

PM Peak Hour Level of Service - Preferred Alt (With All Roadway Improvements*)

Roadway	From	To	Traffic Count	Year 2035 Forecasts	Classification	Existing Conditions						Future Preferred Alternative Conditions								
						LOS Capacity Thresholds			V/C Ratio	LOS	LOS Capacity Thresholds			V/C Ratio	LOS					
						A	B	C			A	B	C							
1 SR-99	Gamer Lane	Eaton Rd	1,900	3,320	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.24	A	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B
2 SR-99	Eaton Rd	East Ave	2,700	4,840	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.34	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.6	C
3 SR-99	Chohasset Road	Chohasset Road	3,000	5,290	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.47	B	4-Lane Freeway + Auxiliary Lanes	2,220	5,100	7,280	8,980	10,070	0.62	C
4 SR-99	Chohasset Road	East 1st Ave	5,900	8,470	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.74	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.84	D
5 SR-99	East 1st Ave	SR 32	7,100	10,380	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.89	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	1.03	F
6 SR-99	SR 32	East 20th St	6,400	8,830	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.8	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.88	D
7 SR-99	East 20th St	Shway	4,700	6,400	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.64	C	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.64	C
8 SR-99	South of Skyway	Brucia Road	3,300	3,920	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.49	B
9 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Yosemite Dr	700	1,410	2-Lane Arterial	-	-	970	1,760	1,870	0.37	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.49	A
10 Deer Creek Hwy (CA-32)	Deer Creek Hwy	El Monte Ave	1,100	2,100	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.58	D
11 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Forest Ave	1,000	2,820	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.7	D
12 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Forest Ave	1,500	3,320	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.89	D
13 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Forest Ave	1,400	3,220	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.37	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.86	D
14 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Forest Ave	1,700	3,490	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.93	D
15 Deer Creek Hwy (CA-32)	Deer Creek Hwy	Forest Ave	1,000	1,130	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.53	D	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.6	D
16 E 8th St / E 9th St	Cypress St	Postlar St	2,800	3,000	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.75	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.8	D
17 E 8th St / E 9th St	Cypress St	Cypress St	3,300	3,700	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.88	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.99	E
18 W 8th St / W 9th St	Main St	Walnut St	2,800	2,810	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.7	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.7	D
19 W 8th St / W 9th St	Ivy St	Hazel St	2,200	2,300	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.61	D
20 W 8th St / W 9th St	Orange St	Cherry St	2,100	2,380	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.64	D
21 W 9th St / W 8th St	Walnut St	Cedar St	1,900	2,170	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.51	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.58	D
22 Walnut St	W 8th St	W 9th St	1,500	1,710	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.59	A
23 Walnut St	W 1st St	Bidwell Ave	2,000	2,240	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.69	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.78	D
24 CA-32 (North Ave)	W Sacramento Ave	W Sacramento Ave	1,900	2,020	2-Lane Arterial	-	-	970	1,760	1,870	1.02	F	2-Lane Arterial	-	-	970	1,760	1,870	1.08	F
25 CA-32 (North Ave)	Oak Way	W 8th Ave	1,700	1,830	2-Lane Arterial	-	-	970	1,760	1,870	0.91	D	2-Lane Arterial	-	-	970	1,760	1,870	0.98	D
26 CA-32 (North Ave)	Glenwood Ave	Glenwood Ave	1,600	1,790	2-Lane Arterial	-	-	970	1,760	1,870	0.86	D	2-Lane Arterial	-	-	970	1,760	1,870	0.96	E
27 CA-32 (North Ave)	East Ave	Kennedy Ave	1,500	1,620	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	2-Lane Arterial	-	-	970	1,760	1,870	0.87	D
28 1st Ave	Village Lane	Kingsfield Ave	1,200	1,410	2-Lane Arterial	-	-	970	1,760	1,870	0.64	D	2-Lane Arterial	-	-	970	1,760	1,870	0.7	D
29 E 1st Ave	Cadbury Ln	Milford Ave	1,300	1,390	2-Lane Arterial	-	-	970	1,760	1,870	0.7	D	2-Lane Arterial	-	-	970	1,760	1,870	0.74	D
30 E 1st Ave	Esplanade	Oleander Ave	1,000	1,100	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D
31 W 1st Ave	Magnolia Ave	Esplanade	900	940	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.5	A
32 W 1st Ave	Hobart St	Cross Ave	500	570	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.49	A
33 W 2nd St	Walnut St	Cedar St	500	600	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.17	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.21	A
34 W 5th St	Walnut St	Cedar St	300	370	2-Lane Arterial	-	-	970	1,760	1,870	0.16	A	2-Lane Arterial	-	-	970	1,760	1,870	0.2	A
35 W 9th St	Walnut St	Oak St	500	570	2-Lane Arterial	-	-	970	1,760	1,870	0.27	A	2-Lane Arterial	-	-	970	1,760	1,870	0.3	A
36 W 8th Ave	CA-32 (North Ave)	Greenwich Dr	600	690	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.46	A
37 W 8th Ave	Magnolia Ave	Esplanade	400	730	2-Lane Arterial	-	-	970	1,760	1,870	0.21	A	2-Lane Arterial	-	-	970	1,760	1,870	0.39	A
38 E 8th St	Ashtford Ave	Centennial Ave	400	610	Major 2-Lane Collector	-	-	550	1,180	1,520	0.26	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.4	D
39 E 8th St	E 1st Ave	Huac Ln	400	610	Major 2-Lane Collector	-	-	550	1,180	1,520	0.26	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.4	D
40 E 8th St	Vieta Verde Ave	Park Vista Dr	500	600	Major 2-Lane Collector	-	-	550	1,180	1,520	0.33	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.39	D
41 E 20th St	Forest Ave	Notre Dame Blvd	800	2,100	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D
42 E 20th St	Huntington Dr	Huntington Dr	1,000	1,780	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.27	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.47	A
43 E 20th St	Business Lane	Forest Ave	1,800	2,550	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.48	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.68	D
44 E 20th St	Sierra Nevada Ct	Dr MLK JR Pkwy	1,700	1,740	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.47	A
45 Bruce Road	E 20th St	Rayley Blvd	800	1,890	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.51	A
46 Bruce Road	E 20th St	Hemington Dr	1,100	2,290	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.81	D
47 Bruce Road	Humboldt Road	Picholine Way	1,000	2,910	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.78	D
48 Bruce Road	Lakeside VLG Commons	Lakewood Dr	1,200	1,770	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.47	A
49 Chohasset Road	Eaton Rd	Thorntree Dr	1,200	1,960	2-Lane Arterial	-	-	970	1,760	1,870	0.84	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.88	D
50 Chohasset Road	East Ave	Lordsburg Ln	1,500	1,820	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.63	D
51 Chohasset Road	Pillsbury Rd	East Ave	2,100	2,380	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.73	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.82	D
52 Dayton Rd	Archer Ave	Pomona Ave	600	680	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.36	A
53 East Ave	Coleman Ct	Coleman Ct	1,800	1,800	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.59	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.62	D
54 East Ave	Chohasset Road	North Ave	1,500	1,530	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.53	A
55 East Ave	Pillsbury Rd	Chohasset Road	1,200	1,210	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A
56 East Ave	Connors Ave	Esplanade	2,200	2,530	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.68	D
57 East Ave	Esplanade	Haines Ln	2,000	2,260	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.6	D
58 East Ave	Cusick Ave	Alamo Ave	1,600	1,620	4-Lane Arterial, Divided	-	-	1,920												

PM Peak Hour Level of Service - Alt A

Roadway	From	To	Traffic Count	Year 2035 Forecasts	Classification	Existing Conditions					Future Alternative A Conditions									
						LOS Capacity Thresholds			V/C Ratio	LOS	LOS Capacity Thresholds			V/C Ratio	LOS					
						A	B	C			A	B	C							
1 SR-99	Gamer Lane	Eaton Rd	1,900	3,290	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.24	A	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B
2 SR-99	Eaton Rd	East Ave	2,700	5,000	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.34	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.62	C
3 SR-99	East Ave	Chassaset Road	3,800	6,910	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.47	B	4-Lane Freeway + Auxiliary Lanes	2,620	5,100	7,280	8,980	10,070	0.96	C
4 SR-99	Chassaset Road	East 1st Ave	3,800	7,700	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.74	D	4-Lane Freeway + Auxiliary Lanes	2,620	5,100	7,280	8,980	10,070	1.05	F
5 SR-99	East 1st Ave	SR 32	7,100	10,550	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.89	D	4-Lane Freeway + Auxiliary Lanes	2,620	5,100	7,280	8,980	10,070	1.05	F
6 SR-99	SR 32	East 20th St	6,400	9,940	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.8	D	4-Lane Freeway + Auxiliary Lanes	2,620	5,100	7,280	8,980	10,070	0.9	E
7 SR-99	East 20th St	Shiway	4,700	8,020	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.8	D	4-Lane Freeway + Auxiliary Lanes	2,620	5,100	7,280	8,980	10,070	0.88	C
8 SR-99	South of Shiway	Bruce Road	3,300	3,870	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.48	B
9 Deer Creek Hwy (CA-32)	Yosemite Dr	Yosemite Dr	700	1,470	2-Lane Arterial	-	-	970	1,760	1,870	0.37	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.51	A
10 Deer Creek Hwy (CA-32)	El Monte Ave	Bruce Road	1,100	2,190	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.76	D
11 Deer Creek Hwy (CA-32)	Forest Ave	El Monte Ave	1,000	2,840	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.76	D
12 Deer Creek Hwy (CA-32)	Until Road Merges into Undivided Hwy	Forest Ave	1,500	3,260	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.87	D
13 Deer Creek Hwy (CA-32)	Until Road Merges into Undivided Hwy	E 8th St/Fr St	1,400	3,160	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.37	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.84	D
14 Deer Creek Hwy (CA-32)	CA-99 NB Ramp	E 8th St/Fr St	1,700	3,420	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.91	D
15 E 8th St	CA-99 SB Ramp	Bartlett St	1,000	1,130	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.53	D	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.6	D
16 E 8th St / E 9th St	Cypress St	Postar St	2,800	3,010	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.75	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.8	D
17 E 8th St / E 9th St	Pine St	Cypress St	3,300	3,770	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.88	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	1.01	F
18 W 8th St / W 9th St	Main St	Wall St	2,600	2,700	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.7	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.72	D
19 W 8th St / W 9th St	Ivy St	Hazel St	2,200	2,260	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.6	D
20 W 8th St / W 9th St	Orange St	Cherry St	2,100	2,700	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.72	D
21 W 9th St / W 8th St	Walnut St	Cedar St	1,900	2,490	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.51	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.67	D
22 Walnut St	W 8th St	W 9th St	1,500	2,020	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.7	D
23 Walnut St	Bidwell Ave	W 1st St	2,000	2,340	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.69	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.81	D
24 CA-32 (Nord Ave)	W Sacramento Ave	W Sacramento Ave	1,900	2,070	2-Lane Arterial	-	-	970	1,760	1,870	1.02	F	2-Lane Arterial	-	-	970	1,760	1,870	1.11	F
25 CA-32 (Nord Ave)	Oak Way	W 8th Ave	1,700	2,040	2-Lane Arterial	-	-	970	1,760	1,870	0.91	D	2-Lane Arterial	-	-	970	1,760	1,870	1.09	F
26 CA-32 (Nord Ave)	Glenwood Ave	Glenwood Ave	1,600	2,010	2-Lane Arterial	-	-	970	1,760	1,870	0.86	D	2-Lane Arterial	-	-	970	1,760	1,870	1.07	F
27 CA-32 (Nord Ave)	East Ave	Kennedy Ave	1,500	1,800	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	2-Lane Arterial	-	-	970	1,760	1,870	0.96	E
28 1st Ave	Village Lane	Wrightway Ave	1,200	1,390	2-Lane Arterial	-	-	970	1,760	1,870	0.64	D	2-Lane Arterial	-	-	970	1,760	1,870	0.87	D
29 E 1st Ave	Cadby Ln	Milford Ave	1,300	1,380	2-Lane Arterial	-	-	970	1,760	1,870	0.7	D	2-Lane Arterial	-	-	970	1,760	1,870	0.74	D
30 E 1st Ave	Esplanade	Oleander Ave	1,000	1,100	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D
31 W 1st Ave	Manolia Ave	Esplanade	900	950	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.51	A
32 W 1st Ave	Hubert St	Cross Ave	400	450	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A
33 W 2nd St	Walnut St	Cedar St	500	550	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.17	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.19	A
34 W 5th St	Walnut St	Cedar St	300	400	2-Lane Arterial	-	-	970	1,760	1,870	0.16	A	2-Lane Arterial	-	-	970	1,760	1,870	0.21	A
35 W 9th St	Oak St	Greenwich Dr	600	600	2-Lane Arterial	-	-	970	1,760	1,870	0.27	A	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A
36 W 8th Ave	CA-32 (Nord Ave)	Greenwich Dr	600	900	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A
37 W 8th Ave	Manolia Ave	Esplanade	400	790	2-Lane Arterial	-	-	970	1,760	1,870	0.21	A	2-Lane Arterial	-	-	970	1,760	1,870	0.42	A
38 E 8th St	Ashtford Way	Centennial Ave	400	600	Major 2-Lane Collector	-	-	550	1,180	1,520	0.26	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.39	D
39 E 8th St	El Monte Ave	Huxia Ln	400	410	Major 2-Lane Collector	-	-	550	1,180	1,520	0.26	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.4	D
40 E 8th St	Vieta Verde Ave	Park Vista Dr	500	600	Major 2-Lane Collector	-	-	550	1,180	1,520	0.33	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.39	D
41 E 20th St	Forest Ave	Notre Dame Blvd	800	2,100	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D
42 E 20th St	Bruce Road	Huntington Dr	1,000	1,630	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.27	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.44	A
43 E 20th St	Business Lane	Forest Ave	1,800	2,330	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.48	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.68	D
44 E 20th St	Sierra Nevada Ct	Dr MLK JR Pkwy	1,700	1,750	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.47	A
45 Bruce Road	E 20th St	Rayley Blvd	800	1,930	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.52	D
46 Bruce Road	E 20th St	Remington Dr	1,100	2,370	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.69	D
47 Bruce Road	Humboldt Road	Picholine Way	1,000	2,980	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.8	D
48 Bruce Road	Lakeside VLG Commons	Lakewood Dr	1,200	1,780	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.48	A
49 Chassaset Road	Eaton Rd	Thorntree Dr	1,200	2,050	2-Lane Arterial	-	-	970	1,760	1,870	0.84	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.71	D
50 Chassaset Road	East Ave	Lordsburg Ln	1,500	1,830	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.63	D
51 Chassaset Road	Pillsbury Rd	East Ave	2,100	2,420	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.73	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.84	D
52 Dayton Rd	Archer Ave	Pomona Ave	600	1,070	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.57	D
53 Floral Ave	Floral Ave	Coleman Ct	1,800	1,800	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.59	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.62	D
54 East Ave	Chassaset Road	North Ave	1,500	1,800	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.55	A
55 East Ave	Pillsbury Rd	Chassaset Road	1,200	1,300	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.35	A
56 East Ave	Connors Ave	Esplanade	2,200	2,620	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.7	D
57 East Ave	Esplanade	Haines Ln	2,000	2,370	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.54	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.63	D
58 East Ave	Cusick Ave	Alamo Ave	1,600	1,770	4-Lane Arterial, Divided	-	-													

