



APPENDIX F

EXISTING CONDITIONS CAPACITY ANALYSIS

INTERSECTION		Friday Peak Hour of Street Traffic						Friday Casino Peak Hour						Saturday Casino Peak Hour					
		EXISTING CONDITIONS			BUILD CONDITIONS			EXISTING CONDITIONS			BUILD CONDITIONS			EXISTING CONDITIONS			BUILD CONDITIONS		
		LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)
8th Street & Callowhill Street	Overall Intersection	B	13.7	-	B	13.8	-	B	12.3	-	B	12.6	-	B	12.0	-	B	12.4	-
	WB Left	B	13.8	132.0	B	14.4	146.0	B	13.5	123.0	B	14.2	140.0	B	13.4	120.0	B	14.3	145.0
	WB Thru	B	14.5	163.0	B	14.5	163.0	B	12.3	95.0	B	12.3	95.0	B	11.7	77.0	B	11.7	77.0
	SB Thru/Right	B	12.2	89.0	B	12.2	89.0	B	11.2	55.0	B	11.2	55.0	B	10.9	47.0	B	10.9	47.0
8th Street & Vine Street (Westbound Local)	Overall Intersection	C	20.6	-	C	20.1	-	B	20.0	-	B	19.3	-	B	19.9	-	B	19.0	-
	WB Left	B	10.7	m68	B	10.7	89.0	B	11.5	54.0	B	11.6	82.0	B	11.5	60.0	B	11.7	102.0
	WB Thru	B	19.6	386.0	B	19.1	394.0	B	18.9	312.0	B	18.3	319.0	B	19.2	337.0	B	18.4	348.0
	SB Thru/Right	C	26.8	163.0	C	27.1	169.0	C	26.0	127.0	C	26.0	136.0	C	25.4	116.0	C	25.8	128.0
8th Street & Vine Street (Eastbound Local)	Overall Intersection	E	57.3	-	E	58.2	-	C	26.9	-	C	29.9	-	C	27.1	-	C	30.3	-
	EB Thru (Vine)	D	51.0	#267	E	55.7	#284	D	35.4	132	D	36.2	144	C	34.3	112	D	35.4	130
	EB Right (Vine)	F	123.1	#317	F	123.1	#317	D	37.4	115	D	37.4	115	D	35.6	100	D	35.6	100
	EB Thru/Right (Ramp V8)	B	12.8	96	B	13.5	123	B	14.5	167	B	15.7	206	B	14.5	170	B	15.5	206
	EB Right (Ramp V8)	B	13.0	93	B	13.7	122	B	14.7	157	B	16.1	204	B	13.7	121	B	16.1	206
	SB Left/Thru	C	34.4	190	D	42.4	#235	C	31.7	124	D	40.7	164	D	36.0	109	D	43.9	167
7th Street & Vine Street (SR 301/676 WB Local)	Overall Intersection	C	20.3	-	C	20.7	-	B	17.8	-	B	18.1	-	B	17.7	-	B	18.3	-
	WB Thru	C	20.2	297	C	20.7	315	B	17.9	217	B	18.4	236	B	18.2	227	B	19.0	255
	WB Right	B	13.1	0	B	13.1	0	B	13.1	1	B	13.1	1	B	13.1	0	B	13.1	0
	NB Left	B	16.7	113	B	17.4	142	B	16.0	86	B	16.8	119	B	15.8	78	B	17.1	126
Franklin Street & Vine Street (Eastbound Local)	Overall Intersection	B	19.4	-	B	20.0	-	B	17.2	-	B	17.7	-	B	16.9	-	B	17.8	-
	EB Left	B	18.5	154	B	18.7	163	B	16.8	69	B	17.2	94	B	16.4	50	B	17.1	87
	NB Thru	C	20.2	228	C	20.9	255	B	17.5	125	B	18.2	151	B	17.4	119	B	18.3	157
9th Street & Vine Street (Eastbound Local)	Overall Intersection	A	2.3	-	A	2.8	-	A	2.3	-	A	2.8	-	A	2.6	-	A	3.4	-
	EB Thru	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0.0	A	0.0	0.0
	NB Right	B	15.0	34	C	15.8	42	B	10.4	12	B	10.6	16	B	10.2	13.0	B	10.5	19.0
7th Street & Franklin Street	Overall Intersection	A	2.8	-	A	3.7	-	A	3.0	-	A	4.2	-	A	2.8	-	A	4.2	-
	EB Left	B	11.9	40	B	13.4	61	B	11.1	24	B	12.2	42	B	10.0	18	B	11.1	39
	NB Thru	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0	A	0.0	0
9th Street & Site Exit	Overall Intersection	-	-	-	A	3.1	-	-	-	-	A	5.2	-	-	-	-	A	8.1	-
	WB Right	-	-	-	B	10.9	35	-	-	-	B	12.6	52	-	-	-	C	16.6	113.0
	NB Thru	-	-	-	A	0.0	0	-	-	-	A	0.0	0	-	-	-	A	0.0	0.0
8th Street & Parking Lot	Overall Intersection	-	-	-	A	2.7	-	-	-	-	A	2.3	-	-	-	-	A	3.9	-
	SB Left/Thru	-	-	-	A	2.5	4	-	-	-	A	2.7	6.0	-	-	-	A	3.7	9
	SB Thru	-	-	-	A	0.0	0	-	-	-	A	0.0	0.0	-	-	-	A	0.0	0
	WB Left	-	-	-	C	15.1	20	-	-	-	B	11.3	15.0	-	-	-	C	15.4	36
8th Street & Site Driveway	Overall Intersection	-	-	-	A	0.0	-	-	-	-	A	0.0	-	-	-	-	A	0.0	-
	SB Right	-	-	-	A	0.0	0	-	-	-	A	0.0	0	-	-	-	A	0.0	0
	SB Thru	-	-	-	A	0.0	0	-	-	-	A	0.0	0	-	-	-	A	0.0	0
2nd Street & Race Street	Overall Intersection	B	17.3	-	B	17.3	-	B	14.5	-	B	14.6	-	B	12.3	-	B	12.3	-
	EB Thru/Right	B	15.2	229	B	15.3	230	B	11.1	143	B	11.3	148	A	9.4	87	A	9.4	88
	SB Left/Thru	C	20.5	172	C	20.5	172	B	18.7	152	B	18.7	152	B	16.0	96	B	16.0	96
3rd Street & Race Street	Overall Intersection	B	14.3	-	B	14.3	-	B	14.2	-	B	14.2	-	B	12.2	-	B	12.1	-
	EB Left/Thru	B	10.2	168	B	10.2	170	B	10.2	117	B	10.2	118	A	6.8	33	A	6.7	33
	NB Thru/Right	C	23.0	163	C	23.0	163	C	21.9	133	C	21.9	133	C	20.8	101	C	20.8	101
4th Street & Race Street	Overall Intersection	C	20.7	-	C	20.8	-	B	17.4	-	B	17.4	-	B	16.4	-	B	16.4	-
	EB Thru/Right	B	17.5	277	B	17.5	280	B	14.9	190	B	14.9	192	B	13.5	126	B	13.5	128
	SB Left/Thru	C	25.3	237	C	25.3	237	C	21.6	145	C	21.6	145	C	20.8	114	C	20.8	114
5th Street & Race Street	Overall Intersection	B	16.0	-	B	16.0	-	B	13.0	-	B	13.0	-	B	12.1	-	B	12.2	-
	EB Left/Thru	B	17.4	153	B	17.4	153	B	13.9	125	B	13.9	125	B	12.6	97.5	B	12.7	100.0
	EB Thru	B	18.2	245	B	18.2	248	B	14.4	158	B	14.4	160	B	12.9	112.5	B	13.0	112.5
	NB Thru	B	14.8	220	B	14.8	220	B	11.5	83	B	11.5	83	B	11.6	87.5	B	11.6	87.5
6th Street & Race Street	Overall Intersection	B	10.3	-	B	10.5	-	A	9.2	-	A	9.0	-	A	8.6	-	A	8.3	-
	EB Thru	A	8.9	151	A	9.2	161	A	5.1	20	A	5.3	25	A	4.4	15	A	4.8	21
	EB Right	A	6.7	m28	A	6.6	m28	A	4.7	14	A	4.8	14	A	4.5	13	A	4.7	15
	SB Left/Thru	B	13.7	117	B	13.7	117	B	13.3	109	B	13.3	109	B	12.6	90	B	12.6	90
7th Street & Race Street	Overall Intersection	B	17.6	-	B	17.9	-	B	14.8	-	B	15.0	-	B	15.3	-	B	15.5	-
	EB Left/Thru	B	16.6	63	B	16.3	75	C	34.7	25	C	34.7	25	D	41.1	50.0	D	41.1	50.0
	EB Thru	B	13.0	153	B	13.2	158	B	11.3	70	B	11.5	80	B	11.0	55.0	B	11.3	70.0
	NB Right	C	21.7	270	C	22.0	280	B	18.3	155	B	18.6	173	B	17.8	132.5	B	18.3	157.5
8th Street & Race Street	Overall Intersection	C	25.2	260	C	26.3	275	B	17.3	73	B	17.8	93	B	16.8	62.5	B	17.7	92.5
	EB Thru/Right	B	12.7	-	B	14.0	-	B	10.5	-	B	11.8	-	B	10.1	-	B	11.9	-
	SB Left	B	10.9	142	B	11.9	169	A	7.4	45	A	8.5	75	A	7.6	48	A	9.5	102
	SB Thru/Right	B	17.2	169	B	20.0	210	B	14.1	117	B	16.5	162	B	13.1	97	B	14.1	122
9th Street & Race Street	Overall Intersection	B	17.8	-	C	21.7	-	B	11.3	-	B	15.4	-	B	11.5	-	B	18.9	-
	EB Left/Thru	B	16.9	205	B	17.0	205	B	12.9	90	B	12.3	90	B	12.3	87	B	12.3	88
	NB Thru/Right	B	19.0	151	C	26.7	#201	B	10.2	71	B	17.6	132	B	10.8	79	C	22.8	165
5th Street & Arch Street	Overall Intersection	C	27.4	-	C	27.0	-	B	11.7	-	B	11.7	-	B	10.0	-	A	10.0	-
	WB Thru/Right	B	13.4	110	B	13.4	111	B	11.5	61	B	11.5	61	B	11.1	49.0	B	11.1	50.0
	NB Left	B	14.3	m54	B	14.3	m54	B	10.8	m43	B	10.8	m43	A	9.1	m31	A	9.0	m31
6th Street & Arch Street	Overall Intersection	C	34.9	m#239	D	34.5	m#233	B	11.9	132	B	11.9	132	A	9.7	90.0	A	9.6	92.0
	Overall Intersection	B	10.3	-	B	10.3	-	A	8.1	-	A	8.1	-	A	7.5	-	A	7.4	-
	WB Left/Thru	B	14.3	156	B	14.3	156	B	12.9	114	B	12.8	115	B	10.8	85	B	10.8	86
7th Street & Arch Street	Overall Intersection	A	7.7	56	A	7.7	56	A	5.1	28	A	5.0	28	A	5.6	29	A	5.5	30
	Overall Intersection	B	13.7	-	B	14.2	-	B	12.7	-	B	12.8	-	B	11.9	-	B	12.0	-
	WB Thru	B	12.0	105	B	12.0	106	B	12.5	88	B	12.5	90	B	11.7	73.0	B	11.8	75.0
	WB Right	B																	

