.08	c0.33	0.02	c0.06	0.19	0.00	c0.08	0.25	0.01	0.04	c0.44	0.02
v/s Ratio Perm			0.08			0.01			0.04			0.07
v/c Ratio	0.58	1.09	0.23	1.06	0.86	0.04	1.10	0.61	0.10	0.45	1.06	0.15
Uniform Delay, d1	40.6	35.0	21.7	47.0	37.2	24.4	46.5	23.8	15.3	43.9	29.5	11.3
Progression Factor	1.00	1.00	1.00	0.78	0.55	0.12	1.00	1.00	1.00	0.78	0.42	0.09
Incremental Delay, d2	4.0	59.1	0.2	44.3	1.1	0.0	94.6	2.5	0.1	0.8	38.7	0.1
Delay (s)	44.5	94.1	21.9	80.8	21.7	2.9	141.1	26.4	15.4	35.1	51.2	1.0
Level of Service	D	F	C	F	C	A	F	C	B	D	D	A
Approach Delay (s)		80.8			28.1			50.7			45.5	
Approach LOS		F			C			D			D	




























Intersection Summary

HCM Average Control Delay	53.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
161: Del Amo Blvd & Susana Road

2035 PM Peak_Alt 4
7/1/2009

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		 
Ideal Flow (vphpl)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1476	4229		1520	2980	1333	1520	1420		2891	1600	2280
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.74	1.00		0.40	1.00	1.00
Satd. Flow (perm)	1476	4229		1520	2980	1333	1190	1420		1206	1600	2280
Volume (vph)	200	2190	40	10	630	120	40	20	60	520	20	480
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	2305	42	11	663	126	42	21	63	547	21	505
RTOR Reduction (vph)	0	2	0	0	0	50	0	59	0	0	0	158
Lane Group Flow (vph)	211	2345	0	11	663	76	42	25	0	547	21	347
Heavy Vehicles (%)	3%	3%	3%	0%	2%	2%	0%	0%	0%	2%	0%	5%
Turn Type	Prot			Prot		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases						8	2			6		6
Actuated Green, G (s)	17.4	55.1		0.8	38.5	60.1	11.5	6.5		32.1	23.1	40.5
Effective Green, g (s)	17.4	55.1		0.8	38.5	60.1	11.5	6.5		32.1	23.1	40.5
Actuated g/C Ratio	0.17	0.55		0.01	0.38	0.60	0.12	0.06		0.32	0.23	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	257	2330		12	1147	854	153	92		751	370	1015
v/s Ratio Prot	c0.14	c0.55		0.01	0.22	0.02	0.01	0.02		c0.16	0.01	0.06
v/s Ratio Perm						0.04	0.02			c0.08		0.09
v/c Ratio	0.82	1.01		0.92	0.58	0.09	0.27	0.27		0.73	0.06	0.34
Uniform Delay, d1	39.8	22.4		49.6	24.3	8.4	40.3	44.5		28.6	30.0	20.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.6	20.2		212.2	2.1	0.0	1.0	1.6		3.5	0.1	0.2
Delay (s)	58.4	42.7		261.7	26.5	8.5	41.3	46.1		32.1	30.0	20.7
Level of Service	E	D		F	C	A	D	D		C	C	C
Approach Delay (s)		44.0			26.9			44.5			26.7	
Approach LOS		D			C			D			C	

Intersection Summary

HCM Average Control Delay	36.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group