PM Peak Hour Level of Service - Alt C

Roadway	From	To	Traffic Count	Year 2035 Forecasts	Classification	Existing Conditions						Future Alternative C Conditions								
						LOS Capacity Thresholds			V/C Ratio	LOS	LOS Capacity Thresholds			V/C Ratio	LOS					
						A	B	E			A	B	E							
1 SR-99	Gamer Lane	Eaton Rd	1,900	3,270	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.24	A	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B
2 SR-99	Eaton Rd	East Ave	2,700	4,680	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.34	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.58	C
3 SR-99	Cohasset Road	Cohasset Road	3,000	5,980	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.47	B	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.59	C
4 SR-99	Cohasset Road	East 1st Ave	5,900	8,250	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.74	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.82	D
5 SR-99	East 1st Ave	SR 32	7,100	10,160	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.89	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	1.01	F
6 SR-99	SR 32	East 20th St	6,400	8,610	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.8	D	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.86	D
7 SR-99	East 20th St	Shiway	4,400	6,720	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.64	C	4-Lane Freeway + Auxiliary Lanes	2,820	5,100	7,280	8,980	10,070	0.64	C
8 SR-99	South of Shiway	Brucia Road	3,300	3,970	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.41	B	4-Lane Freeway	2,220	4,020	5,760	7,140	8,020	0.5	B
9 Deer Creek Hwy (CA-32)	Yosemite Dr	Yosemite Dr	700	1,440	2-Lane Arterial	-	-	970	1,760	1,870	0.37	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.5	A
10 Deer Creek Hwy (CA-32)	El Monte Ave	Brucia Road	1,100	2,200	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.71	D
11 Deer Creek Hwy (CA-32)	Forest Ave	El Monte Ave	1,000	2,800	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.75	D
12 Deer Creek Hwy (CA-32)	Until Road Merges into Undivided Hwy	Forest Ave	1,500	3,120	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	4-Lane Arterial, Undivided	-	-	1,920	3,540	3,740	0.83	D
13 Deer Creek Hwy (CA-32)	Until Road Merges into Undivided Hwy	Walnut St	1,400	3,020	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.57	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.81	D
14 Deer Creek Hwy (CA-32)	CA-99 NB Ramp	E 8th St/Fir St	1,700	3,220	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.86	D
15 E 8th St	CA-99 SB Ramp	Bartlett St	1,000	1,160	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.53	D	4-Lane Arterial, Divided	-	-	960	1,770	1,870	0.62	D
16 E 8th St / E 9th St	Cypress St	Postar St	2,800	2,990	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.75	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.8	D
17 E 8th St / E 9th St	Pine St	Cypress St	3,300	3,710	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.88	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.99	E
18 W 8th St / W 9th St	Main St	Wall St	2,600	2,690	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.7	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.72	D
19 W 8th St / W 9th St	Ivy St	Hazel St	2,200	2,300	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.61	D
20 W 8th St / W 9th St	Orange St	Cherry St	2,100	2,310	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.62	D
21 W 9th St / W 9th St	Walnut St	Cedar St	1,900	2,090	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.51	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.56	D
22 Walnut St	W 8th St	W 9th St	1,500	1,670	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.58	A
23 Walnut St	W 1st St	W 8th St	2,000	2,170	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.69	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.75	D
24 CA-32 (Nord Ave)	W Sacramento Ave	W Sacramento Ave	1,900	1,950	2-Lane Arterial	-	-	970	1,760	1,870	1.02	F	2-Lane Arterial	-	-	970	1,760	1,870	1.04	F
25 CA-32 (Nord Ave)	Oak Way	W 8th Ave	1,700	1,760	2-Lane Arterial	-	-	970	1,760	1,870	0.91	D	2-Lane Arterial	-	-	970	1,760	1,870	0.94	D
26 CA-32 (Nord Ave)	Glenwood Ave	Glenwood Ave	1,600	1,720	2-Lane Arterial	-	-	970	1,760	1,870	0.86	D	2-Lane Arterial	-	-	970	1,760	1,870	0.92	D
27 CA-32 (Nord Ave)	East Ave	Kennedy Ave	1,500	1,630	2-Lane Arterial	-	-	970	1,760	1,870	0.8	D	2-Lane Arterial	-	-	970	1,760	1,870	0.87	D
28 1st Ave	Village Lane	Longfield Ave	1,200	1,410	2-Lane Arterial	-	-	970	1,760	1,870	0.64	D	2-Lane Arterial	-	-	970	1,760	1,870	0.7	D
29 E 1st Ave	Cadby Ln	Milford Ave	1,300	1,390	2-Lane Arterial	-	-	970	1,760	1,870	0.7	D	2-Lane Arterial	-	-	970	1,760	1,870	0.74	D
30 E 1st Ave	Esplanade	Oleander Ave	1,000	1,030	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	2-Lane Arterial	-	-	970	1,760	1,870	0.55	D
31 W 1st Ave	Manolia Ave	Esplanade	900	960	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.51	A
32 W 1st Ave	Hubert St	Cross Ave	400	490	2-Lane Arterial	-	-	970	1,760	1,870	0.48	A	2-Lane Arterial	-	-	970	1,760	1,870	0.5	A
33 W 2nd St	Walnut St	Cedar St	500	600	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.17	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.21	A
34 W 5th St	Walnut St	Cedar St	300	350	2-Lane Arterial	-	-	970	1,760	1,870	0.16	A	2-Lane Arterial	-	-	970	1,760	1,870	0.19	A
35 W 9th St	Walnut St	Oak St	500	540	2-Lane Arterial	-	-	970	1,760	1,870	0.27	A	2-Lane Arterial	-	-	970	1,760	1,870	0.29	A
36 W 8th Ave	CA-32 (Nord Ave)	Greenwich Dr	600	840	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.45	A
37 W 8th Ave	Manolia Ave	Esplanade	400	750	2-Lane Arterial	-	-	970	1,760	1,870	0.21	A	2-Lane Arterial	-	-	970	1,760	1,870	0.4	A
38 E 8th St	Ashtford Way	Centennial Ave	400	580	Major 2-Lane Collector	-	-	550	1,180	1,520	0.26	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.38	D
39 E 8th St	El Monte Ave	Husa Ln	400	490	Major 2-Lane Collector	-	-	550	1,180	1,520	0.29	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.39	D
40 E 8th St	Vista Verde Ave	Park Vista Dr	500	600	Major 2-Lane Collector	-	-	550	1,180	1,520	0.33	A	Major 2-Lane Collector	-	-	550	1,180	1,520	0.39	D
41 E 20th St	Notre Dame Blvd	Notre Dame Blvd	800	1,800	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.48	A
42 E 20th St	Forest Ave	Huntington Dr	1,000	1,500	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.27	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.4	A
43 E 20th St	Business Lane	Forest Ave	1,800	2,340	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.48	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.63	D
44 E 20th St	Sierra Nevada Ct	Dr MLK JR Pkwy	1,700	1,820	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.45	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.49	A
45 Bruce Road	E 20th St	Rayley Blvd	800	1,990	2-Lane Arterial	-	-	970	1,760	1,870	0.43	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.53	D
46 Bruce Road	E 20th St	Hemington Dr	1,100	2,980	2-Lane Arterial	-	-	970	1,760	1,870	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.8	D
47 Bruce Road	Humboldt Road	Picholine Way	1,000	3,060	2-Lane Arterial	-	-	970	1,760	1,870	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.82	D
48 Bruce Road	Lakeside VLG Commons	Lakewood Dr	1,200	1,750	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.47	A
49 Cohasset Road	Eaton Rd	Thornree Dr	1,200	1,920	2-Lane Arterial	-	-	970	1,760	1,870	0.64	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.66	D
50 Cohasset Road	East Ave	Lords Ln	1,500	1,620	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.63	D
51 Cohasset Road	Pillsbury Rd	East Ave	2,100	2,390	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.73	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.83	D
52 Dayton Rd	Archer Ave	Pomona Ave	600	650	2-Lane Arterial	-	-	970	1,760	1,870	0.32	A	2-Lane Arterial	-	-	970	1,760	1,870	0.35	A
53 East Ave	Floral Ave	Coleman Ct	1,800	1,800	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.59	D	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.62	D
54 East Ave	Cohasset Road	North Ave	1,500	1,550	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.52	A	4-Lane Arterial, Undivided	-	-	1,750	2,740	2,890	0.54	A
55 East Ave	Pillsbury Rd	Cohasset Road	1,200	1,210	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.32	A
56 East Ave	Connors Ave	Esplanade	2,200	2,490	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.59	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.67	D
57 East Ave	Esplanade	Haines Ln	2,000	2,160	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.53	D	4-Lane Arterial, Divided	-	-	1,920	3,540	3,740	0.6	D
58 East Ave	Cusick Ave	Alamo Ave	1,600	1,700	4-Lane Arterial, Divided	-	-	1,920												

HCM Signalized Intersection Capacity Analysis
 1: E 1st Ave & Mangrove Ave

Existing Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	62	403	78	194	430	123	86	334	96	104	481	53
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	438	85	211	467	134	93	363	104	113	523	58
RTOR Reduction (vph)	0	0	39	0	0	73	0	0	75	0	0	36
Lane Group Flow (vph)	67	438	46	211	467	61	93	363	29	113	523	22
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.1	24.2	24.2	12.8	32.9	32.9	6.5	16.4	16.4	6.9	16.8	16.8
Effective Green, g (s)	3.2	24.1	24.1	11.9	32.8	32.8	5.6	16.7	16.7	6.0	17.1	17.1
Actuated g/C Ratio	0.04	0.32	0.32	0.16	0.44	0.44	0.07	0.22	0.22	0.08	0.23	0.23
Clearance Time (s)	3.1	3.9	3.9	3.1	3.9	3.9	3.1	4.3	4.3	3.1	4.3	4.3
Vehicle Extension (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	2.5	2.5	1.0	2.5	2.5
Lane Grp Cap (vph)	76	601	511	282	818	695	133	791	354	142	810	362
v/s Ratio Prot	0.04	c0.24		c0.12	0.25		0.05	0.10		c0.06	c0.15	
v/s Ratio Perm			0.03			0.04			0.02			0.01
v/c Ratio	0.88	0.73	0.09	0.75	0.57	0.09	0.70	0.46	0.08	0.80	0.65	0.06
Uniform Delay, d1	35.6	22.4	17.7	30.0	15.7	12.2	33.7	25.1	22.9	33.7	26.1	22.5
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	63.2	3.7	0.0	9.1	0.6	0.0	12.2	0.3	0.1	24.2	1.6	0.1
Delay (s)	98.8	26.2	17.7	39.1	16.3	12.2	45.9	25.4	23.0	58.0	27.6	22.6
Level of Service	F	C	B	D	B	B	D	C	C	E	C	C
Approach Delay (s)		33.2			21.5			28.4			32.1	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			28.3	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			74.7	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			63.4%	ICU Level of Service				B				
Analysis Period (min)			15									
c Critical Lane Group												
















HCM Signalized Intersection Capacity Analysis
2: E 5th St & Mangrove Ave

Existing Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.96		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)	1770	1804		1770	1792		1770	3400		1770	3480	
Flt Permitted	0.25	1.00		0.27	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	458	1804		508	1792		1770	3400		1770	3480	
Volume (vph)	85	319	86	202	317	109	64	398	142	92	476	60
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	347	93	220	345	118	70	433	154	100	517	65
RTOR Reduction (vph)	0	11	0	0	14	0	0	39	0	0	10	0
Lane Group Flow (vph)	92	429	0	220	449	0	70	548	0	100	572	0
Turn Type	Perm		Perm		Prot		Prot					
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8									
Actuated Green, G (s)	30.7	30.7		30.7	30.7		6.0	37.6		6.7	38.3	
Effective Green, g (s)	30.3	30.3		30.3	30.3		5.1	37.9		5.8	38.6	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.06	0.44		0.07	0.45	
Clearance Time (s)	3.6	3.6		3.6	3.6		3.1	4.3		3.1	4.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	161	636		179	631		105	1498		119	1562	
v/s Ratio Prot		0.24			0.25		0.04	0.16		c0.06	c0.16	
v/s Ratio Perm	0.20			c0.43								
v/c Ratio	0.57	0.67		1.23	0.71		0.67	0.37		0.84	0.37	
Uniform Delay, d1	22.6	23.7		27.8	24.1		39.6	16.0		39.6	15.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	2.2		142.2	3.2		11.7	0.7		37.3	0.7	
Delay (s)	25.6	25.9		170.0	27.2		51.3	16.7		77.0	16.3	
Level of Service	C			F	C		D	B		E	B	
Approach Delay (s)		25.8			73.2			20.4			25.2	
Approach LOS		C			E			C			C	
Intersection Summary												
HCM Average Control Delay			36.9	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			86.0	Sum of lost time (s)				8.0				
Intersection Capacity Utilization			67.2%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												



























HCM Signalized Intersection Capacity Analysis
3: E 20th Street & Park Ave

Existing Conditions
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Volume (vph)	166	153	424	92	183	391
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	166	461	100	199	425
RTOR Reduction (vph)	0	135	0	63	0	0
Lane Group Flow (vph)	180	31	461	37	199	425
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	8.0	8.0	16.8	16.8	9.4	28.8
Effective Green, g (s)	8.5	8.5	16.9	16.9	8.4	29.3
Actuated g/C Ratio	0.19	0.19	0.37	0.37	0.18	0.64
Clearance Time (s)	4.5	4.5	4.1	4.1	3.0	4.5
Vehicle Extension (s)	3.5	3.5	3.0	3.0	0.5	3.0
Lane Grp Cap (vph)	637	294	1306	584	325	2264
v/s Ratio Prot	c0.05		c0.13		c0.11	0.12
v/s Ratio Perm		0.02		0.02		
v/c Ratio	0.28	0.10	0.35	0.06	0.61	0.19
Uniform Delay, d1	16.0	15.5	10.5	9.3	17.2	3.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2	0.2	0.0	2.4	0.0
Delay (s)	16.3	15.7	10.6	9.4	19.6	3.4
Level of Service	B	B	B	A	B	A
Approach Delay (s)	16.0		10.4			8.6
Approach LOS	B		B			A
Intersection Summary						
HCM Average Control Delay			10.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.40			
Actuated Cycle Length (s)			45.8		Sum of lost time (s)	12.0
Intersection Capacity Utilization			37.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						





























HCM Signalized Intersection Capacity Analysis
 4: E 20th Street & Dr Martin Luther King Jr Pkwy

Existing Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		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	0.89	
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)	1770	3539	1583	3433	3486		1770	1863	1583	1770	1655	
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)	1770	3539	1583	3433	3486		1770	1863	1583	1770	1655	
Volume (vph)	20	316	78	107	439	49	49	5	52	32	7	21
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	343	85	116	477	53	53	5	57	35	8	23
RTOR Reduction (vph)	0	0	55	0	8	0	0	0	52	0	22	0
Lane Group Flow (vph)	22	343	30	116	522	0	53	5	5	35	9	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	6.3	15.3	15.3	3.7	12.8		8.3	4.5	4.5	6.5	2.7	
Effective Green, g (s)	5.3	15.4	15.4	2.7	12.8		7.3	3.5	3.5	5.5	1.7	
Actuated g/C Ratio	0.12	0.36	0.36	0.06	0.30		0.17	0.08	0.08	0.13	0.04	
Clearance Time (s)	3.0	4.1	4.1	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	218	1265	566	215	1035		300	151	129	226	65	
v/s Ratio Prot	0.01	c0.10		c0.03	c0.15		c0.03	0.00		0.02	c0.01	
v/s Ratio Perm			0.02						0.00			
v/c Ratio	0.10	0.27	0.05	0.54	0.50		0.18	0.03	0.04	0.15	0.14	
Uniform Delay, d1	16.8	9.9	9.1	19.6	12.5		15.3	18.2	18.2	16.7	20.0	
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	0.1	0.0	0.0	1.3	0.1		0.1	0.0	0.0	0.1	0.4	
Delay (s)	16.9	9.9	9.1	20.9	12.7		15.4	18.3	18.3	16.8	20.3	
Level of Service	B	A	A	C	B		B	B	B	B	C	
Approach Delay (s)		10.1			14.1			17.0			18.5	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			13.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			43.1			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			37.2%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