INTERSECTION		Friday Peak Hour of Street Traffic						Friday Casino Peak Hour						Saturday Casino Peak Hour					
		EXISTING CONDITIONS			BUILD CONDITIONS			EXISTING CONDITIONS			BUILD CONDITIONS			EXISTING CONDITIONS			BUILD CONDITIONS		
		LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)	LOS	Delay (Secs)	95% Queue (feet)
10th Street & Arch Street	Overall Intersection	B	12.1	-	B	12.9	-	B	11.1	-	B	12.4	-	B	10.2	-	B	12.0	-
	WB Left/Thru	B	10.9	100	B	12.2	109	A	8.1	62	B	10.7	82	A	7.2	50	B	10.7	76
	SB Thru/Right	B	13.9	103	B	13.9	103	B	14.2	108	B	14.2	108	B	13.5	92	B	13.5	92
5th Street & Market Street	Overall Intersection	C	34.1	-	C	34.3	-	B	17.0	-	B	17.1	-	B	15.4	-	B	15.4	-
	EB Left	D	40.0	156	D	42.7	170	B	13.0	120	B	13.3	120	B	11.1	92.5	B	11.4	95.0
	EB Thru	A	8.0	98	A	8.1	103	A	7.6	78	A	7.6	80	A	7.5	67.5	A	7.6	77.5
	WB Thru	B	18.1	128	B	18.5	135	B	17.0	108	B	17.3	118	B	16.1	82.5	B	16.5	95.0
	WB Thru/Right	C	21.4	98	C	21.9	105	B	17.3	100	B	17.7	108	B	16.2	80.0	B	16.6	92.5
	NB Left/Thru	E	61.6	453	E	61.6	453	C	27.7	220	C	27.7	220	C	24.3	185.0	C	24.3	185.0
	NB Thru/Right	D	45.7	368	D	45.7	368	C	26.7	208	C	26.7	208	C	24.9	172.5	C	24.9	172.5
6th Street & Market Street	Overall Intersection	C	21.4	-	C	21.5	-	B	18.7	-	B	18.7	-	B	17.7	-	B	17.9	-
	EB Thru	C	23.3	308	C	23.6	315	C	20.1	223	C	20.4	233	B	19.7	207.5	C	20.0	220.0
	EB Right	B	18.3	80	B	18.8	93	B	16.8	60	B	17.2	70	B	17.0	65.0	B	17.6	85.0
	WB Left	C	28.8	43	C	29.6	43	C	20.7	43	C	21.3	43	B	18.5	27.5	B	19.4	30.0
	WB Thru	B	10.9	45	B	11.0	50	B	11.1	60	B	11.2	65	B	11.0	55.0	B	11.2	62.5
	SB Left/Thru	C	22.9	253	C	22.9	253	C	21.4	218	C	21.4	218	B	19.7	170.0	B	19.7	170.0
	SB Thru	C	21.7	253	C	21.7	253	C	20.5	218	C	20.5	218	B	19.0	172.5	B	19.0	172.5
	SB Right	C	20.6	90	C	20.6	90	B	17.5	50	B	17.5	50	B	16.2	27.5	B	16.2	27.5
Market Street & 7th Street	Overall Intersection	C	26.2	-	C	30.0	-	B	17.9	-	B	18.8	-	B	17.2	-	B	18.8	-
	EB Thru	B	17.9	253	B	13.9	218	B	15.5	163	B	15.7	172.5	B	15.0	128	B	15.3	148
	WB Thru	B	11.6	78	B	11.6	78	B	14.4	90	B	14.4	90	B	14.4	90	B	14.4	90
	WB Right	B	11.1	43	B	11.4	58	B	13.0	25	B	13.5	42.5	B	13.3	33	B	14.1	65
	NB Left/Thru	D	47.9	418	E	67.9	528	C	24.3	190	C	26.5	227.5	C	23.3	165	C	26.6	228
	NB Thru/Right	D	39.4	343	D	47.4	400	C	23.5	183	C	25.1	217.5	C	23.1	150	C	25.6	210
Market Street & 8th Street	Overall Intersection	B	13.8	-	C	22.4	-	B	15.3	-	C	34.0	-	B	14.2	-	D	49.9	-
	EB Thru	A	0.5	8	A	0.8	7.5	A	0.4	5	A	0.5	7.5	A	0.4	5	A	0.6	8
	EB Thru/Right	A	1.5	13	A	1.8	15.0	A	0.9	10	A	1.4	12.5	A	1.0	10	A	2.3	15
	WB Thru	B	15.6	175	B	15.6	177.5	B	14.8	140	B	14.8	142.5	B	14.4	120	B	14.5	125
	SB Left/Thru	C	30.8	275	D	54.4	462.5	C	31.9	308	F	80.8	647.5	C	29.9	283	F	118.6	863
	SB Thru/Right	C	31.9	215	D	47.1	335.0	C	30.5	250	E	58.7	450.0	C	29.1	228	F	84.7	578
Market Street & 9th Street	Overall Intersection	B	10.6	-	D	48.6	-	A	6.2	-	B	18.5	-	A	7.1	-	D	50.9	-
	EB Thru	A	0.5	5.0	A	0.5	5.0	A	0.3	2.5	A	0.3	2.5	A	0.2	2.5	A	0.2	2.5
	WB Thru	A	1.5	15.0	A	1.5	15.0	A	1.2	12.5	A	1.2	12.5	A	0.6	7.5	A	0.6	7.5
	WB Thru/Right	A	1.5	15.0	A	1.7	15.0	A	1.2	12.5	A	1.2	12.5	A	0.7	7.5	A	0.7	7.5
	NB Left/Thru	C	34.1	277.5	F	132.1	847.5	C	24.3	192.5	D	51.2	460.0	C	24.0	185.0	F	112.0	815.0
	NB Thru/Right	D	39.4	223	F	132.4	528	C	25.0	137.5	D	47.0	292.5	C	25.3	127.5	F	98.0	460.0
10th Street & Market Street	Overall Intersection	A	9.6	-	A	9.7	-	A	8.6	-	A	8.7	-	A	8.5	-	A	8.6	-
	EB Thru	A	8.5	97.5	A	8.6	100.0	A	8.0	75.0	A	8.1	77.5	A	7.7	55.0	A	7.8	60.0
	EB Thru/Right	A	9.5	80.0	A	9.6	82.5	A	8.6	67.5	A	8.7	72.5	A	8.0	52.5	A	8.2	60.0
	WB Thru	A	0.4	5.0	A	0.5	5.0	A	0.3	2.5	A	0.3	2.5	A	0.3	2.5	A	0.3	2.5
	SB Left/Thru	B	17.5	115.0	B	17.8	122.5	B	16.5	92.5	B	16.8	102.5	B	16.4	85.0	B	16.9	97.5
	SB Thru	B	17.0	105.0	B	17.2	112.5	B	16.1	85.0	B	16.4	92.5	B	16.1	75.0	B	16.5	90.0
	SB Right	C	22.4	62.5	C	22.4	62.5	B	17.5	62.5	B	17.5	62.5	B	19.7	60.0	B	19.7	60.0
5th Street & Chestnut Street	Overall Intersection	C	20.2	-	C	20.0	-	B	19.7	-	B	19.1	-	B	19.7	-	B	18.6	-
	EB Left	B	13.2	m62	B	12.9	m61	B	13.9	m42	B	12.8	m39	B	14.4	46.0	B	12.3	m41
	EB Thru	B	13.8	106.0	B	13.6	111.0	B	16.2	97.0	B	15.2	97.0	B	17.2	106.0	B	15.3	103.0
	NB Thru/Right	C	25.1	193.0	C	25.0	193.0	C	23.2	141.0	C	23.2	140.0	C	22.8	130.0	C	22.6	130.0
6th Street & Chestnut Street	Overall Intersection	B	14.6	-	B	14.7	-	B	11.4	-	B	12.4	-	B	10.2	-	B	11.5	-
	EB Left	B	16.2	m140	B	16.5	m132	B	11.9	134.0	B	14.2	152.0	B	11.7	117.0	B	14.9	m126
	EB Thru	B	17.0	m71	B	16.7	m65	B	11.7	m78	B	13.9	m78	B	12.0	m60	B	14.9	m58
	SB Left	B	13.3	m53	B	13.1	m53	B	11.3	57.0	B	11.2	57.0	A	9.2	51.0	A	9.1	50.0
	SB Thru	B	13.6	140.0	B	13.7	141.0	B	11.2	108.0	B	11.3	112.0	A	9.1	76.0	A	9.1	78.0
South 7th Street & Chestnut Street	Overall Intersection	C	31.6	-	D	39.1	-	C	24.6	-	C	24.1	-	C	24.8	-	C	24.6	-
	EB Left/Thru	D	35.9	m#278	D	50.8	m#351	C	26.5	223.0	C	25.5	259.0	C	25.7	240.0	C	25.8	#313
	NB Thru/Right	C	27.6	216.0	C	27.6	222.0	C	23.0	148.0	C	22.8	155.0	C	23.5	105.0	C	22.6	113.0
South 8th Street & Chestnut Street	Overall Intersection	B	19.9	-	C	20.4	-	A	9.6	-	B	10.7	-	A	9.3	-	B	11.3	-
	EB Thru/Right	C	31.2	#355	C	30.9	#355	B	15.4	220.0	B	15.5	224.0	B	13.9	174.0	B	14.0	181.0
	SB Left/Thru	B	10.1	93.0	B	12.4	m119	A	5.4	m28	A	7.8	m41	A	6.1	33.0	A	9.9	m66
South 9th Street & Chestnut Street	Overall Intersection	B	14.3	-	B	15.0	-	B	11.3	-	B	11.8	-	B	11.0	-	B	12.1	-
	EB Left/Thru	B	13.8	180.0	B	14.2	187.0	B	11.6	125.0	B	12.0	131.0	B	11.7	115.0	B	12.5	125.0
	NB Thru/Right	B	14.7	89.0	B	15.6	106.0	B	11.0	58.0	B	11.7	65.0	B	10.4	54.0	B	11.8	66.0
10th Street & Chestnut Street	Overall Intersection	B	14.2	-	B	14.3	-	B	13.7	-	B	13.8	-	B	13.7	-	B	13.6	-
	EB Thru/Right	B	18.7	190.0	B	19.1	197.0	B	17.8	173.0	B	18.4	182.0	B	16.9	161.0	B	17.7	174.0
	SB Left/Thru	B	10.4	70.0	B	10.2	70.0	A	9.4	50.0	A	9.1	51.0	A	8.9	32.0	A	8.2	32.0
5th Street & Walnut Street	Overall Intersection	C	24.3	-	C	26.8	-	B	15.6	-	B	17.1	-	B	15.9	-	B	18.5	-
	WB Thru	B	12.2	90.0	B	12.2	92.5	B	12.2	95.0	B	12.3	97.5	B	12.4	105.0	B	12.5	107.5
	WB Thru/Right	B	12.5	85.0	B	12.6	87.5	B	12.4	90.0	B	12.4	95.0	B	12.5	100.0	B	12.6	102.5
	NB Left/Thru	D	54.3	112.5	E	58.8	97.5	C	31.6	62.5	D	46.9	67.5	C	33.3	65.0	E	58.0	95.0
	NB Thru	C	27.6	367.5	C	31.8	412.5	B	16.7	210.0	B	17.4	220.0	B	16.9	222.5	B	17.7	237.5
6th Street & Walnut Street	Overall Intersection	B	12.0	-	B	12.4	-	B	10.2	-	B	10.8	-	A	9.2	-	B	10.1	-
	WB Left/Thru	B	10.9	109.0	B	11.9	116.0	A	7.9	80.0	A	9.4	106.0	A	7.7	57.0	A	9.9	96.0
	SB Thru/Right	B	12.6	213.0	B	12.7	21												