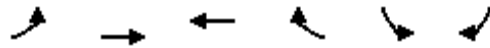
HCM Signalized Intersection Capacity Analysis
5: Eaton Road & Cohasset Road

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	113	105	88	8	91	95	84	364	8	24	225	61
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	114	96	9	99	103	91	396	9	26	245	66
RTOR Reduction (vph)	0	0	76	0	0	83	0	0	6	0	0	44
Lane Group Flow (vph)	123	114	20	9	99	20	91	396	3	26	245	22
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.2	10.2	10.2	6.5	9.5	9.5	3.9	14.6	14.6	6.0	16.7	16.7
Effective Green, g (s)	6.2	11.2	11.2	5.5	10.5	10.5	2.9	15.6	15.6	5.0	17.7	17.7
Actuated g/C Ratio	0.12	0.21	0.21	0.10	0.20	0.20	0.05	0.29	0.29	0.09	0.33	0.33
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	2.5	2.5	2.5	0.5	2.5	2.5	0.5	3.0	3.0	0.5	3.0	3.0
Lane Grp Cap (vph)	206	744	333	183	697	312	96	1036	463	166	1175	526
v/s Ratio Prot	c0.07	c0.03		0.01	0.03		c0.05	c0.11		0.01	0.07	
v/s Ratio Perm			0.01			0.01			0.00			0.01
v/c Ratio	0.60	0.15	0.06	0.05	0.14	0.07	0.95	0.38	0.01	0.16	0.21	0.04
Uniform Delay, d1	22.4	17.2	16.8	21.5	17.7	17.4	25.1	15.0	13.4	22.2	12.8	12.1
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	3.9	0.1	0.1	0.0	0.1	0.1	73.6	0.2	0.0	0.2	0.1	0.0
Delay (s)	26.2	17.2	16.9	21.6	17.7	17.5	98.7	15.2	13.4	22.4	12.9	12.1
Level of Service	C	B	B	C	B	B	F	B	B	C	B	B
Approach Delay (s)		20.5			17.8			30.5			13.4	
Approach LOS		C			B			C			B	
Intersection Summary												
HCM Average Control Delay			22.0				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			53.3				Sum of lost time (s)				12.0	
Intersection Capacity Utilization			37.2%				ICU Level of Service				A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 6: Eaton Road & Hicks Lane




















Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Sign Control		Stop	Stop		Stop	
Volume (vph)	39	309	339	30	125	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	336	368	33	136	102
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	378	401	238			
Volume Left (vph)	42	0	136			
Volume Right (vph)	0	33	102			
Hadj (s)	0.06	-0.01	-0.11			
Departure Headway (s)	5.3	5.2	5.7			
Degree Utilization, x	0.55	0.58	0.38			
Capacity (veh/h)	656	672	569			
Control Delay (s)	14.6	15.0	12.2			
Approach Delay (s)	14.6	15.0	12.2			
Approach LOS	B	B	B			
Intersection Summary						
Delay			14.2			
HCM Level of Service			B			
Intersection Capacity Utilization			60.8%	ICU Level of Service	B	
Analysis Period (min)			15			

























HCM Signalized Intersection Capacity Analysis
7: Cohasset Road & Esplanade

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor				0.97		1.00		0.95		1.00	0.95	
Frt				1.00		0.85		0.94		1.00	1.00	
Flt Protected				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)				3433		1583		3338		1770	3539	
Flt Permitted				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)				3433		1583		3338		1770	3539	
Volume (vph)	0	0	0	177	0	151	0	588	358	184	628	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	192	0	164	0	639	389	200	683	0
RTOR Reduction (vph)	0	0	0	0	0	140	0	64	0	0	0	0
Lane Group Flow (vph)	0	0	0	192	0	24	0	964	0	200	683	0
Turn Type				Prot		custom				Prot		
Protected Phases				3				2		1	6	
Permitted Phases						8						
Actuated Green, G (s)				8.3		7.3		27.0		8.6	38.6	
Effective Green, g (s)				8.3		8.3		28.0		7.6	39.6	
Actuated g/C Ratio				0.15		0.15		0.50		0.14	0.71	
Clearance Time (s)				4.0		5.0		5.0		3.0	5.0	
Vehicle Extension (s)				1.5		3.5		2.0		1.2	2.0	
Lane Grp Cap (vph)				510		235		1672		241	2507	
v/s Ratio Prot				c0.06				c0.29		c0.11	0.19	
v/s Ratio Perm						0.02						
v/c Ratio				0.38		0.10		0.58		0.83	0.27	
Uniform Delay, d1				21.5		20.6		9.8		23.5	2.9	
Progression Factor				1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2				0.2		0.2		0.3		19.6	0.0	
Delay (s)				21.6		20.8		10.1		43.1	3.0	
Level of Service				C		C		B		D	A	
Approach Delay (s)		0.0			21.3			10.1			12.1	
Approach LOS		A			C			B			B	
Intersection Summary												
HCM Average Control Delay			12.6				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			55.9				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			53.0%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
8: Vallombrosa Ave & Mangrove Ave




















Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	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	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1743	1583	1681	1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.87	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1545	1583	1681	1770	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	224	123	127	164	179	70	226	352	141	79	304	396
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	243	134	138	178	195	76	246	383	153	86	330	430
RTOR Reduction (vph)	0	0	80	0	0	44	0	0	114	0	0	364
Lane Group Flow (vph)	183	194	58	178	195	32	246	383	39	86	330	66
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.3	60.1	45.8	14.0	59.5	45.5	18.4	27.8	27.8	7.6	17.0	17.0
Effective Green, g (s)	13.3	58.6	45.3	13.0	58.0	45.0	17.4	27.3	27.3	6.6	16.5	16.5
Actuated g/C Ratio	0.12	0.54	0.42	0.12	0.54	0.42	0.16	0.25	0.25	0.06	0.15	0.15
Clearance Time (s)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Vehicle Extension (s)	0.5	1.0	1.0	0.5	1.0	1.0	2.0	3.0	3.0	1.0	3.0	3.0
Lane Grp Cap (vph)	207	861	663	202	949	658	285	893	399	108	540	241
v/s Ratio Prot	c0.11	0.03		0.11	0.02		c0.14	0.11		0.05	c0.09	
v/s Ratio Perm		c0.09	0.04		0.09	0.02			0.02			0.04
v/c Ratio	0.88	0.23	0.09	0.88	0.21	0.05	0.86	0.43	0.10	0.80	0.61	0.27
Uniform Delay, d1	46.7	12.9	19.0	46.8	13.1	18.8	44.2	33.9	31.0	50.1	42.9	40.5
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	32.2	0.0	0.0	32.3	0.0	0.0	22.0	0.3	0.1	30.3	2.1	0.6
Delay (s)	78.9	13.0	19.0	79.1	13.1	18.8	66.2	34.2	31.1	80.5	44.9	41.2
Level of Service	E	B	B	E	B	B	E	C	C	F	D	D
Approach Delay (s)		38.0			40.3			43.7			46.6	
Approach LOS		D			D			D			D	

Intersection Summary		
HCM Average Control Delay	42.9	HCM Level of Service D
HCM Volume to Capacity ratio	0.49	
Actuated Cycle Length (s)	108.2	Sum of lost time (s) 12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
9: Hegan Lane & Midway

Existing Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		0.99					1.00	1.00			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1763					1770	1863			1863	1583
Flt Permitted		0.74					0.95	1.00			1.00	1.00
Satd. Flow (perm)		1367					1770	1863			1863	1583
Volume (vph)	416	0	32	0	0	0	39	445	0	0	408	286
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	452	0	35	0	0	0	42	484	0	0	443	311
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	152
Lane Group Flow (vph)	0	481	0	0	0	0	42	484	0	0	443	159
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		16.1					1.4	21.8			16.4	16.4
Effective Green, g (s)		16.1					1.4	21.8			16.4	16.4
Actuated g/C Ratio		0.35					0.03	0.47			0.36	0.36
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)		479					54	885			666	566
v/s Ratio Prot							0.02	c0.26			c0.24	
v/s Ratio Perm		c0.35										0.10
v/c Ratio		1.00					0.78	0.55			0.67	0.28
Uniform Delay, d1		14.9					22.1	8.5			12.4	10.5
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		42.2					49.7	2.4			5.2	1.2
Delay (s)		57.1					71.8	11.0			17.6	11.8
Level of Service		E					E	B			B	B
Approach Delay (s)		57.1			0.0			15.8			15.2	
Approach LOS		E			A			B			B	
Intersection Summary												
HCM Average Control Delay			27.0				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			45.9				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			61.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											




























HCM Signalized Intersection Capacity Analysis
 10: E Park Ave & Park Ave

Existing Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕	↕		↕	↕	↕	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor				0.95	0.95	1.00		1.00	1.00	0.95	0.95	
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	0.99	
Satd. Flow (prot)				1681	1681	1583		1863	1583	1681	1744	
Flt Permitted				0.95	0.68	1.00		1.00	1.00	0.95	0.55	
Satd. Flow (perm)				1681	1200	1583		1863	1583	1681	979	
Volume (vph)	0	0	0	478	0	310	0	244	406	411	232	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	520	0	337	0	265	441	447	252	0
RTOR Reduction (vph)	0	0	0	0	0	190	0	0	346	0	0	0
Lane Group Flow (vph)	0	0	0	260	260	147	0	265	95	341	358	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)				40.8	45.7	45.7		22.1	22.1	24.1	51.7	
Effective Green, g (s)				40.8	46.7	46.7		23.1	23.1	25.1	52.2	
Actuated g/C Ratio				0.38	0.44	0.44		0.22	0.22	0.23	0.49	
Clearance Time (s)				4.0	5.0	5.0		5.0	5.0	5.0	4.5	
Vehicle Extension (s)				1.0	3.5	3.5		2.5	2.5	1.0	3.5	
Lane Grp Cap (vph)				642	708	692		403	342	395	658	
v/s Ratio Prot				c0.15	0.14			c0.14		c0.20	0.13	
v/s Ratio Perm					c0.02	0.09			0.06		0.14	
v/c Ratio				0.40	0.37	0.21		0.66	0.28	0.86	0.54	
Uniform Delay, d1				24.2	20.2	18.7		38.3	35.0	39.3	19.1	
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				0.2	0.4	0.2		3.4	0.3	16.9	1.0	
Delay (s)				24.3	20.6	18.9		41.7	35.3	56.1	20.1	
Level of Service				C	C	B		D	D	E	C	
Approach Delay (s)		0.0			21.0			37.7			37.7	
Approach LOS		A			C			D			D	
Intersection Summary												
HCM Average Control Delay			31.4				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			106.9				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			53.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 11: E 20th Street & Forest Ave

Existing Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
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)	1770	3212		1770	3539	1583	1770	3539	1583	1770	3296	
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)	1770	3212		1770	3539	1583	1770	3539	1583	1770	3296	
Volume (vph)	158	154	247	67	304	160	186	121	8	110	250	212
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	167	268	73	330	174	202	132	9	120	272	230
RTOR Reduction (vph)	0	188	0	0	0	134	0	0	7	0	126	0
Lane Group Flow (vph)	172	247	0	73	330	40	202	132	2	120	376	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	8.5	17.0		4.3	12.8	12.8	9.6	15.2	15.2	6.9	12.5	
Effective Green, g (s)	7.5	17.5		3.3	13.3	13.3	8.6	15.7	15.7	5.9	13.0	
Actuated g/C Ratio	0.13	0.30		0.06	0.23	0.23	0.15	0.27	0.27	0.10	0.22	
Clearance Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	227	963		100	806	361	261	951	426	179	734	
v/s Ratio Prot	c0.10	0.08		0.04	c0.09		c0.11	c0.04		0.07	c0.11	
v/s Ratio Perm						0.03			0.00			
v/c Ratio	0.76	0.26		0.73	0.41	0.11	0.77	0.14	0.01	0.67	0.51	
Uniform Delay, d1	24.6	15.5		27.1	19.2	17.9	24.0	16.2	15.6	25.3	19.9	
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	12.1	0.1		20.8	0.1	0.0	12.2	0.0	0.0	7.5	0.3	
Delay (s)	36.6	15.6		47.9	19.3	17.9	36.2	16.2	15.6	32.8	20.2	
Level of Service	D	B		D	B	B	D	B	B	C	C	
Approach Delay (s)		21.5			22.5			28.0			22.6	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay			23.1				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			58.4				Sum of lost time (s)				20.0	
Intersection Capacity Utilization			54.5%				ICU Level of Service				A	
Analysis Period (min)			15									
c	Critical Lane Group											























HCM Signalized Intersection Capacity Analysis
 12: Nord Ave (CA-32) & W 2nd St

Existing Conditions
 AM Peak Hour

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00	
Frt	1.00	0.99		1.00	0.98			0.96			1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	1.00	
Satd. Flow (prot)	1770	3489		1770	3463			1760			1819	1583	
Flt Permitted	0.42	1.00		0.35	1.00			0.89			0.82	1.00	
Satd. Flow (perm)	777	3489		655	3463			1590			1523	1583	
Volume (vph)	111	625	65	27	488	82	54	91	68	46	50	91	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	121	679	71	29	530	89	59	99	74	50	54	99	
RTOR Reduction (vph)	0	14	0	0	24	0	0	53	0	0	0	75	
Lane Group Flow (vph)	121	736	0	29	595	0	0	179	0	0	104	24	
Turn Type	Perm			Perm			Perm			Perm		Perm	
Protected Phases		6			2			4			8		
Permitted Phases	6			2			4			8		8	
Actuated Green, G (s)	23.0	23.0		23.0	23.0			9.7			9.7	9.7	
Effective Green, g (s)	23.0	23.0		23.0	23.0			9.7			9.7	9.7	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.24			0.24	0.24	
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)	439	1972		370	1957			379			363	377	
v/s Ratio Prot		c0.21			0.17								
v/s Ratio Perm	0.16			0.04				c0.11			0.07	0.01	
v/c Ratio	0.28	0.37		0.08	0.30			0.47			0.29	0.06	
Uniform Delay, d1	4.6	4.9		4.0	4.6			13.3			12.7	12.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00	
Incremental Delay, d2	1.6	0.5		0.4	0.4			0.9			0.4	0.1	
Delay (s)	6.1	5.4		4.4	5.0			14.2			13.1	12.1	
Level of Service	A	A		A	A			B			B	B	
Approach Delay (s)		5.5			5.0			14.2			12.6		
Approach LOS		A			A			B			B		
Intersection Summary													
HCM Average Control Delay			7.1									HCM Level of Service	A
HCM Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			40.7									Sum of lost time (s)	8.0
Intersection Capacity Utilization			51.3%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												





























HCM Signalized Intersection Capacity Analysis
 13: E Lassen Ave & Esplanade

Existing Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.93		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1803		1770	1736		1770	3397		1770	3519	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1803		1770	1736		1770	3397		1770	3519	
Volume (vph)	16	153	41	160	110	91	14	336	123	92	392	16
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	166	45	174	120	99	15	365	134	100	426	17
RTOR Reduction (vph)	0	8	0	0	22	0	0	35	0	0	3	0
Lane Group Flow (vph)	17	203	0	174	197	0	15	464	0	100	440	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	0.7	11.0		8.0	18.3		0.7	11.4		4.1	14.8	
Effective Green, g (s)	0.2	11.6		7.5	18.9		0.2	12.0		3.6	15.4	
Actuated g/C Ratio	0.00	0.23		0.15	0.37		0.00	0.24		0.07	0.30	
Clearance Time (s)	3.5	4.6		3.5	4.6		3.5	4.6		3.5	4.6	
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	7	413		262	647		7	804		126	1069	
v/s Ratio Prot	0.01	c0.11		c0.10	0.11		0.01	c0.14		c0.06	c0.13	
v/s Ratio Perm												
v/c Ratio	2.43	0.49		0.66	0.30		2.14	0.58		0.79	0.41	
Uniform Delay, d1	25.2	17.0		20.4	11.3		25.2	17.1		23.2	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	941.4	0.3		4.8	0.1		817.6	1.0		26.5	0.3	
Delay (s)	966.6	17.3		25.3	11.3		842.8	18.1		49.7	14.3	
Level of Service	F	B		C	B		F	B		D	B	
Approach Delay (s)		88.1			17.5			42.2			20.8	
Approach LOS		F			B			D			C	
Intersection Summary												
HCM Average Control Delay			35.7				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			50.7				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			51.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis
 14: E Park Ave & Notre Dame Blvd