FRIDAY STREET PEAK HOUR LOS

Queues
2: 7th St & Chestnut St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	700	771
v/c Ratio	0.90	0.63
Control Delay	37.7	28.4
Queue Delay	0.0	0.0
Total Delay	37.7	28.4
Queue Length 50th (ft)	240	163
Queue Length 95th (ft)	m#278	216
Internal Link Dist (ft)	336	210
Turn Bay Length (ft)		
Base Capacity (vph)	782	1219
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.90	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: 7th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔						↔↔				
Volume (vph)	194	457	0	0	0	0	0	536	181	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.93				
Flpb, ped/bikes		0.95						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		1840						2869				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		1840						2869				
Peak-hour factor, PHF	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	209	491	0	0	0	0	0	576	195	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	700	0	0	0	0	0	771	0	0	0	0
Confl. Peds. (#/hr)	256		256	216		216	372		372	548		546
Heavy Vehicles (%)	2%	7%	2%	2%	2%	2%	2%	2%	7%	2%	2%	2%
Bus Blockages (#/hr)	0	8	0	0	0	0	0	7	0	0	0	0
Parking (#/hr)	0						0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		24.0						24.0				
Effective Green, g (s)		25.5						25.5				
Actuated g/C Ratio		0.42						0.42				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		782						1219				
v/s Ratio Prot								c0.27				
v/s Ratio Perm		0.38										
v/c Ratio		0.90						0.63				
Uniform Delay, d1		16.0						13.6				
Progression Factor		1.75						1.87				
Incremental Delay, d2		8.0						2.3				
Delay (s)		35.9						27.6				
Level of Service		D						C				
Approach Delay (s)		35.9			0.0			27.6			0.0	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			31.6					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			52.2%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

4: 8th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	708	815
v/c Ratio	0.93	0.63
Control Delay	34.2	10.3
Queue Delay	0.0	0.0
Total Delay	34.2	10.3
Queue Length 50th (ft)	194	47
Queue Length 95th (ft)	#355	93
Internal Link Dist (ft)	398	143
Turn Bay Length (ft)		
Base Capacity (vph)	765	1297
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.93	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: 8th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	494	122	0	0	0	0	0	0	125	584	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		*0.60									0.95		
Frpb, ped/bikes		0.94									1.00		
Flpb, ped/bikes		1.00									0.95		
Frt		0.97									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		1801									3053		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		1801									3053		
Peak-hour factor, PHF	0.92	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.92	
Adj. Flow (vph)	0	568	140	0	0	0	0	0	0	144	671	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	708	0	0	0	0	0	0	0	0	815	0	
Confl. Peds. (#/hr)	422		422	449		449	269		269	376		376	
Heavy Vehicles (%)	2%	6%	0%	2%	2%	2%	2%	2%	2%	0%	2%	2%	
Bus Blockages (#/hr)	0	11	0	0	0	0	0	0	0	0	10	0	
Parking (#/hr)	0											0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0									24.0		
Effective Green, g (s)		25.5									25.5		
Actuated g/C Ratio		0.42									0.42		
Clearance Time (s)		6.0									6.0		
Lane Grp Cap (vph)		765									1297		
v/s Ratio Prot		c0.39											
v/s Ratio Perm											0.27		
v/c Ratio		0.93									0.63		
Uniform Delay, d1		16.3									13.5		
Progression Factor		0.93									0.59		
Incremental Delay, d2		16.0									2.0		
Delay (s)		31.2									10.1		
Level of Service		C									B		
Approach Delay (s)		31.2			0.0			0.0			10.1		
Approach LOS		C			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			19.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			50.2%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues
6: 9th St & Chestnut St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	582	748
v/c Ratio	0.62	0.67
Control Delay	14.3	15.0
Queue Delay	0.0	0.0
Total Delay	14.3	15.0
Queue Length 50th (ft)	90	65
Queue Length 95th (ft)	180	89
Internal Link Dist (ft)	343	223
Turn Bay Length (ft)		
Base Capacity (vph)	939	1115
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.62	0.67
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