Existing Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 				 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5052		3433	1754		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5052		3433	1754		1770	1863	1583
Volume (vph)	307	644	329	89	1192	55	251	53	34	106	64	251
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	334	700	358	97	1296	60	273	58	37	115	70	273
RTOR Reduction (vph)	0	0	187	0	4	0	0	20	0	0	0	164
Lane Group Flow (vph)	334	700	171	97	1352	0	273	75	0	115	70	109
Turn Type	Prot		Perm	Prot			Prot			Prot		custom
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases			2									6
Actuated Green, G (s)	12.2	34.1	34.1	6.4	28.2		10.0	9.3		7.4	6.2	28.2
Effective Green, g (s)	11.8	35.3	35.3	6.0	29.5		9.6	9.4		7.0	6.8	29.5
Actuated g/C Ratio	0.16	0.48	0.48	0.08	0.40		0.13	0.13		0.09	0.09	0.40
Clearance Time (s)	3.6	5.2	5.2	3.6	5.3		3.6	4.1		3.6	4.6	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	550	1695	758	144	2022		447	224		168	172	634
v/s Ratio Prot	c0.10	0.20		0.05	c0.27		c0.08	c0.04		0.06	0.04	
v/s Ratio Perm			0.11									0.07
v/c Ratio	0.61	0.41	0.23	0.67	0.67		0.61	0.33		0.68	0.41	0.17
Uniform Delay, d1	28.8	12.5	11.2	32.9	18.1		30.3	29.3		32.3	31.5	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	1.3	0.1	0.1	9.4	0.7		1.7	0.3		8.8	0.6	0.0
Delay (s)	30.1	12.5	11.3	42.3	18.8		32.0	29.6		41.1	32.1	14.3
Level of Service	C	B	B	D	B		C	C		D	C	B
Approach Delay (s)		16.4			20.3			31.4			23.7	
Approach LOS		B			C			C			C	
Intersection Summary												
HCM Average Control Delay			20.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			73.7			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			57.0%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 1: E 1st Ave & Mangrove Ave

Existing Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	115	414	103	181	449	114	170	702	151	193	753	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	450	112	197	488	124	185	763	164	210	818	101
RTOR Reduction (vph)	0	0	52	0	0	77	0	0	52	0	0	36
Lane Group Flow (vph)	125	450	60	197	488	47	185	763	112	210	818	65
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.6	27.3	27.3	13.2	31.9	31.9	11.3	26.5	26.5	14.0	29.2	29.2
Effective Green, g (s)	7.7	27.2	27.2	12.3	31.8	31.8	10.4	26.8	26.8	13.1	29.5	29.5
Actuated g/C Ratio	0.08	0.29	0.29	0.13	0.33	0.33	0.11	0.28	0.28	0.14	0.31	0.31
Clearance Time (s)	3.1	3.9	3.9	3.1	3.9	3.9	3.1	4.3	4.3	3.1	4.3	4.3
Vehicle Extension (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	2.5	2.5	1.0	2.5	2.5
Lane Grp Cap (vph)	143	531	451	228	621	528	193	994	445	243	1094	490
v/s Ratio Prot	0.07	0.24		c0.11	c0.26		0.10	0.22		c0.12	c0.23	
v/s Ratio Perm			0.04			0.03			0.07			0.04
v/c Ratio	0.87	0.85	0.13	0.86	0.79	0.09	0.96	0.77	0.25	0.86	0.75	0.13
Uniform Delay, d1	43.4	32.1	25.3	40.7	28.7	21.8	42.3	31.4	26.5	40.3	29.6	23.7
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	39.5	11.5	0.0	26.3	6.0	0.0	51.9	3.5	0.2	25.0	2.7	0.1
Delay (s)	82.8	43.6	25.4	67.0	34.7	21.9	94.2	34.9	26.8	65.3	32.3	23.8
Level of Service	F	D	C	E	C	C	F	C	C	E	C	C
Approach Delay (s)		47.8			40.6			43.6			37.7	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay	41.9			HCM Level of Service				D				
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	95.4			Sum of lost time (s)				12.0				
Intersection Capacity Utilization	75.4%			ICU Level of Service				D				
Analysis Period (min)	15											
c Critical Lane Group												
















HCM Signalized Intersection Capacity Analysis
2: E 5th St & Mangrove Ave

Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1788		1770	1771		1770	3481		1770	3508	
Flt Permitted	0.26	1.00		0.32	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	477	1788		589	1771		1770	3481		1770	3508	
Volume (vph)	38	163	60	76	165	81	59	853	105	124	932	59
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	177	65	83	179	88	64	927	114	135	1013	64
RTOR Reduction (vph)	0	17	0	0	21	0	0	8	0	0	3	0
Lane Group Flow (vph)	41	225	0	83	246	0	64	1033	0	135	1074	0
Turn Type	Perm		Perm		Prot		Prot					
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8									
Actuated Green, G (s)	16.1	16.1		16.1	16.1		5.8	53.1		9.8	57.1	
Effective Green, g (s)	15.7	15.7		15.7	15.7		4.9	53.4		8.9	57.4	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.05	0.59		0.10	0.64	
Clearance Time (s)	3.6	3.6		3.6	3.6		3.1	4.3		3.1	4.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	83	312		103	309		96	2065		175	2237	
v/s Ratio Prot		0.13			0.14		0.04	0.30		c0.08	c0.31	
v/s Ratio Perm	0.09			c0.14								
v/c Ratio	0.49	0.72		0.81	0.79		0.67	0.50		0.77	0.48	
Uniform Delay, d1	33.6	35.1		35.7	35.6		41.7	10.6		39.6	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	6.8		33.5	12.3		12.7	0.9		17.2	0.7	
Delay (s)	35.2	41.9		69.2	47.9		54.5	11.5		56.8	9.2	
Level of Service	D	D		E	D		D	B		E	A	
Approach Delay (s)		41.0			53.0			13.9			14.5	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM Average Control Delay			21.4	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			64.9%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: E 20th Street & Park Ave

Existing Conditions
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		 			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	3539	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	3539	1583	1770	3539
Volume (vph)	145	321	518	161	400	500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	349	563	175	435	543
RTOR Reduction (vph)	0	282	0	113	0	0
Lane Group Flow (vph)	158	67	563	62	435	543
Turn Type	Perm		Perm		Prot	
Protected Phases	8		2		1	6
Permitted Phases	8		2			
Actuated Green, G (s)	9.6	9.6	14.3	14.3	17.4	34.3
Effective Green, g (s)	10.1	10.1	14.4	14.4	16.4	34.8
Actuated g/C Ratio	0.19	0.19	0.27	0.27	0.31	0.66
Clearance Time (s)	4.5	4.5	4.1	4.1	3.0	4.5
Vehicle Extension (s)	3.5	3.5	3.0	3.0	0.5	3.0
Lane Grp Cap (vph)	655	302	963	431	549	2328
v/s Ratio Prot	c0.05		c0.16		c0.25	0.15
v/s Ratio Perm		0.04		0.04		
v/c Ratio	0.24	0.22	0.58	0.14	0.79	0.23
Uniform Delay, d1	18.2	18.1	16.7	14.6	16.7	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.4	0.9	0.2	7.2	0.1
Delay (s)	18.4	18.5	17.6	14.7	23.9	3.7
Level of Service	B	B	B	B	C	A
Approach Delay (s)	18.5		16.9			12.7
Approach LOS	B		B			B
Intersection Summary						
HCM Average Control Delay			15.4	HCM Level of Service		B
HCM Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			52.9	Sum of lost time (s)		12.0
Intersection Capacity Utilization			52.3%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

























HCM Signalized Intersection Capacity Analysis
 4: E 20th Street & Dr Martin Luther King Jr Pkwy

Existing Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.91	
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)	1770	3539	1583	3433	3494		1770	1863	1583	1770	1703	
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)	1770	3539	1583	3433	3494		1770	1863	1583	1770	1703	
Volume (vph)	27	926	254	461	733	68	211	12	440	30	11	15
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1007	276	501	797	74	229	13	478	33	12	16
RTOR Reduction (vph)	0	0	87	0	4	0	0	0	367	0	15	0
Lane Group Flow (vph)	29	1007	189	501	867	0	229	13	111	33	13	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	2.1	28.5	28.5	15.1	41.6		13.6	15.6	15.6	2.2	4.2	
Effective Green, g (s)	1.1	28.6	28.6	14.1	41.6		12.6	14.6	14.6	1.2	3.2	
Actuated g/C Ratio	0.01	0.38	0.38	0.19	0.56		0.17	0.20	0.20	0.02	0.04	
Clearance Time (s)	3.0	4.1	4.1	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	26	1359	608	650	1951		299	365	310	29	73	
v/s Ratio Prot	0.02	c0.28		c0.15	0.25		c0.13	0.01		0.02	0.01	
v/s Ratio Perm			0.12						c0.07			
v/c Ratio	1.12	0.74	0.31	0.77	0.44		0.77	0.04	0.36	1.14	0.17	
Uniform Delay, d1	36.7	19.8	16.1	28.7	9.7		29.5	24.2	25.9	36.6	34.4	
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	214.2	1.9	0.1	5.1	0.1		10.1	0.0	0.3	212.0	0.4	
Delay (s)	250.9	21.7	16.2	33.8	9.7		39.6	24.3	26.1	248.6	34.8	
Level of Service	F	C	B	C	A		D	C	C	F	C	
Approach Delay (s)		25.6			18.5			30.4			150.5	
Approach LOS		C			B			C			F	
Intersection Summary												
HCM Average Control Delay			26.0			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			74.5			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			67.1%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

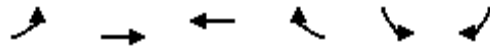
HCM Signalized Intersection Capacity Analysis
5: Eaton Road & Cohasset Road

Existing Conditions
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583	
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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583	
Volume (vph)	78	94	80	4	88	51	102	272	7	63	483	180	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	85	102	87	4	96	55	111	296	8	68	525	196	
RTOR Reduction (vph)	0	0	66	0	0	46	0	0	5	0	0	90	
Lane Group Flow (vph)	85	102	21	4	96	9	111	296	3	68	525	106	
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases			4			8			2			6	
Actuated Green, G (s)	3.9	9.1	9.1	0.5	5.7	5.7	3.6	13.8	13.8	2.8	13.0	13.0	
Effective Green, g (s)	2.9	10.1	10.1	0.0	6.7	6.7	2.6	14.8	14.8	1.8	14.0	14.0	
Actuated g/C Ratio	0.07	0.24	0.24	0.00	0.16	0.16	0.06	0.35	0.35	0.04	0.33	0.33	
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	
Vehicle Extension (s)	2.5	2.5	2.5	0.5	2.5	2.5	0.5	3.0	3.0	0.5	3.0	3.0	
Lane Grp Cap (vph)	122	847	379	0	562	251	109	1241	555	75	1174	525	
v/s Ratio Prot	c0.05	c0.03			c0.03		c0.06	0.08		0.04	c0.15		
v/s Ratio Perm			0.01			0.01			0.00			0.07	
v/c Ratio	0.70	0.12	0.05	no cap	0.17	0.03	1.02	0.24	0.01	0.91	0.45	0.20	
Uniform Delay, d1	19.2	12.6	12.4	Error	15.3	15.0	19.8	9.7	8.9	20.1	11.1	10.1	
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	14.7	0.0	0.0	Error	0.1	0.0	91.2	0.1	0.0	71.0	0.3	0.2	
Delay (s)	34.0	12.6	12.4	Error	15.5	15.1	111.0	9.8	8.9	91.2	11.3	10.3	
Level of Service	C	B	B	F	B	B	F	A	A	F	B	B	
Approach Delay (s)		19.2			Error			36.9			18.0		
Approach LOS		B			F			D			B		
Intersection Summary													
HCM Average Control Delay			Error									HCM Level of Service	F
HCM Volume to Capacity ratio			0.49										
Actuated Cycle Length (s)			42.2									Sum of lost time (s)	20.0
Intersection Capacity Utilization			40.0%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 6: Eaton Road & Hicks Lane



















Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Sign Control		Stop	Stop		Stop	
Volume (vph)	87	309	443	80	63	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	336	482	87	68	63
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total (vph)	430	568	132			
Volume Left (vph)	95	0	68			
Volume Right (vph)	0	87	63			
Hadj (s)	0.08	-0.06	-0.15			
Departure Headway (s)	5.1	4.8	6.1			
Degree Utilization, x	0.61	0.76	0.22			
Capacity (veh/h)	680	732	538			
Control Delay (s)	15.8	21.7	10.8			
Approach Delay (s)	15.8	21.7	10.8			
Approach LOS	C	C	B			
Intersection Summary						
Delay			18.2			
HCM Level of Service			C			
Intersection Capacity Utilization			66.3%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
7: Cohasset Road & Esplanade

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		4.0		4.0		4.0	4.0	
Lane Util. Factor				0.97		1.00		0.95		1.00	0.95	
Frt				1.00		0.85		0.96		1.00	1.00	
Flt Protected				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)				3433		1583		3399		1770	3539	
Flt Permitted				0.95		1.00		1.00		0.95	1.00	
Satd. Flow (perm)				3433		1583		3399		1770	3539	
Volume (vph)	0	0	0	436	0	253	0	851	305	187	585	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	474	0	275	0	925	332	203	636	0
RTOR Reduction (vph)	0	0	0	0	0	232	0	25	0	0	0	0
Lane Group Flow (vph)	0	0	0	474	0	43	0	1232	0	203	636	0
Turn Type				Prot		custom				Prot		
Protected Phases				3				2		1	6	
Permitted Phases						8						
Actuated Green, G (s)				10.2		9.2		32.4		11.1	46.5	
Effective Green, g (s)				10.2		10.2		33.4		10.1	47.5	
Actuated g/C Ratio				0.16		0.16		0.51		0.15	0.72	
Clearance Time (s)				4.0		5.0		5.0		3.0	5.0	
Vehicle Extension (s)				1.5		3.5		2.0		1.2	2.0	
Lane Grp Cap (vph)				533		246		1728		272	2559	
v/s Ratio Prot				c0.14				c0.36		c0.11	0.18	
v/s Ratio Perm						0.03						
v/c Ratio				0.89		0.17		0.71		0.75	0.25	
Uniform Delay, d1				27.2		24.1		12.5		26.6	3.1	
Progression Factor				1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2				16.1		0.4		1.2		9.4	0.0	
Delay (s)				43.3		24.5		13.6		35.9	3.1	
Level of Service				D		C		B		D	A	
Approach Delay (s)		0.0			36.4			13.6			11.0	
Approach LOS		A			D			B			B	
Intersection Summary												
HCM Average Control Delay			18.9									HCM Level of Service B
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			65.7							12.0		
Intersection Capacity Utilization			66.1%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												




