6: 9th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	103	421	0	0	0	0	0	499	175	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.94				
Flpb, ped/bikes		0.97						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		1979						2974				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		1979						2974				
Peak-hour factor, PHF	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	114	468	0	0	0	0	0	554	194	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	582	0	0	0	0	0	748	0	0	0	0
Confl. Peds. (#/hr)	265		265	253		253	279		279	520		520
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%	2%	0%	0%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	9	0	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		27.0						21.0				
Effective Green, g (s)		28.5						22.5				
Actuated g/C Ratio		0.48						0.38				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		940						1115				
v/s Ratio Prot								c0.25				
v/s Ratio Perm		0.29										
v/c Ratio		0.62						0.67				
Uniform Delay, d1		11.7						15.7				
Progression Factor		0.95						0.74				
Incremental Delay, d2		2.7						3.2				
Delay (s)		13.8						14.7				
Level of Service		B						B				
Approach Delay (s)		13.8			0.0			14.7			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			43.9%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: 9th St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	973	750
v/c Ratio	0.69	0.65
Control Delay	17.3	19.4
Queue Delay	0.0	0.0
Total Delay	17.3	19.4
Queue Length 50th (ft)	143	97
Queue Length 95th (ft)	205	151
Internal Link Dist (ft)	674	621
Turn Bay Length (ft)		
Base Capacity (vph)	1402	1146
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.69	0.65
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

7: 9th St & Race St

7/22/2013

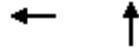


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↑						↑↔				
Volume (vph)	51	864	0	0	0	0	0	264	441	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.0						5.0				
Lane Util. Factor		0.95						0.95				
Frpb, ped/bikes		1.00						0.94				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.91				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		3301						2808				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		3301						2808				
Peak-hour factor, PHF	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	54	919	0	0	0	0	0	281	469	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	973	0	0	0	0	0	750	0	0	0	0
Confl. Peds. (#/hr)	80		80	25		25	125		125	58		58
Heavy Vehicles (%)	0%	1%	2%	2%	2%	2%	2%	0%	2%	2%	2%	2%
Parking (#/hr)			0				0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		25.0						24.0				
Effective Green, g (s)		25.5						24.5				
Actuated g/C Ratio		0.42						0.41				
Clearance Time (s)		5.5						5.5				
Lane Grp Cap (vph)		1402						1146				
v/s Ratio Prot								c0.27				
v/s Ratio Perm		0.29										
v/c Ratio		0.69						0.65				
Uniform Delay, d1		14.1						14.3				
Progression Factor		1.00						1.13				
Incremental Delay, d2		2.9						2.7				
Delay (s)		16.9						19.0				
Level of Service		B						B				
Approach Delay (s)		16.9			0.0			19.0			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			17.8					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			59.6%					ICU Level of Service		B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

8: 7th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	498	700
v/c Ratio	0.27	0.54
Control Delay	18.5	15.5
Queue Delay	0.0	0.0
Total Delay	18.5	15.5
Queue Length 50th (ft)	54	97
Queue Length 95th (ft)	79	142
Internal Link Dist (ft)	382	135
Turn Bay Length (ft)		
Base Capacity (vph)	1864	1289
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.27	0.54

Intersection Summary

HCM Signalized Intersection Capacity Analysis

8: 7th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑↑			↑↑					
Volume (vph)	0	0	0	0	378	95	98	567	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5			4.5					
Lane Util. Factor					0.91			0.95					
Frpb, ped/bikes					0.97			1.00					
Flpb, ped/bikes					1.00			0.98					
Frt					0.97			1.00					
Flt Protected					1.00			0.99					
Satd. Flow (prot)					4221			3158					
Flt Permitted					1.00			0.99					
Satd. Flow (perm)					4221			3158					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	398	100	103	597	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	498	0	0	700	0	0	0	0	
Confl. Peds. (#/hr)	131		131	206		206	231		231	187		187	
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	7%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	15	0	0	0	0	0	0	0	
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					25.0			23.0					
Effective Green, g (s)					26.5			24.5					
Actuated g/C Ratio					0.44			0.41					
Clearance Time (s)					6.0			6.0					
Lane Grp Cap (vph)					1864			1289					
v/s Ratio Prot					0.12								
v/s Ratio Perm								0.22					
v/c Ratio					0.27			0.54					
Uniform Delay, d1					10.6			13.5					
Progression Factor					1.69			1.00					
Incremental Delay, d2					0.3			1.6					
Delay (s)					18.3			15.1					
Level of Service					B			B					
Approach Delay (s)		0.0			18.3			15.1			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			16.4		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			40.5%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues
9: 8th St & Vine Street

7/22/2013



Lane Group	EBT	EBR	SBT	SEL	SER
Lane Group Flow (vph)	594	540	694	188	170
v/c Ratio	0.88	1.14	0.73	0.21	0.22
Control Delay	51.9	121.8	34.5	13.1	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	121.8	34.5	13.1	13.3
Queue Length 50th (ft)	174	~205	147	56	53
Queue Length 95th (ft)	#267	#317	190	96	93
Internal Link Dist (ft)	164		246	146	
Turn Bay Length (ft)					
Base Capacity (vph)	675	473	947	905	784
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	1.14	0.73	0.21	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: 8th St & Vine Street