HCM Signalized Intersection Capacity Analysis
8: Vallombrosa Ave & Mangrove Ave

Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	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	0.98	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1734	1583	1681	1752	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.74	1.00	0.95	0.86	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1317	1583	1681	1517	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	596	259	95	282	195	114	141	533	208	128	499	364
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	648	282	103	307	212	124	153	579	226	139	542	396
RTOR Reduction (vph)	0	0	62	0	0	74	0	0	175	0	0	251
Lane Group Flow (vph)	452	478	41	252	267	50	153	579	51	139	542	145
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.1	62.5	45.4	17.1	62.5	45.4	13.7	24.8	24.8	12.1	23.2	23.2
Effective Green, g (s)	16.1	61.0	44.9	16.1	61.0	44.9	12.7	24.3	24.3	11.1	22.7	22.7
Actuated g/C Ratio	0.14	0.54	0.40	0.14	0.54	0.40	0.11	0.22	0.22	0.10	0.20	0.20
Clearance Time (s)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Vehicle Extension (s)	0.5	1.0	1.0	0.5	1.0	1.0	2.0	3.0	3.0	1.0	3.0	3.0
Lane Grp Cap (vph)	241	774	632	241	857	632	200	765	342	175	715	320
v/s Ratio Prot	c0.27	0.09		0.15	0.04		c0.09	c0.16		0.08	0.15	
v/s Ratio Perm		c0.25	0.03		0.12	0.03			0.03			0.09
v/c Ratio	1.88	0.62	0.07	1.05	0.31	0.08	0.77	0.76	0.15	0.79	0.76	0.45
Uniform Delay, d1	48.2	17.7	20.8	48.2	14.1	20.9	48.4	41.3	35.7	49.5	42.3	39.4
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	409.4	1.0	0.0	70.4	0.1	0.0	14.4	4.3	0.2	20.2	4.6	1.0
Delay (s)	457.5	18.7	20.8	118.6	14.2	20.9	62.8	45.6	35.9	69.7	46.9	40.4
Level of Service	F	B	C	F	B	C	E	D	D	E	D	D
Approach Delay (s)		210.9			56.4			46.0			47.5	
Approach LOS		F			E			D			D	
Intersection Summary												
HCM Average Control Delay			94.2				HCM Level of Service			F		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			112.4				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			71.4%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
9: Hegan Lane & Midway

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		0.99					1.00	1.00			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1758					1770	1863			1863	1583
Flt Permitted		0.75					0.95	1.00			1.00	1.00
Satd. Flow (perm)		1374					1770	1863			1863	1583
Volume (vph)	202	0	24	0	0	0	16	374	0	0	319	362
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	220	0	26	0	0	0	17	407	0	0	347	393
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	195
Lane Group Flow (vph)	0	236	0	0	0	0	17	407	0	0	347	198
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		10.3					0.7	26.8			22.1	22.1
Effective Green, g (s)		10.3					0.7	26.8			22.1	22.1
Actuated g/C Ratio		0.23					0.02	0.59			0.49	0.49
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)		314					27	1107			913	776
v/s Ratio Prot							0.01	c0.22			0.19	
v/s Ratio Perm		c0.17										0.13
v/c Ratio		0.75					0.63	0.37			0.38	0.26
Uniform Delay, d1		16.2					22.1	4.8			7.2	6.7
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		9.7					38.0	0.9			1.2	0.8
Delay (s)		25.9					60.1	5.7			8.4	7.5
Level of Service		C					E	A			A	A
Approach Delay (s)		25.9			0.0			7.9			7.9	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM Average Control Delay			11.1				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			45.1				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			39.0%				ICU Level of Service				A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
10: E Park Ave & Park Ave

Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕		↕	↕	↕		↕	↕	↕	↕	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.0	4.0	4.0		4.0	4.0	4.0	4.0		
Lane Util. Factor				0.95	0.95	1.00		1.00	1.00	0.95	0.95		
Frt				1.00	1.00	0.85		1.00	0.85	1.00	1.00		
Flt Protected				0.95	0.95	1.00		1.00	1.00	0.95	0.99		
Satd. Flow (prot)				1681	1681	1583		1863	1583	1681	1760		
Flt Permitted				0.95	0.69	1.00		1.00	1.00	0.95	0.97		
Satd. Flow (perm)				1681	1220	1583		1863	1583	1681	1716		
Volume (vph)	0	0	0	468	0	328	0	267	537	259	220	0	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	509	0	357	0	290	584	282	239	0	
RTOR Reduction (vph)	0	0	0	0	0	197	0	0	437	0	0	0	
Lane Group Flow (vph)	0	0	0	255	254	160	0	290	147	254	267	0	
Turn Type	Prot			Prot		Perm	Prot		Perm		Prot		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases						8			2				
Actuated Green, G (s)				40.7	45.5	45.5		25.1	25.1	18.3	48.9		
Effective Green, g (s)				40.7	46.5	46.5		26.1	26.1	19.3	49.4		
Actuated g/C Ratio				0.39	0.45	0.45		0.25	0.25	0.19	0.48		
Clearance Time (s)				4.0	5.0	5.0		5.0	5.0	5.0	4.5		
Vehicle Extension (s)				1.0	3.5	3.5		2.5	2.5	1.0	3.5		
Lane Grp Cap (vph)				658	727	708		468	398	312	824		
v/s Ratio Prot				c0.15	0.14			c0.16		c0.15	0.06		
v/s Ratio Perm					c0.02	0.10			0.09		0.09		
v/c Ratio				0.39	0.35	0.23		0.62	0.37	0.81	0.32		
Uniform Delay, d1				22.7	18.8	17.6		34.5	32.1	40.6	16.9		
Progression Factor				1.00	1.00	1.00		1.00	1.00	1.00	1.00		
Incremental Delay, d2				0.1	0.3	0.2		2.1	0.4	14.2	0.3		
Delay (s)				22.8	19.1	17.8		36.6	32.5	54.8	17.2		
Level of Service				C	B	B		D	C	D	B		
Approach Delay (s)		0.0			19.7			33.9			35.5		
Approach LOS		A			B			C			D		
Intersection Summary													
HCM Average Control Delay			28.8		HCM Level of Service					C			
HCM Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			103.9	Sum of lost time (s)					12.0				
Intersection Capacity Utilization			52.9%	ICU Level of Service					A				
Analysis Period (min)			15										
c Critical Lane Group													

























HCM Signalized Intersection Capacity Analysis
 11: E 20th Street & Forest Ave

Existing Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.95		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)	1770	3362		1770	3539	1583	1770	3539	1583	1770	3360	
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)	1770	3362		1770	3539	1583	1770	3539	1583	1770	3360	
Volume (vph)	274	392	197	118	388	82	467	394	41	174	282	144
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	298	426	214	128	422	89	508	428	45	189	307	157
RTOR Reduction (vph)	0	45	0	0	0	72	0	0	33	0	57	0
Lane Group Flow (vph)	298	595	0	128	422	17	508	428	12	189	407	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	20.3	27.1		9.1	15.9	15.9	20.3	21.7	21.7	13.6	15.0	
Effective Green, g (s)	19.3	27.6		8.1	16.4	16.4	19.3	22.2	22.2	12.6	15.5	
Actuated g/C Ratio	0.22	0.32		0.09	0.19	0.19	0.22	0.26	0.26	0.15	0.18	
Clearance Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	395	1073		166	671	300	395	908	406	258	602	
v/s Ratio Prot	c0.17	c0.18		0.07	0.12		c0.29	0.12		0.11	c0.12	
v/s Ratio Perm						0.01			0.01			
v/c Ratio	0.75	0.55		0.77	0.63	0.06	1.29	0.47	0.03	0.73	0.68	
Uniform Delay, d1	31.4	24.4		38.3	32.3	28.7	33.6	27.2	24.1	35.3	33.2	
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	7.1	0.4		18.0	1.3	0.0	146.7	0.1	0.0	8.9	2.4	
Delay (s)	38.5	24.7		56.3	33.6	28.7	180.3	27.3	24.1	44.2	35.5	
Level of Service	D	C		E	C	C	F	C	C	D	D	
Approach Delay (s)		29.1			37.5			106.4			38.1	
Approach LOS		C			D			F			D	
Intersection Summary												
HCM Average Control Delay			56.2				HCM Level of Service			E		
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			86.5				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			77.5%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: Nord Ave (CA-32) & W 2nd St

Existing Conditions
 PM Peak Hour

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		 			 			 			 	 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.98			0.95			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	1.00
Satd. Flow (prot)	1770	3536		1770	3457			1745			1806	1583
Flt Permitted	0.35	1.00		0.43	1.00			0.87			0.75	1.00
Satd. Flow (perm)	648	3536		805	3457			1543			1401	1583
Volume (vph)	126	534	3	53	586	108	46	63	65	104	62	170
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	580	3	58	637	117	50	68	71	113	67	185
RTOR Reduction (vph)	0	0	0	0	28	0	0	53	0	0	0	100
Lane Group Flow (vph)	137	583	0	58	726	0	0	136	0	0	180	85
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Actuated Green, G (s)	21.7	21.7		21.7	21.7			9.8			9.8	9.8
Effective Green, g (s)	21.7	21.7		21.7	21.7			9.8			9.8	9.8
Actuated g/C Ratio	0.55	0.55		0.55	0.55			0.25			0.25	0.25
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)	356	1943		442	1899			383			348	393
v/s Ratio Prot		0.16			0.21							
v/s Ratio Perm	c0.21			0.07				0.09			c0.13	0.05
v/c Ratio	0.38	0.30		0.13	0.38			0.35			0.52	0.22
Uniform Delay, d1	5.1	4.8		4.3	5.1			12.2			12.8	11.8
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.1	0.4		0.6	0.6			0.6			1.3	0.3
Delay (s)	8.2	5.2		4.9	5.7			12.8			14.1	12.1
Level of Service	A	A		A	A			B			B	B
Approach Delay (s)		5.8			5.6			12.8			13.1	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			7.6			HCM Level of Service					A	
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			39.5			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			55.7%			ICU Level of Service					B	
Analysis Period (min)			15									
c Critical Lane Group												





























HCM Signalized Intersection Capacity Analysis
 13: E Lassen Ave & Esplanade

Existing Conditions
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.93		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1799		1770	1737		1770	3390		1770	3506	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1799		1770	1737		1770	3390		1770	3506	
Volume (vph)	36	152	45	177	147	120	38	455	178	99	392	26
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	165	49	192	160	130	41	495	193	108	426	28
RTOR Reduction (vph)	0	10	0	0	23	0	0	37	0	0	4	0
Lane Group Flow (vph)	39	204	0	192	267	0	41	651	0	108	450	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.0	11.0		8.9	17.9		3.0	15.0		6.0	18.0	
Effective Green, g (s)	1.5	11.6		8.4	18.5		2.5	15.6		5.5	18.6	
Actuated g/C Ratio	0.03	0.20		0.15	0.32		0.04	0.27		0.10	0.33	
Clearance Time (s)	3.5	4.6		3.5	4.6		3.5	4.6		3.5	4.6	
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	46	365		260	563		77	926		170	1142	
v/s Ratio Prot	0.02	0.11		c0.11	c0.15		0.02	c0.19		c0.06	c0.13	
v/s Ratio Perm												
v/c Ratio	0.85	0.56		0.74	0.47		0.53	0.70		0.64	0.39	
Uniform Delay, d1	27.7	20.5		23.3	15.4		26.7	18.7		24.8	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	74.4	1.2		9.1	0.2		3.5	2.4		5.6	0.2	
Delay (s)	102.1	21.6		32.4	15.6		30.2	21.1		30.4	15.1	
Level of Service	F	C		C	B		C	C		C	B	
Approach Delay (s)		34.0			22.3			21.6			18.1	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM Average Control Delay			22.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			57.1			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			57.6%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis
 14: E Park Ave & Notre Dame Blvd

Existing Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 				 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5041		3433	1786		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5041		3433	1786		1770	1863	1583
Volume (vph)	492	1400	237	89	897	55	352	171	65	174	82	536
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	535	1522	258	97	975	60	383	186	71	189	89	583
RTOR Reduction (vph)	0	0	73	0	5	0	0	11	0	0	0	396
Lane Group Flow (vph)	535	1522	185	97	1030	0	383	246	0	189	89	187
Turn Type	Prot		Perm	Prot			Prot			Prot		custom
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases			2									6
Actuated Green, G (s)	18.3	40.9	40.9	7.5	30.0		16.9	18.4		14.2	15.2	30.0
Effective Green, g (s)	17.9	42.1	42.1	7.1	31.3		16.5	18.5		13.8	15.8	31.3
Actuated g/C Ratio	0.18	0.43	0.43	0.07	0.32		0.17	0.19		0.14	0.16	0.32
Clearance Time (s)	3.6	5.2	5.2	3.6	5.3		3.6	4.1		3.6	4.6	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	630	1528	684	129	1618		581	339		251	302	508
v/s Ratio Prot	c0.16	c0.43		0.05	0.20		0.11	c0.14		c0.11	0.05	
v/s Ratio Perm			0.12									0.12
v/c Ratio	0.85	1.00	0.27	0.75	0.64		0.66	0.72		0.75	0.29	0.37
Uniform Delay, d1	38.5	27.6	17.8	44.3	28.2		37.9	37.1		40.2	35.9	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	10.0	21.9	0.1	19.5	0.6		2.1	6.4		10.8	0.2	0.2
Delay (s)	48.5	49.5	17.9	63.8	28.9		39.9	43.5		51.0	36.1	25.7
Level of Service	D	D	B	E	C		D	D		D	D	C
Approach Delay (s)		45.8			31.8			41.4			32.3	
Approach LOS		D			C			D			C	
Intersection Summary												
HCM Average Control Delay			39.7	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			97.5	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			79.6%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												























HCM Signalized Intersection Capacity Analysis
1: E 1st Ave & Mangrove Ave

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	90	420	80	200	440	140	90	500	100	120	490	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	457	87	217	478	152	98	543	109	130	533	152
RTOR Reduction (vph)	0	0	52	0	0	93	0	0	64	0	0	113
Lane Group Flow (vph)	98	457	35	217	478	59	98	543	45	130	533	39
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.5	21.4	21.4	11.5	27.4	27.4	5.7	16.9	16.9	6.5	17.7	17.7
Effective Green, g (s)	4.6	21.3	21.3	10.6	27.3	27.3	4.8	17.2	17.2	5.6	18.0	18.0
Actuated g/C Ratio	0.07	0.30	0.30	0.15	0.39	0.39	0.07	0.24	0.24	0.08	0.25	0.25
Clearance Time (s)	3.1	3.9	3.9	3.1	3.9	3.9	3.1	4.3	4.3	3.1	4.3	4.3
Vehicle Extension (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	2.5	2.5	1.0	2.5	2.5
Lane Grp Cap (vph)	115	561	477	265	719	611	120	861	385	140	901	403
v/s Ratio Prot	0.06	c0.25		c0.12	0.26		0.06	c0.15		c0.07	0.15	
v/s Ratio Perm			0.02			0.04			0.03			0.02
v/c Ratio	0.85	0.81	0.07	0.82	0.66	0.10	0.82	0.63	0.12	0.93	0.59	0.10
Uniform Delay, d1	32.7	22.9	17.6	29.1	17.9	13.8	32.5	23.9	20.8	32.4	23.1	20.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.8	8.4	0.0	16.8	1.8	0.0	31.7	1.3	0.1	53.6	0.9	0.1
Delay (s)	73.5	31.3	17.7	45.9	19.7	13.9	64.3	25.2	20.9	86.0	24.0	20.2
Level of Service	E	C	B	D	B	B	E	C	C	F	C	C
Approach Delay (s)		35.9			25.4			29.7			33.2	
Approach LOS		D			C			C			C	
Intersection Summary												
HCM Average Control Delay			30.7				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			70.7				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			67.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

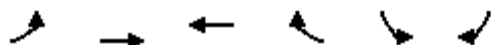
HCM Signalized Intersection Capacity Analysis
2: E 5th St & Mangrove Ave

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.97		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)	1770	1807		1770	1801		1770	3424		1770	3472	
Flt Permitted	0.15	1.00		0.22	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	288	1807		403	1801		1770	3424		1770	3472	
Volume (vph)	100	360	90	230	390	110	70	580	160	100	480	70
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	391	98	250	424	120	76	630	174	109	522	76
RTOR Reduction (vph)	0	10	0	0	12	0	0	28	0	0	12	0
Lane Group Flow (vph)	109	479	0	250	532	0	76	776	0	109	586	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	30.7	30.7		30.7	30.7		6.3	37.3		7.0	38.0	
Effective Green, g (s)	30.3	30.3		30.3	30.3		5.4	37.6		6.1	38.3	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.06	0.44		0.07	0.45	
Clearance Time (s)	3.6	3.6		3.6	3.6		3.1	4.3		3.1	4.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	101	637		142	635		111	1497		126	1546	
v/s Ratio Prot		0.26			0.30		0.04	c0.23		c0.06	0.17	
v/s Ratio Perm	0.38			c0.62								
v/c Ratio	1.08	0.75		1.76	0.84		0.68	0.52		0.87	0.38	
Uniform Delay, d1	27.9	24.5		27.9	25.6		39.5	17.6		39.5	15.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	112.5	4.4		369.4	9.1		13.0	1.3		40.9	0.7	
Delay (s)	140.4	29.0		397.3	34.7		52.5	18.9		80.5	16.6	
Level of Service	F	C		F	C		D	B		F	B	
Approach Delay (s)		49.3			148.8			21.8			26.5	
Approach LOS		D			F			C			C	
Intersection Summary												
HCM Average Control Delay			62.3				HCM Level of Service				E	
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			86.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			77.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: Park Ave & E 20th Street

Cumulative Conditions
AM Peak Hour





























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖	↖	↘↘	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	280	410	690	100	170	230
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	446	750	109	185	250
RTOR Reduction (vph)	0	0	0	71	0	206
Lane Group Flow (vph)	304	446	750	38	185	44
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	10.8	29.4	16.0	16.0	7.5	7.5
Effective Green, g (s)	9.8	29.9	16.1	16.1	8.0	8.0
Actuated g/C Ratio	0.21	0.65	0.35	0.35	0.17	0.17
Clearance Time (s)	3.0	4.5	4.1	4.1	4.5	4.5
Vehicle Extension (s)	0.5	3.0	3.0	3.0	3.5	3.5
Lane Grp Cap (vph)	378	2305	1241	555	598	276
v/s Ratio Prot	c0.17	0.13	c0.21		c0.05	
v/s Ratio Perm				0.02		0.03
v/c Ratio	0.80	0.19	0.60	0.07	0.31	0.16
Uniform Delay, d1	17.1	3.2	12.3	9.9	16.5	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	0.0	0.8	0.1	0.4	0.3
Delay (s)	28.3	3.2	13.1	10.0	16.9	16.4
Level of Service	C	A	B	A	B	B
Approach Delay (s)		13.4	12.7		16.6	
Approach LOS		B	B		B	

Intersection Summary

HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			






























HCM Signalized Intersection Capacity Analysis
4: E 20th Street & Dr Martin Luther King Jr Pkwy

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.89	
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)	1770	3539	1583	3433	3505		1770	1863	1583	1770	1653	
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)	1770	3539	1583	3433	3505		1770	1863	1583	1770	1653	
Volume (vph)	20	420	90	310	730	50	70	10	80	40	10	30
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	457	98	337	793	54	76	11	87	43	11	33
RTOR Reduction (vph)	0	0	72	0	7	0	0	0	78	0	31	0
Lane Group Flow (vph)	22	457	26	337	840	0	76	11	9	43	13	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	5.7	11.8	11.8	8.9	15.1		7.3	5.8	5.8	5.7	4.2	
Effective Green, g (s)	4.7	11.9	11.9	7.9	15.1		6.3	4.8	4.8	4.7	3.2	
Actuated g/C Ratio	0.10	0.26	0.26	0.17	0.33		0.14	0.11	0.11	0.10	0.07	
Clearance Time (s)	3.0	4.1	4.1	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	184	930	416	599	1168		246	197	168	184	117	
v/s Ratio Prot	0.01	0.13		c0.10	c0.24		c0.04	0.01		0.02	c0.01	
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.12	0.49	0.06	0.56	0.72		0.31	0.06	0.05	0.23	0.11	
Uniform Delay, d1	18.4	14.1	12.5	17.1	13.2		17.5	18.2	18.2	18.6	19.7	
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	0.1	0.1	0.0	0.7	1.8		0.3	0.0	0.0	0.2	0.2	
Delay (s)	18.5	14.3	12.5	17.8	15.0		17.8	18.3	18.3	18.9	19.9	
Level of Service	B	B	B	B	B		B	B	B	B	B	
Approach Delay (s)		14.2			15.8			18.1			19.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			15.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			45.3			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			46.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis
5: Eaton Road & Cohasset Road

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 		 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	220	230	180	10	170	240	110	600	10	90	330	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	250	196	11	185	261	120	652	11	98	359	120
RTOR Reduction (vph)	0	0	138	0	0	208	0	0	8	0	0	78
Lane Group Flow (vph)	239	250	58	11	185	53	120	652	3	98	359	42
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.8	18.9	18.9	5.7	12.8	12.8	6.6	19.1	19.1	7.7	20.2	20.2
Effective Green, g (s)	10.8	19.9	19.9	4.7	13.8	13.8	5.6	20.1	20.1	6.7	21.2	21.2
Actuated g/C Ratio	0.16	0.30	0.30	0.07	0.20	0.20	0.08	0.30	0.30	0.10	0.31	0.31
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	2.5	2.5	2.5	0.5	2.5	2.5	0.5	3.0	3.0	0.5	3.0	3.0
Lane Grp Cap (vph)	284	1045	467	123	725	324	147	1055	472	176	1113	498
v/s Ratio Prot	c0.14	c0.07		0.01	0.05		c0.07	c0.18		0.06	0.10	
v/s Ratio Perm			0.04			0.03			0.00			0.03
v/c Ratio	0.84	0.24	0.12	0.09	0.26	0.16	0.82	0.62	0.01	0.56	0.32	0.08
Uniform Delay, d1	27.5	18.0	17.4	29.3	22.5	22.1	30.4	20.3	16.6	28.9	17.6	16.3
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	19.4	0.1	0.1	0.1	0.1	0.2	27.0	1.1	0.0	2.2	0.2	0.1
Delay (s)	46.8	18.1	17.5	29.5	22.6	22.2	57.4	21.4	16.6	31.1	17.8	16.3
Level of Service	D	B	B	C	C	C	E	C	B	C	B	B
Approach Delay (s)		27.9			22.6			26.9			19.7	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM Average Control Delay			24.7				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			67.4				Sum of lost time (s)		12.0			
Intersection Capacity Utilization			53.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
8: Vallombrosa Ave & Mangrove Ave

Cumulative Conditions
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	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	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1744	1583	1681	1770	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.88	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	1566	1583	1681	1770	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	230	130	140	180	180	80	230	550	150	80	310	400
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	141	152	196	196	87	250	598	163	87	337	435
RTOR Reduction (vph)	0	0	104	0	0	60	0	0	114	0	0	352
Lane Group Flow (vph)	190	201	48	196	196	27	250	598	49	87	337	83
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.5	26.1	25.6	10.5	25.6	25.6	15.1	24.5	24.5	6.3	15.7	15.7
Effective Green, g (s)	9.5	25.1	25.1	9.5	25.1	25.1	14.1	24.0	24.0	5.3	15.2	15.2
Actuated g/C Ratio	0.12	0.31	0.31	0.12	0.31	0.31	0.18	0.30	0.30	0.07	0.19	0.19
Clearance Time (s)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Vehicle Extension (s)	0.5	1.0	1.0	0.5	1.0	1.0	2.0	3.0	3.0	1.0	3.0	3.0
Lane Grp Cap (vph)	200	513	497	200	556	497	312	1063	475	117	673	301
v/s Ratio Prot	c0.11	0.05		c0.12	0.04		c0.14	c0.17		0.05	0.10	
v/s Ratio Perm		c0.08	0.03		0.07	0.02			0.03			0.05
v/c Ratio	0.95	0.39	0.10	0.98	0.35	0.05	0.80	0.56	0.10	0.74	0.50	0.27
Uniform Delay, d1	35.0	21.4	19.4	35.1	21.1	19.1	31.6	23.5	20.2	36.6	29.0	27.6
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	48.4	0.2	0.0	56.9	0.1	0.0	13.0	0.7	0.1	19.8	0.6	0.5
Delay (s)	83.4	21.6	19.4	92.0	21.3	19.1	44.6	24.2	20.3	56.4	29.5	28.1
Level of Service	F	C	B	F	C	B	D	C	C	E	C	C
Approach Delay (s)		42.6			49.8			28.6			31.6	
Approach LOS		D			D			C			C	

Intersection Summary		
HCM Average Control Delay	35.6	HCM Level of Service D
HCM Volume to Capacity ratio	0.70	
Actuated Cycle Length (s)	79.9	Sum of lost time (s) 16.0
Intersection Capacity Utilization	57.2%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		
















HCM Signalized Intersection Capacity Analysis
9: Hegan Lane & Midway

Cumulative Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		0.99					1.00	1.00			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1759					1770	1863			1863	1583
Flt Permitted		0.75					0.95	1.00			1.00	1.00
Satd. Flow (perm)		1372					1770	1863			1863	1583
Volume (vph)	460	0	50	0	0	0	70	520	0	0	550	380
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	500	0	54	0	0	0	76	565	0	0	598	413
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	97
Lane Group Flow (vph)	0	549	0	0	0	0	76	565	0	0	598	316
Turn Type	Perm		Perm				Prot		Prot		Perm	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		30.1					3.1	34.4			27.3	27.3
Effective Green, g (s)		30.1					3.1	34.4			27.3	27.3
Actuated g/C Ratio		0.42					0.04	0.47			0.38	0.38
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)		570					76	884			702	596
v/s Ratio Prot							c0.04	0.30			c0.32	
v/s Ratio Perm		c0.40										0.20
v/c Ratio		0.96					1.00	0.64			0.85	0.53
Uniform Delay, d1		20.7					34.7	14.4			20.7	17.6
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		28.4					103.2	3.5			12.4	3.4
Delay (s)		49.0					137.9	17.9			33.2	21.0
Level of Service		D					F	B			C	C
Approach Delay (s)		49.0			0.0			32.1			28.2	
Approach LOS		D			A			C			C	
Intersection Summary												
HCM Average Control Delay			34.6				HCM Level of Service				C	
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			72.5				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			71.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 10: E Park Ave & Midway

Cumulative Conditions
 AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 				 	 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	1583	1681	1770
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	1583	1681	1770
Volume (vph)	480	320	540	410	480	500
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	522	348	587	446	522	543
RTOR Reduction (vph)	0	272	0	203	0	0
Lane Group Flow (vph)	522	76	587	243	522	543
Turn Type	custom		Perm		Prot	
Protected Phases	3		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	21.1	26.4	42.2	42.2	41.2	88.9
Effective Green, g (s)	21.1	27.4	43.2	43.2	42.2	89.4
Actuated g/C Ratio	0.17	0.22	0.35	0.35	0.34	0.72
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	4.5
Vehicle Extension (s)	1.0	3.5	2.5	2.5	1.0	3.5
Lane Grp Cap (vph)	580	348	645	548	568	1268
v/s Ratio Prot	c0.15		c0.32		c0.31	0.14
v/s Ratio Perm		c0.05		0.15		0.16
v/c Ratio	0.90	0.22	0.91	0.44	0.92	0.43
Uniform Delay, d1	50.8	39.9	38.9	31.5	39.7	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.7	0.4	17.0	0.4	19.6	0.3
Delay (s)	67.5	40.3	56.0	31.9	59.3	7.5
Level of Service	E	D	E	C	E	A
Approach Delay (s)	56.6		45.6			32.9
Approach LOS	E		D			C
Intersection Summary						
HCM Average Control Delay			44.3		HCM Level of Service	D
HCM Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			124.8		Sum of lost time (s)	12.0
Intersection Capacity Utilization			78.6%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
11: E 20th Street & Forest Ave

Cumulative Conditions
AM Peak Hour























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90	
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)	1770	3338		1770	3539	1583	1770	3539	1583	1770	3183	
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)	1770	3338		1770	3539	1583	1770	3539	1583	1770	3183	
Volume (vph)	280	410	250	110	940	170	190	210	50	160	260	530
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	304	446	272	120	1022	185	207	228	54	174	283	576
RTOR Reduction (vph)	0	57	0	0	0	71	0	0	41	0	244	0
Lane Group Flow (vph)	304	661	0	120	1022	114	207	228	13	174	615	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	20.6	47.6		10.4	37.4	37.4	16.8	28.0	28.0	14.9	26.1	
Effective Green, g (s)	19.6	48.1		9.4	37.9	37.9	15.8	28.5	28.5	13.9	26.6	
Actuated g/C Ratio	0.17	0.42		0.08	0.33	0.33	0.14	0.25	0.25	0.12	0.23	
Clearance Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	299	1385		144	1157	518	241	870	389	212	731	
v/s Ratio Prot	c0.17	0.20		0.07	c0.29		c0.12	0.06		0.10	c0.19	
v/s Ratio Perm						0.07			0.01			
v/c Ratio	1.02	0.48		0.83	0.88	0.22	0.86	0.26	0.03	0.82	0.95dr	
Uniform Delay, d1	48.2	24.7		52.5	36.9	28.3	49.0	35.2	33.2	49.8	42.6	
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	56.4	0.1		30.8	8.0	0.1	24.1	0.1	0.0	20.9	8.3	
Delay (s)	104.5	24.8		83.2	44.9	28.4	73.0	35.3	33.2	70.7	50.9	
Level of Service	F	C		F	D	C	E	D	C	E	D	
Approach Delay (s)		48.5			46.1			51.0			54.3	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	49.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	115.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
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
 12: Nord Ave (CA-32) & W 2nd St

Cumulative Conditions
 AM Peak Hour

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.98			0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	1.00
Satd. Flow (prot)	1770	3496		1770	3464			1761			1825	1583
Flt Permitted	0.38	1.00		0.27	1.00			0.89			0.81	1.00
Satd. Flow (perm)	705	3496		507	3464			1584			1508	1583
Volume (vph)	120	780	70	40	550	90	60	110	80	50	70	100
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	848	76	43	598	98	65	120	87	54	76	109
RTOR Reduction (vph)	0	13	0	0	25	0	0	48	0	0	0	82
Lane Group Flow (vph)	130	911	0	43	671	0	0	224	0	0	130	27
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Actuated Green, G (s)	20.9	20.9		20.9	20.9			9.5			9.5	9.5
Effective Green, g (s)	20.9	20.9		20.9	20.9			9.5			9.5	9.5
Actuated g/C Ratio	0.54	0.54		0.54	0.54			0.25			0.25	0.25
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)	384	1903		276	1885			392			373	392
v/s Ratio Prot		c0.26			0.19							
v/s Ratio Perm	0.18			0.08				c0.14			0.09	0.02
v/c Ratio	0.34	0.48		0.16	0.36			0.57			0.35	0.07
Uniform Delay, d1	4.9	5.4		4.4	4.9			12.7			11.9	11.1
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	2.4	0.9		1.2	0.5			2.0			0.6	0.1
Delay (s)	7.3	6.3		5.6	5.5			14.7			12.5	11.1
Level of Service	A	A		A	A			B			B	B
Approach Delay (s)		6.4			5.5			14.7			11.9	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			7.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			38.4			Sum of lost time (s)		8.0				
Intersection Capacity Utilization			57.8%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												





