7/22/2013



Movement	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations	↑↑	↑↑		↑↑↑	↑↑	↑
Volume (vph)	552	502	155	490	150	179
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.0	4.0		3.5	4.0	4.0
Lane Util. Factor	0.95	0.88		0.91	1.00	0.95
Frbp, ped/bikes	1.00	1.00		1.00	0.99	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.98	0.85
Flt Protected	1.00	1.00		0.99	0.96	1.00
Satd. Flow (prot)	3687	2584		5169	1793	1552
Flt Permitted	1.00	1.00		0.99	0.96	1.00
Satd. Flow (perm)	3687	2584		5169	1793	1552
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.92	0.92
Adj. Flow (vph)	594	540	167	527	163	195
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	594	540	0	694	188	170
Confl. Peds. (#/hr)		46			64	64
Heavy Vehicles (%)	1%	6%	0%	3%	2%	2%
Bus Blockages (#/hr)	0	33	0	0	0	0
Turn Type	NA	Prot	Split	NA	NA	Prot
Protected Phases	2	2	4	4	1	1
Permitted Phases						
Actuated Green, G (s)	15.0	15.0		15.0	44.0	44.0
Effective Green, g (s)	16.5	16.5		16.5	45.5	45.5
Actuated g/C Ratio	0.18	0.18		0.18	0.51	0.51
Clearance Time (s)	5.5	5.5		5.0	5.5	5.5
Lane Grp Cap (vph)	675	473		947	906	784
v/s Ratio Prot	0.16	c0.21		c0.13	0.10	c0.11
v/s Ratio Perm						
v/c Ratio	0.88	1.14		0.73	0.21	0.22
Uniform Delay, d1	35.8	36.8		34.7	12.3	12.4
Progression Factor	1.00	1.00		0.85	1.00	1.00
Incremental Delay, d2	15.2	86.4		4.7	0.5	0.6
Delay (s)	51.0	123.1		34.3	12.8	13.0
Level of Service	D	F		C	B	B
Approach Delay (s)	85.4			34.3	12.9	
Approach LOS	F			C	B	

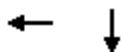
Intersection Summary

HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

13: 6th St & Arch St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	646	1026
v/c Ratio	0.50	0.56
Control Delay	14.6	7.8
Queue Delay	0.0	0.0
Total Delay	14.6	7.8
Queue Length 50th (ft)	112	44
Queue Length 95th (ft)	156	56
Internal Link Dist (ft)	322	632
Turn Bay Length (ft)		
Base Capacity (vph)	1286	1827
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.50	0.56
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

13: 6th St & Arch St

7/22/2013

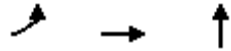


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑↑	
Volume (vph)	0	0	0	139	436	0	0	0	0	0	745	168
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.91	
Frbp, ped/bikes					1.00						0.98	
Flpb, ped/bikes					0.98						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3028						4301	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3028						4301	
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	156	490	0	0	0	0	0	837	189
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	646	0	0	0	0	0	1026	0
Confl. Peds. (#/hr)	96		96	108		108	176		176	177		177
Heavy Vehicles (%)	2%	2%	2%	9%	6%	2%	2%	2%	2%	2%	6%	7%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)						0				0		
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1286						1827	
v/s Ratio Prot											c0.24	
v/s Ratio Perm					0.21							
v/c Ratio					0.50						0.56	
Uniform Delay, d1					12.6						13.0	
Progression Factor					1.03						0.50	
Incremental Delay, d2					1.3						1.2	
Delay (s)					14.3						7.7	
Level of Service					B						A	
Approach Delay (s)		0.0			14.3			0.0			7.7	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.3								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			60.0								Sum of lost time (s)	9.0
Intersection Capacity Utilization			46.6%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

14: 5th St & Chestnut St

7/22/2013



Lane Group	EBL	EBT	NBT
Lane Group Flow (vph)	182	321	678
v/c Ratio	0.35	0.45	0.50
Control Delay	13.8	14.3	25.7
Queue Delay	0.0	0.0	0.0
Total Delay	13.8	14.3	25.7
Queue Length 50th (ft)	31	56	143
Queue Length 95th (ft)	m62	106	193
Internal Link Dist (ft)		348	499
Turn Bay Length (ft)			
Base Capacity (vph)	513	714	1347
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.35	0.45	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 5th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	311	0	0	0	0	0	583	75	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.5	4.5						4.5				
Lane Util. Factor	1.00	1.00						0.95				
Frpb, ped/bikes	1.00	1.00						0.97				
Flpb, ped/bikes	0.74	1.00						1.00				
Frt	1.00	1.00						0.98				
Flt Protected	0.95	1.00						1.00				
Satd. Flow (prot)	1209	1680						3171				
Flt Permitted	0.95	1.00						1.00				
Satd. Flow (perm)	1209	1680						3171				
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	182	321	0	0	0	0	0	601	77	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	182	321	0	0	0	0	0	678	0	0	0	0
Confl. Peds. (#/hr)	364		364	389		389	196		196	414		414
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)	24.0	24.0						24.0				
Effective Green, g (s)	25.5	25.5						25.5				
Actuated g/C Ratio	0.42	0.42						0.42				
Clearance Time (s)	6.0	6.0						6.0				
Lane Grp Cap (vph)	513	714						1347				
v/s Ratio Prot		c0.19						c0.21				
v/s Ratio Perm	0.15											
v/c Ratio	0.35	0.45						0.50				
Uniform Delay, d1	11.7	12.3						12.6				
Progression Factor	0.99	0.99						1.90				
Incremental Delay, d2	1.6	1.7						1.2				
Delay (s)	13.2	13.8						25.1				
Level of Service	B	B						C				
Approach Delay (s)		13.6			0.0			25.1			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

22: 10th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	484	570
v/c Ratio	0.67	0.44
Control Delay	19.4	10.6
Queue Delay	0.0	0.0
Total Delay	19.4	10.6
Queue Length 50th (ft)	111	53
Queue Length 95th (ft)	190	70
Internal Link Dist (ft)	521	472
Turn Bay Length (ft)		
Base Capacity (vph)	724	1300
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.67	0.44
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 22: 10th St & Chestnut St

7/22/2013

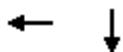


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	348	121	0	0	0	0	0	0	112	441	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		*0.60									0.95		
Frbp, ped/bikes		0.91									1.00		
Flpb, ped/bikes		1.00									0.94		
Frt		0.96									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		1706									3060		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		1706									3060		
Peak-hour factor, PHF	0.92	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	
Adj. Flow (vph)	0	359	125	0	0	0	0	0	0	115	455	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	484	0	0	0	0	0	0	0	0	570	0	
Confl. Peds. (#/hr)	663		663	462		462	432		432	445		445	
Heavy Vehicles (%)	2%	7%	4%	2%	2%	2%	2%	2%	2%	5%	1%	2%	
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)	0											0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0									24.0		
Effective Green, g (s)		25.5									25.5		
Actuated g/C Ratio		0.42									0.42		
Clearance Time (s)		6.0									6.0		
Lane Grp Cap (vph)		725									1300		
v/s Ratio Prot		c0.28											
v/s Ratio Perm											0.19		
v/c Ratio		0.67									0.44		
Uniform Delay, d1		13.8									12.2		
Progression Factor		1.00									0.77		
Incremental Delay, d2		4.8									1.0		
Delay (s)		18.7									10.4		
Level of Service		B									B		
Approach Delay (s)		18.7			0.0			0.0			10.4		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			14.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			42.7%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