HCM Signalized Intersection Capacity Analysis
 13: E Lassen Ave & Esplanade

Cumulative Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.92		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1831		1770	1712		1770	3425		1770	3520	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1831		1770	1712		1770	3425		1770	3520	
Volume (vph)	20	390	50	320	120	140	20	510	140	130	790	30
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	424	54	348	130	152	22	554	152	141	859	33
RTOR Reduction (vph)	0	3	0	0	26	0	0	23	0	0	2	0
Lane Group Flow (vph)	22	475	0	348	256	0	22	683	0	141	890	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	2.3	32.5		20.2	50.4		2.3	28.4		11.1	37.2	
Effective Green, g (s)	1.8	33.1		19.7	51.0		1.8	29.0		10.6	37.8	
Actuated g/C Ratio	0.02	0.31		0.18	0.47		0.02	0.27		0.10	0.35	
Clearance Time (s)	3.5	4.6		3.5	4.6		3.5	4.6		3.5	4.6	
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	29	559		322	805		29	916		173	1227	
v/s Ratio Prot	0.01	c0.26		c0.20	0.15		0.01	0.20		c0.08	c0.25	
v/s Ratio Perm												
v/c Ratio	0.76	0.85		1.08	0.32		0.76	0.75		0.82	0.73	
Uniform Delay, d1	53.1	35.3		44.4	17.9		53.1	36.3		47.9	30.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	65.7	11.1		73.4	0.1		65.7	3.3		23.5	2.2	
Delay (s)	118.7	46.4		117.7	18.0		118.7	39.7		71.5	32.9	
Level of Service	F	D		F	B		F	D		E	C	
Approach Delay (s)		49.6			73.1			42.1			38.2	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay			48.7			HCM Level of Service					D	
HCM Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			108.4			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			81.6%			ICU Level of Service					D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 14: E Park Ave & Notre Dame Blvd

Cumulative Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			  		 				 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	5034		3433	1801		1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	5034		3433	1801		1770	1863	1583
Volume (vph)	400	760	330	90	1400	100	260	140	40	120	100	370
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	826	359	98	1522	109	283	152	43	130	109	402
RTOR Reduction (vph)	0	0	163	0	5	0	0	8	0	0	0	235
Lane Group Flow (vph)	435	826	196	98	1626	0	283	187	0	130	109	167
Turn Type	Prot		Perm	Prot			Prot			Prot		custom
Protected Phases	5	2		1	6		3	8		7		4
Permitted Phases			2									6
Actuated Green, G (s)	15.8	46.1	46.1	7.5	37.7		11.4	14.1		9.5	11.7	37.7
Effective Green, g (s)	15.4	47.3	47.3	7.1	39.0		11.0	14.2		9.1	12.3	39.0
Actuated g/C Ratio	0.16	0.50	0.50	0.08	0.42		0.12	0.15		0.10	0.13	0.42
Clearance Time (s)	3.6	5.2	5.2	3.6	5.3		3.6	4.1		3.6	4.6	5.3
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	564	1786	799	134	2095		403	273		172	245	659
v/s Ratio Prot	c0.13	0.23		0.06	c0.32		c0.08	c0.10		0.07	0.06	
v/s Ratio Perm			0.12									0.11
v/c Ratio	0.77	0.46	0.25	0.73	0.78		0.70	0.68		0.76	0.44	0.25
Uniform Delay, d1	37.5	15.0	13.1	42.4	23.6		39.8	37.6		41.2	37.6	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	0.1	0.1	16.1	1.7		4.5	5.5		15.3	0.5	0.1
Delay (s)	43.4	15.1	13.2	58.5	25.3		44.3	43.2		56.6	38.0	17.9
Level of Service	D	B	B	E	C		D	D		E	D	B
Approach Delay (s)		22.2			27.2			43.8			29.2	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM Average Control Delay			27.4			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			93.7			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			70.5%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												























HCM Signalized Intersection Capacity Analysis
1: E 1st Ave & Mangrove Ave

Cumulative Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
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)	1770	1863	1583	1770	1863	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	160	420	110	190	570	120	180	820	160	220	760	100
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	457	120	207	620	130	196	891	174	239	826	109
RTOR Reduction (vph)	0	0	73	0	0	88	0	0	59	0	0	50
Lane Group Flow (vph)	174	457	47	207	620	42	196	891	115	239	826	59
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	9.9	27.0	27.0	12.0	29.1	29.1	11.6	23.7	23.7	12.9	25.0	25.0
Effective Green, g (s)	9.0	26.9	26.9	11.1	29.0	29.0	10.7	24.0	24.0	12.0	25.3	25.3
Actuated g/C Ratio	0.10	0.30	0.30	0.12	0.32	0.32	0.12	0.27	0.27	0.13	0.28	0.28
Clearance Time (s)	3.1	3.9	3.9	3.1	3.9	3.9	3.1	4.3	4.3	3.1	4.3	4.3
Vehicle Extension (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.5	2.5	2.5	1.0	2.5	2.5
Lane Grp Cap (vph)	177	557	473	218	600	510	210	944	422	236	995	445
v/s Ratio Prot	0.10	0.25		c0.12	c0.33		0.11	c0.25		c0.14	0.23	
v/s Ratio Perm			0.03			0.03			0.07			0.04
v/c Ratio	0.98	0.82	0.10	0.95	1.03	0.08	0.93	0.94	0.27	1.01	0.83	0.13
Uniform Delay, d1	40.4	29.3	22.8	39.2	30.5	21.2	39.3	32.3	26.1	39.0	30.3	24.2
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	62.2	9.0	0.0	45.9	45.6	0.0	43.1	17.2	0.3	61.9	5.9	0.1
Delay (s)	102.6	38.3	22.8	85.1	76.1	21.3	82.4	49.6	26.3	100.9	36.2	24.3
Level of Service	F	D	C	F	E	C	F	D	C	F	D	C
Approach Delay (s)		50.7			70.6			51.5			48.3	
Approach LOS		D			E			D			D	
Intersection Summary												
HCM Average Control Delay			54.8	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			87.1%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

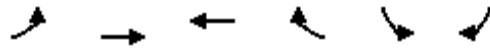
HCM Signalized Intersection Capacity Analysis
2: E 5th St & Mangrove Ave

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1786		1770	1784		1770	3463		1770	3507	
Flt Permitted	0.20	1.00		0.25	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	380	1786		469	1784		1770	3463		1770	3507	
Volume (vph)	70	210	80	100	230	90	90	950	160	130	940	60
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	228	87	109	250	98	98	1033	174	141	1022	65
RTOR Reduction (vph)	0	16	0	0	16	0	0	13	0	0	4	0
Lane Group Flow (vph)	76	299	0	109	332	0	98	1194	0	141	1083	0
Turn Type	Perm		Perm		Prot		Prot					
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8									
Actuated Green, G (s)	20.0	20.0		20.0	20.0		7.3	49.0		10.0	51.7	
Effective Green, g (s)	19.6	19.6		19.6	19.6		6.4	49.3		9.1	52.0	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.07	0.55		0.10	0.58	
Clearance Time (s)	3.6	3.6		3.6	3.6		3.1	4.3		3.1	4.3	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	83	389		102	389		126	1897		179	2026	
v/s Ratio Prot		0.17			0.19		0.06	c0.34		c0.08	c0.31	
v/s Ratio Perm	0.20			c0.23								
v/c Ratio	0.92	0.77		1.07	0.85		0.78	0.63		0.79	0.53	
Uniform Delay, d1	34.4	33.1		35.2	33.8		41.1	14.0		39.5	11.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	69.6	8.0		108.8	15.8		23.5	1.6		18.7	1.0	
Delay (s)	104.0	41.1		144.0	49.6		64.6	15.6		58.2	12.6	
Level of Service	F	D		F	D		E	B		E	B	
Approach Delay (s)		53.3			72.1			19.3			17.9	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM Average Control Delay			29.9	HCM Level of Service				C				
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			73.6%	ICU Level of Service				D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: Park Ave & E 20th Street

Cumulative Conditions
PM Peak Hour





























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	470	510	870	170	150	330
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	554	946	185	163	359
RTOR Reduction (vph)	0	0	0	80	0	300
Lane Group Flow (vph)	511	554	946	105	163	59
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	21.6	46.0	21.8	21.8	10.3	10.3
Effective Green, g (s)	20.6	46.5	21.9	21.9	10.8	10.8
Actuated g/C Ratio	0.32	0.71	0.34	0.34	0.17	0.17
Clearance Time (s)	3.0	4.5	4.1	4.1	4.5	4.5
Vehicle Extension (s)	0.5	3.0	3.0	3.0	3.5	3.5
Lane Grp Cap (vph)	558	2520	1187	531	568	262
v/s Ratio Prot	c0.29	0.16	c0.27		c0.05	
v/s Ratio Perm				0.07		0.04
v/c Ratio	0.92	0.22	0.80	0.20	0.29	0.23
Uniform Delay, d1	21.5	3.2	19.7	15.4	23.9	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.4	0.0	3.8	0.2	0.3	0.5
Delay (s)	40.9	3.3	23.5	15.6	24.2	24.2
Level of Service	D	A	C	B	C	C
Approach Delay (s)		21.3	22.2		24.2	
Approach LOS		C	C		C	

Intersection Summary

HCM Average Control Delay	22.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			





























HCM Signalized Intersection Capacity Analysis
 4: E 20th Street & Dr Martin Luther King Jr Pkwy

Cumulative Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
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)	1770	3539	1583	3433	3497		1770	1863	1583	1770	1723	
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)	1770	3539	1583	3433	3497		1770	1863	1583	1770	1723	
Volume (vph)	30	1070	260	610	820	70	220	20	520	30	20	20
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1163	283	663	891	76	239	22	565	33	22	22
RTOR Reduction (vph)	0	0	77	0	4	0	0	0	293	0	20	0
Lane Group Flow (vph)	33	1163	206	663	963	0	239	22	272	33	24	0
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Actuated Green, G (s)	3.6	38.7	38.7	23.8	59.0		17.4	23.5	23.5	2.7	8.8	
Effective Green, g (s)	2.6	38.8	38.8	22.8	59.0		16.4	22.5	22.5	1.7	7.8	
Actuated g/C Ratio	0.03	0.38	0.38	0.22	0.58		0.16	0.22	0.22	0.02	0.08	
Clearance Time (s)	3.0	4.1	4.1	3.0	4.0		3.0	3.0	3.0	3.0	3.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	45	1349	603	769	2027		285	412	350	30	132	
v/s Ratio Prot	0.02	c0.33		c0.19	0.28		c0.14	0.01		0.02	0.01	
v/s Ratio Perm			0.13						c0.17			
v/c Ratio	0.73	0.86	0.34	0.86	0.47		0.84	0.05	0.78	1.10	0.18	
Uniform Delay, d1	49.3	29.0	22.4	38.0	12.4		41.4	31.3	37.3	50.0	44.0	
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	41.0	5.7	0.1	9.5	0.1		18.2	0.0	9.5	196.3	0.2	
Delay (s)	90.3	34.7	22.5	47.5	12.5		59.6	31.3	46.8	246.3	44.2	
Level of Service	F	C	C	D	B		E	C	D	F	D	
Approach Delay (s)		33.6			26.7			50.1			130.9	
Approach LOS		C			C			D			F	
Intersection Summary												
HCM Average Control Delay			36.1				HCM Level of Service				D	
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			101.8				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			75.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Eaton Road & Cohasset Road






















Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
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)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	130	270	170	10	250	110	170	380	10	270	670	330
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	293	185	11	272	120	185	413	11	293	728	359
RTOR Reduction (vph)	0	0	144	0	0	97	0	0	8	0	0	182
Lane Group Flow (vph)	141	293	41	11	272	23	185	413	3	293	728	177
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.3	13.5	13.5	5.2	11.4	11.4	9.6	16.5	16.5	14.6	21.5	21.5
Effective Green, g (s)	6.3	14.5	14.5	4.2	12.4	12.4	8.6	17.5	17.5	13.6	22.5	22.5
Actuated g/C Ratio	0.10	0.22	0.22	0.06	0.19	0.19	0.13	0.27	0.27	0.21	0.34	0.34
Clearance Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Vehicle Extension (s)	2.5	2.5	2.5	0.5	2.5	2.5	0.5	3.0	3.0	0.5	3.0	3.0
Lane Grp Cap (vph)	169	780	349	113	667	298	231	941	421	366	1210	541
v/s Ratio Prot	c0.08	c0.08		0.01	0.08		0.10	0.12		c0.17	c0.21	
v/s Ratio Perm			0.03			0.01			0.00			0.11
v/c Ratio	0.83	0.38	0.12	0.10	0.41	0.08	0.80	0.44	0.01	0.80	0.60	0.33
Uniform Delay, d1	29.2	21.8	20.5	29.0	23.5	22.0	27.8	20.1	17.8	24.8	17.9	16.0
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	27.9	0.2	0.1	0.1	0.3	0.1	16.9	0.3	0.0	11.2	0.8	0.4
Delay (s)	57.1	22.0	20.6	29.2	23.8	22.1	44.6	20.4	17.8	36.0	18.8	16.4
Level of Service	E	C	C	C	C	C	D	C	B	D	B	B
Approach Delay (s)		29.6			23.4			27.7			21.8	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM Average Control Delay	24.8	HCM Level of Service C
HCM Volume to Capacity ratio	0.57	
Actuated Cycle Length (s)	65.8	Sum of lost time (s) 8.0
Intersection Capacity Utilization	55.4%	ICU Level of Service B
Analysis Period (min)	15	
c Critical Lane Group		













HCM Signalized Intersection Capacity Analysis
6: Eaton Road & Hicks Lane

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.93		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)	1770	3519		1770	3420		1770	1723		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3519		1770	3420		1770	1723		1770	1863	1583
Volume (vph)	520	760	30	10	790	230	10	10	10	180	10	400
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	565	826	33	11	859	250	11	11	11	196	11	435
RTOR Reduction (vph)	0	2	0	0	19	0	0	10	0	0	0	380
Lane Group Flow (vph)	565	857	0	11	1090	0	11	12	0	196	11	55
Turn Type	Prot			Prot			Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases												6
Actuated Green, G (s)	41.0	84.4		0.8	44.2		6.5	6.5		15.6	15.6	15.6
Effective Green, g (s)	41.0	84.4		0.8	44.2		6.5	6.5		15.6	15.6	15.6
Actuated g/C Ratio	0.33	0.68		0.01	0.36		0.05	0.05		0.13	0.13	0.13
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)	589	2409		11	1226		93	91		224	236	200
v/s Ratio Prot	c0.32	0.24		0.01	c0.32		0.01	c0.01		c0.11	0.01	
v/s Ratio Perm												0.03
v/c Ratio	0.96	0.36		1.00	0.89		0.12	0.13		0.88	0.05	0.28
Uniform Delay, d1	40.3	8.1		61.2	37.2		55.7	55.7		52.9	47.3	48.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	26.9	0.1		271.4	8.2		0.6	0.6		29.3	0.1	0.7
Delay (s)	67.2	8.2		332.6	45.4		56.2	56.3		82.2	47.4	49.5
Level of Service	E	A		F	D		E	E		F	D	D
Approach Delay (s)		31.6			48.2			56.3			59.4	
Approach LOS		C			D			E			E	
Intersection Summary												
HCM Average Control Delay			43.2	HCM Level of Service				D				
HCM Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			123.3	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			84.6%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

