24: 10th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	564	467
v/c Ratio	0.31	0.37
Control Delay	8.1	14.1
Queue Delay	0.0	0.0
Total Delay	8.1	14.1
Queue Length 50th (ft)	15	56
Queue Length 95th (ft)	21	80
Internal Link Dist (ft)	360	507
Turn Bay Length (ft)		
Base Capacity (vph)	1817	1269
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.37
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 10th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑	
Volume (vph)	0	0	0	91	450	0	0	0	0	0	369	80
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.91						0.95	
Frbp, ped/bikes					1.00						0.95	
Flpb, ped/bikes					0.96						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4275						2989	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4275						2989	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.96
Adj. Flow (vph)	0	0	0	95	469	0	0	0	0	0	384	83
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	564	0	0	0	0	0	467	0
Confl. Peds. (#/hr)	355		355	325		325	502		502	405		405
Heavy Vehicles (%)	2%	2%	2%	4%	6%	2%	2%	2%	2%	2%	4%	1%
Bus Blockages (#/hr)	0	0	0	0	12	0	0	0	0	0	0	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1816						1270	
v/s Ratio Prot											c0.16	
v/s Ratio Perm					0.13							
v/c Ratio					0.31						0.37	
Uniform Delay, d1					11.4						11.8	
Progression Factor					0.66						1.11	
Incremental Delay, d2					0.4						0.7	
Delay (s)					8.0						13.8	
Level of Service					A						B	
Approach Delay (s)		0.0			8.0			0.0			13.8	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			34.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

25: 8th St & Arch St

7/22/2013



Lane Group	WBT	SBT	SBR
Lane Group Flow (vph)	500	556	169
v/c Ratio	0.39	0.43	0.36
Control Delay	7.6	15.8	17.6
Queue Delay	0.0	0.0	0.0
Total Delay	7.6	15.8	17.6
Queue Length 50th (ft)	35	59	34
Queue Length 95th (ft)	41	105	m78
Internal Link Dist (ft)	373	120	
Turn Bay Length (ft)			
Base Capacity (vph)	1269	1303	469
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.43	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

25: 8th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕						↕↕	↗
Volume (vph)	0	0	0	79	391	0	0	0	0	0	523	159
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0						5.0	5.0
Lane Util. Factor					0.95						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.80
Flpb, ped/bikes					0.98						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.99						1.00	1.00
Satd. Flow (prot)					2987						3192	1150
Flt Permitted					0.99						1.00	1.00
Satd. Flow (perm)					2987						3192	1150
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	84	416	0	0	0	0	0	556	169
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	500	0	0	0	0	0	556	169
Confl. Peds. (#/hr)	230		230	165		165	253		253	257		257
Heavy Vehicles (%)	2%	2%	2%	3%	9%	2%	2%	2%	2%	2%	5%	3%
Bus Blockages (#/hr)	0	0	0	0	5	0	0	0	0	0	0	4
Parking (#/hr)				0		0						
Turn Type				Perm	NA						NA	Perm
Protected Phases					6						4	
Permitted Phases				6								4
Actuated Green, G (s)					25.0						24.0	24.0
Effective Green, g (s)					25.5						24.5	24.5
Actuated g/C Ratio					0.42						0.41	0.41
Clearance Time (s)					5.5						5.5	5.5
Lane Grp Cap (vph)					1269						1303	469
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.17							0.15
v/c Ratio					0.39						0.43	0.36
Uniform Delay, d1					11.9						12.7	12.3
Progression Factor					0.55						1.15	1.21
Incremental Delay, d2					0.9						0.9	1.9
Delay (s)					7.5						15.5	16.8
Level of Service					A						B	B
Approach Delay (s)		0.0			7.5			0.0			15.8	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.4								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			60.0							10.0		
Intersection Capacity Utilization			39.7%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

26: 7th St & Arch St

7/22/2013



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	405	219	899
v/c Ratio	0.31	0.40	0.69
Control Delay	12.2	14.9	14.6
Queue Delay	0.0	0.0	0.0
Total Delay	12.2	14.9	14.6
Queue Length 50th (ft)	66	70	179
Queue Length 95th (ft)	105	127	m190
Internal Link Dist (ft)	389		653
Turn Bay Length (ft)			
Base Capacity (vph)	1318	541	1309
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.31	0.40	0.69

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

26: 7th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↗		↖				
Volume (vph)	0	0	0	0	381	206	85	760	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0	5.0		5.0				
Lane Util. Factor					0.95	1.00		0.95				
Frbp, ped/bikes					1.00	0.89		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3103	1275		3208				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3103	1275		3208				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	405	219	90	809	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	405	219	0	899	0	0	0	0
Confl. Peds. (#/hr)	133		133	144		144	218		218	207		207
Heavy Vehicles (%)	2%	2%	2%	2%	8%	2%	5%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Parking (#/hr)							0		0			
Turn Type					NA	Perm	Perm	NA				
Protected Phases					6			8				
Permitted Phases						6	8					
Actuated Green, G (s)					25.0	25.0		24.0				
Effective Green, g (s)					25.5	25.5		24.5				
Actuated g/C Ratio					0.42	0.42		0.41				
Clearance Time (s)					5.5	5.5		5.5				
Lane Grp Cap (vph)					1318	541		1309				
v/s Ratio Prot					0.13							
v/s Ratio Perm						c0.17		0.28				
v/c Ratio					0.31	0.40		0.69				
Uniform Delay, d1					11.4	12.0		14.6				
Progression Factor					1.00	1.03		0.87				
Incremental Delay, d2					0.5	1.9		1.6				
Delay (s)					12.0	14.2		14.3				
Level of Service					B	B		B				
Approach Delay (s)		0.0			12.8			14.3			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.7		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				10.0			
Intersection Capacity Utilization			51.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

28: 9th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	645	239	560
v/c Ratio	0.51	0.44	0.42
Control Delay	18.4	21.9	19.5
Queue Delay	0.0	0.0	0.0
Total Delay	18.4	21.9	19.5
Queue Length 50th (ft)	81	70	84
Queue Length 95th (ft)	134	m117	129
Internal Link Dist (ft)	344		682
Turn Bay Length (ft)			
Base Capacity (vph)	1277	540	1333
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.44	0.42