HCM Signalized Intersection Capacity Analysis
7: Cohasset Road & Esplanade

Cumulative Conditions
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	1583	3371		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	1583	3371		1770	3539
Volume (vph)	490	260	910	420	210	610
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	533	283	989	457	228	663
RTOR Reduction (vph)	0	224	68	0	0	0
Lane Group Flow (vph)	533	59	1378	0	228	663
Turn Type	custom			Prot		
Protected Phases	3		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	14.2	13.2	30.6		11.5	45.1
Effective Green, g (s)	14.2	14.2	31.6		10.5	46.1
Actuated g/C Ratio	0.21	0.21	0.46		0.15	0.67
Clearance Time (s)	4.0	5.0	5.0		3.0	5.0
Vehicle Extension (s)	1.5	3.5	2.0		1.2	2.0
Lane Grp Cap (vph)	714	329	1560		272	2389
v/s Ratio Prot	c0.16		c0.41		c0.13	0.19
v/s Ratio Perm		0.04				
v/c Ratio	0.75	0.18	0.88		0.84	0.28
Uniform Delay, d1	25.4	22.3	16.7		28.1	4.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.7	0.3	6.1		18.9	0.0
Delay (s)	29.1	22.6	22.8		47.0	4.5
Level of Service	C	C	C		D	A
Approach Delay (s)	26.8		22.8			15.3
Approach LOS	C		C			B
Intersection Summary						
HCM Average Control Delay			21.7		HCM Level of Service	C
HCM Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			68.3		Sum of lost time (s)	12.0
Intersection Capacity Utilization			74.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
8: Vallombrosa Ave & Mangrove Ave




















Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00	0.95	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	0.98	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1681	1732	1583	1681	1754	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	0.00	1.00	0.95	0.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1681	0	1583	1681	0	1583	1770	3539	1583	1770	3539	1583
Volume (vph)	680	280	100	290	210	120	150	580	260	130	530	370
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	739	304	109	315	228	130	163	630	283	141	576	402
RTOR Reduction (vph)	0	0	79	0	0	96	0	0	228	0	0	320
Lane Group Flow (vph)	508	535	30	264	279	34	163	630	55	141	576	82
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	26.0	26.0	25.0	25.0	25.0	24.0	9.0	17.8	17.8	8.8	17.6	17.6
Effective Green, g (s)	25.0	25.0	24.5	24.0	24.0	23.5	8.0	17.3	17.3	7.8	17.1	17.1
Actuated g/C Ratio	0.28	0.28	0.27	0.27	0.27	0.26	0.09	0.19	0.19	0.09	0.19	0.19
Clearance Time (s)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.5
Vehicle Extension (s)	0.5	1.0	1.0	0.5	1.0	1.0	2.0	3.0	3.0	1.0	3.0	3.0
Lane Grp Cap (vph)	469	483	433	450	470	415	158	683	306	154	675	302
v/s Ratio Prot	0.30	c0.31		0.16	c0.16		c0.09	c0.18		0.08	0.16	
v/s Ratio Perm			0.02			0.02			0.03			0.05
v/c Ratio	1.08	1.11	0.07	0.59	0.59	0.08	1.03	0.92	0.18	0.92	0.85	0.27
Uniform Delay, d1	32.3	32.3	24.1	28.5	28.6	24.9	40.8	35.5	30.2	40.6	35.0	30.9
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	65.8	73.7	0.0	1.3	1.3	0.0	80.2	18.0	0.3	47.3	10.2	0.5
Delay (s)	98.1	106.0	24.1	29.8	29.9	24.9	121.0	53.5	30.5	87.9	45.2	31.4
Level of Service	F	F	C	C	C	C	F	D	C	F	D	C
Approach Delay (s)		94.8			28.9			57.7			45.7	
Approach LOS		F			C			E			D	

Intersection Summary		
HCM Average Control Delay	60.1	HCM Level of Service E
HCM Volume to Capacity ratio	0.81	
Actuated Cycle Length (s)	89.6	Sum of lost time (s) 8.0
Intersection Capacity Utilization	76.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		













HCM Signalized Intersection Capacity Analysis
9: Hegan Lane & Midway

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0					4.0	4.0			4.0	4.0
Lane Util. Factor		1.00					1.00	1.00			1.00	1.00
Frt		0.98					1.00	1.00			1.00	0.85
Flt Protected		0.96					0.95	1.00			1.00	1.00
Satd. Flow (prot)		1749					1770	1863			1863	1583
Flt Permitted		0.76					0.95	1.00			1.00	1.00
Satd. Flow (perm)		1385					1770	1863			1863	1583
Volume (vph)	260	0	50	0	0	0	90	490	0	0	320	370
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	0	54	0	0	0	98	533	0	0	348	402
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	189
Lane Group Flow (vph)	0	325	0	0	0	0	98	533	0	0	348	213
Turn Type	Perm			Perm			Prot			Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		16.6					4.7	33.1			24.4	24.4
Effective Green, g (s)		16.6					4.7	33.1			24.4	24.4
Actuated g/C Ratio		0.29					0.08	0.57			0.42	0.42
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)		398					144	1069			788	669
v/s Ratio Prot							c0.06	c0.29			0.19	
v/s Ratio Perm		c0.23										0.13
v/c Ratio		0.82					0.68	0.50			0.44	0.32
Uniform Delay, d1		19.1					25.8	7.3			11.8	11.1
Progression Factor		1.00					1.00	1.00			1.00	1.00
Incremental Delay, d2		12.2					12.4	1.7			1.8	1.2
Delay (s)		31.3					38.2	9.0			13.6	12.4
Level of Service		C					D	A			B	B
Approach Delay (s)		31.3			0.0			13.5			12.9	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM Average Control Delay			16.8				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			57.7				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			56.6%				ICU Level of Service				B	
Analysis Period (min)			15									
c	Critical Lane Group											




























HCM Signalized Intersection Capacity Analysis
 10: E Park Ave & Midway

Cumulative Conditions
 PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	1583	1681	1770
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	1583	1681	1770
Volume (vph)	470	330	690	540	330	470
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	511	359	750	587	359	511
RTOR Reduction (vph)	0	282	0	191	0	0
Lane Group Flow (vph)	511	77	750	396	359	511
Turn Type	custom		Perm		Prot	
Protected Phases	3		2		1 6	
Permitted Phases	8		2			
Actuated Green, G (s)	22.1	27.4	59.7	59.7	31.0	96.2
Effective Green, g (s)	22.1	28.4	60.7	60.7	32.0	96.7
Actuated g/C Ratio	0.17	0.21	0.46	0.46	0.24	0.73
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	4.5
Vehicle Extension (s)	1.0	3.5	2.5	2.5	1.0	3.5
Lane Grp Cap (vph)	570	338	850	722	404	1286
v/s Ratio Prot	c0.15		c0.40		c0.21 0.10	
v/s Ratio Perm	c0.05		0.25		0.19	
v/c Ratio	0.90	0.23	0.88	0.55	0.89	0.40
Uniform Delay, d1	54.4	43.3	32.9	26.2	48.8	7.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.3	0.4	10.6	0.7	19.9	0.2
Delay (s)	70.6	43.7	43.6	26.9	68.8	7.2
Level of Service	E	D	D	C	E	A
Approach Delay (s)	59.5		36.3		32.6	
Approach LOS	E		D		C	
Intersection Summary						
HCM Average Control Delay			41.8	HCM Level of Service		D
HCM Volume to Capacity ratio			0.85			
Actuated Cycle Length (s)			133.1	Sum of lost time (s)		12.0
Intersection Capacity Utilization			84.5%	ICU Level of Service		E
Analysis Period (min)			15			
c Critical Lane Group						
























HCM Signalized Intersection Capacity Analysis
11: E 20th Street & Forest Ave

Cumulative Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93	
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)	1770	3450		1770	3539	1583	1770	3539	1583	1770	3292	
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)	1770	3450		1770	3539	1583	1770	3539	1583	1770	3292	
Volume (vph)	570	990	200	160	390	90	600	660	130	250	320	280
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	620	1076	217	174	424	98	652	717	141	272	348	304
RTOR Reduction (vph)	0	12	0	0	0	68	0	0	64	0	127	0
Lane Group Flow (vph)	620	1281	0	174	424	30	652	717	77	272	525	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	20.2	40.3		15.4	35.5	35.5	20.2	28.6	28.6	20.2	28.6	
Effective Green, g (s)	19.2	40.8		14.4	36.0	36.0	19.2	29.1	29.1	19.2	29.1	
Actuated g/C Ratio	0.16	0.34		0.12	0.30	0.30	0.16	0.24	0.24	0.16	0.24	
Clearance Time (s)	3.0	4.5		3.0	4.5	4.5	3.0	4.5	4.5	3.0	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	284	1178		213	1066	477	284	862	385	284	802	
v/s Ratio Prot	c0.35	c0.37		0.10	0.12		c0.37	c0.20		0.15	0.16	
v/s Ratio Perm						0.02			0.05			
v/c Ratio	2.18	1.09		0.82	0.40	0.06	2.30	0.83	0.20	0.96	0.65	
Uniform Delay, d1	50.1	39.4		51.3	33.1	29.7	50.1	42.9	35.9	49.7	40.7	
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	543.8	53.4		20.0	0.1	0.0	594.1	6.6	0.1	41.2	1.5	
Delay (s)	594.0	92.8		71.2	33.2	29.7	644.3	49.5	36.0	91.0	42.2	
Level of Service	F	F		E	C	C	F	D	D	F	D	
Approach Delay (s)		255.2			42.2			305.0			56.5	
Approach LOS		F			D			F			E	
Intersection Summary												
HCM Average Control Delay		204.3					HCM Level of Service		F			
HCM Volume to Capacity ratio		1.41										
Actuated Cycle Length (s)		119.5					Sum of lost time (s)		12.0			
Intersection Capacity Utilization		107.0%					ICU Level of Service		G			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: Nord Ave (CA-32) & W 2nd St

Cumulative Conditions
 PM Peak Hour

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.98			0.95			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	1.00
Satd. Flow (prot)	1770	3533		1770	3479			1747			1813	1583
Flt Permitted	0.22	1.00		0.28	1.00			0.86			0.77	1.00
Satd. Flow (perm)	407	3533		520	3479			1524			1430	1583
Volume (vph)	170	820	10	60	860	110	50	70	70	110	90	180
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	891	11	65	935	120	54	76	76	120	98	196
RTOR Reduction (vph)	0	2	0	0	19	0	0	41	0	0	0	35
Lane Group Flow (vph)	185	900	0	65	1036	0	0	165	0	0	218	161
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Actuated Green, G (s)	19.8	19.8		19.8	19.8			9.6			9.6	9.6
Effective Green, g (s)	19.8	19.8		19.8	19.8			9.6			9.6	9.6
Actuated g/C Ratio	0.53	0.53		0.53	0.53			0.26			0.26	0.26
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)	215	1870		275	1842			391			367	406
v/s Ratio Prot		0.25			0.30							
v/s Ratio Perm	c0.45			0.13				0.11			c0.15	0.10
v/c Ratio	0.86	0.48		0.24	0.56			0.42			0.59	0.40
Uniform Delay, d1	7.6	5.6		4.7	5.9			11.6			12.2	11.5
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	33.6	0.9		2.0	1.2			0.7			2.6	0.6
Delay (s)	41.2	6.4		6.7	7.1			12.3			14.8	12.1
Level of Service	D	A		A	A			B			B	B
Approach Delay (s)		12.4			7.1			12.3			13.5	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay			10.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			37.4			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			67.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												





























HCM Signalized Intersection Capacity Analysis
13: E Lassen Ave & Esplanade

Cumulative Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.92		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1798		1770	1715		1770	3454		1770	3508	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1798		1770	1715		1770	3454		1770	3508	
Volume (vph)	50	300	90	380	170	190	40	940	180	180	640	40
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	326	98	413	185	207	43	1022	196	196	696	43
RTOR Reduction (vph)	0	9	0	0	30	0	0	13	0	0	3	0
Lane Group Flow (vph)	54	415	0	413	362	0	43	1205	0	196	736	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.1	29.4		20.0	43.3		5.5	40.8		14.5	49.8	
Effective Green, g (s)	5.6	30.0		19.5	43.9		5.0	41.4		14.0	50.4	
Actuated g/C Ratio	0.05	0.25		0.16	0.36		0.04	0.34		0.12	0.42	
Clearance Time (s)	3.5	4.6		3.5	4.6		3.5	4.6		3.5	4.6	
Vehicle Extension (s)	1.0	2.0		2.0	2.0		1.0	3.0		1.0	3.0	
Lane Grp Cap (vph)	82	446		285	623		73	1183		205	1462	
v/s Ratio Prot	0.03	c0.23		c0.23	0.21		0.02	c0.35		c0.11	0.21	
v/s Ratio Perm												
v/c Ratio	0.66	0.93		1.45	0.58		0.59	1.02		0.96	0.50	
Uniform Delay, d1	56.7	44.4		50.7	31.1		56.9	39.8		53.1	26.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.6	25.8		220.8	0.9		7.6	30.9		49.6	0.3	
Delay (s)	70.3	70.3		271.5	32.0		64.5	70.6		102.7	26.3	
Level of Service	E	E		F	C		E	E		F	C	
Approach Delay (s)		70.3			154.8			70.4			42.3	
Approach LOS		E			F			E			D	
Intersection Summary												
HCM Average Control Delay			82.4			HCM Level of Service				F		
HCM Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			120.9			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			97.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 14: E Park Ave & Notre Dame Blvd

Cumulative Conditions
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			  		 				 		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.91		0.97	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3433	3539	1583	1770	5027		3433	1805		1770	1863	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3433	3539	1583	1770	5027		3433	1805		1770	1863	1583	
Volume (vph)	1090	1520	240	90	1090	90	360	270	70	230	140	990	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	1185	1652	261	98	1185	98	391	293	76	250	152	1076	
RTOR Reduction (vph)	0	0	67	0	8	0	0	7	0	0	0	574	
Lane Group Flow (vph)	1185	1652	194	98	1275	0	391	362	0	250	152	502	
Turn Type	Prot		Perm	Prot			Prot			Prot		custom	
Protected Phases	5	2		1	6		3	8		7		4	
Permitted Phases			2									6	
Actuated Green, G (s)	25.1	50.5	50.5	9.8	35.1		14.9	21.0		19.8	25.4	35.1	
Effective Green, g (s)	24.7	51.7	51.7	9.4	36.4		14.5	21.1		19.4	26.0	36.4	
Actuated g/C Ratio	0.21	0.44	0.44	0.08	0.31		0.12	0.18		0.16	0.22	0.31	
Clearance Time (s)	3.6	5.2	5.2	3.6	5.3		3.6	4.1		3.6	4.6	5.3	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)	721	1556	696	141	1556		423	324		292	412	490	
v/s Ratio Prot	c0.35	c0.47		0.06	0.25		0.11	c0.20		c0.14	0.08		
v/s Ratio Perm			0.12									0.32	
v/c Ratio	1.64	1.06	0.28	0.70	0.82		0.92	1.12		0.86	0.37	1.02	
Uniform Delay, d1	46.4	32.9	21.0	52.7	37.6		51.0	48.2		47.7	38.8	40.6	
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	295.8	41.2	0.1	11.3	3.3		25.5	85.0		20.4	0.2	47.2	
Delay (s)	342.3	74.1	21.1	64.0	40.9		76.5	133.3		68.1	39.0	87.8	
Level of Service	F	E	C	E	D		E	F		E	D	F	
Approach Delay (s)		172.2			42.5			104.1			79.4		
Approach LOS		F			D			F			E		
Intersection Summary													
HCM Average Control Delay			117.4			HCM Level of Service							F
HCM Volume to Capacity ratio			1.16										
Actuated Cycle Length (s)			117.6			Sum of lost time (s)							12.0
Intersection Capacity Utilization			104.6%			ICU Level of Service							G
Analysis Period (min)			15										
c Critical Lane Group													