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

28: 9th St & Arch St

7/22/2013

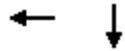


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↑	↑↑				
Volume (vph)	0	0	0	0	497	109	225	526	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0		5.0	5.0				
Lane Util. Factor					0.95		1.00	0.95				
Frbp, ped/bikes					0.98		1.00	1.00				
Flpb, ped/bikes					1.00		0.82	1.00				
Frt					0.97		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					3006		1324	3266				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					3006		1324	3266				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	529	116	239	560	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	645	0	239	560	0	0	0	0
Confl. Peds. (#/hr)	244		244	138		138	243		243	366		366
Heavy Vehicles (%)	2%	2%	2%	2%	7%	0%	4%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	3	0	0	0	0
Parking (#/hr)				0		0						
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					25.0		24.0	24.0				
Effective Green, g (s)					25.5		24.5	24.5				
Actuated g/C Ratio					0.42		0.41	0.41				
Clearance Time (s)					5.5		5.5	5.5				
Lane Grp Cap (vph)					1277		540	1333				
v/s Ratio Prot					c0.21			0.17				
v/s Ratio Perm							c0.18					
v/c Ratio					0.51		0.44	0.42				
Uniform Delay, d1					12.6		12.8	12.7				
Progression Factor					1.32		1.44	1.44				
Incremental Delay, d2					1.4		2.4	0.9				
Delay (s)					18.0		21.0	19.2				
Level of Service					B		C	B				
Approach Delay (s)		0.0			18.0			19.7			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			19.0		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				10.0			
Intersection Capacity Utilization			41.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

29: 10th St & Arch St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	784	511
v/c Ratio	0.61	0.43
Control Delay	11.1	14.2
Queue Delay	0.0	0.0
Total Delay	11.1	14.2
Queue Length 50th (ft)	72	66
Queue Length 95th (ft)	100	103
Internal Link Dist (ft)	371	412
Turn Bay Length (ft)		
Base Capacity (vph)	1289	1189
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.61	0.43
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

29: 10th St & Arch St

7/22/2013

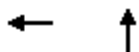


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	127	579	0	0	0	0	0	353	107
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0						5.0	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.93	
Flpb, ped/bikes					0.95						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3033						2915	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3033						2915	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	0	0	0	141	643	0	0	0	0	0	392	119
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	784	0	0	0	0	0	511	0
Confl. Peds. (#/hr)	559		559	378		378	342		342	391		391
Heavy Vehicles (%)	2%	2%	2%	2%	4%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	3	0
Parking (#/hr)				0		0						0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					25.0						24.0	
Effective Green, g (s)					25.5						24.5	
Actuated g/C Ratio					0.42						0.41	
Clearance Time (s)					5.5						5.5	
Lane Grp Cap (vph)					1289						1190	
v/s Ratio Prot											c0.18	
v/s Ratio Perm					0.26							
v/c Ratio					0.61						0.43	
Uniform Delay, d1					13.4						12.7	
Progression Factor					0.67						1.00	
Incremental Delay, d2					1.9						1.1	
Delay (s)					10.9						13.9	
Level of Service					B						B	
Approach Delay (s)		0.0			10.9			0.0			13.9	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.1								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			60.0							10.0		
Intersection Capacity Utilization			46.8%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

33: 9th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	559	489
v/c Ratio	0.32	0.38
Control Delay	10.0	12.9
Queue Delay	0.0	0.0
Total Delay	10.0	12.9
Queue Length 50th (ft)	21	60
Queue Length 95th (ft)	30	93
Internal Link Dist (ft)	368	360
Turn Bay Length (ft)		
Base Capacity (vph)	1736	1297
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.38
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
33: 9th St & Walnut St

7/22/2013

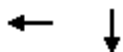


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑			↑↑				
Volume (vph)	0	0	0	0	425	95	94	361	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.91			0.95				
Frbp, ped/bikes					0.97			1.00				
Flpb, ped/bikes					1.00			0.95				
Frt					0.97			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					4084			3052				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					4084			3052				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	457	102	101	388	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	559	0	0	489	0	0	0	0
Confl. Peds. (#/hr)	202		202	198		198	309		309	396		396
Heavy Vehicles (%)	2%	2%	2%	2%	7%	15%	3%	4%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	21	0	0	0	0	0	0	0
Parking (#/hr)									0			
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					24.0			24.0				
Effective Green, g (s)					25.5			25.5				
Actuated g/C Ratio					0.42			0.42				
Clearance Time (s)					6.0			6.0				
Lane Grp Cap (vph)					1735			1297				
v/s Ratio Prot					c0.14							
v/s Ratio Perm								0.16				
v/c Ratio					0.32			0.38				
Uniform Delay, d1					11.5			11.8				
Progression Factor					0.81			1.00				
Incremental Delay, d2					0.5			0.8				
Delay (s)					9.8			12.6				
Level of Service					A			B				
Approach Delay (s)		0.0			9.8			12.6			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.1					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			35.4%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

34: Walnut St & 8th St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	541	590
v/c Ratio	0.31	0.50
Control Delay	9.8	4.9
Queue Delay	0.0	0.0
Total Delay	9.8	4.9
Queue Length 50th (ft)	20	23
Queue Length 95th (ft)	51	m30
Internal Link Dist (ft)	353	489
Turn Bay Length (ft)		
Base Capacity (vph)	1757	1176
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.31	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

34: Walnut St & 8th St

7/22/2013

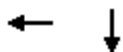


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑	
Volume (vph)	0	0	0	85	391	0	0	0	0	0	385	134
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.91						0.95	
Frbp, ped/bikes					1.00						0.92	
Flpb, ped/bikes					0.95						1.00	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4136						2769	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4136						2769	
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	0	0	0	97	444	0	0	0	0	0	438	152
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	541	0	0	0	0	0	590	0
Confl. Peds. (#/hr)	46		46	430		430	200		200	555		555
Heavy Vehicles (%)	2%	2%	2%	1%	9%	2%	2%	2%	2%	2%	4%	6%
Bus Blockages (#/hr)	0	0	0	0	11	0	0	0	0	0	10	0
Parking (#/hr)				0						0		
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1757						1176	
v/s Ratio Prot											c0.21	
v/s Ratio Perm					0.13							
v/c Ratio					0.31						0.50	
Uniform Delay, d1					11.4						12.6	
Progression Factor					0.81						0.29	
Incremental Delay, d2					0.4						1.1	
Delay (s)					9.6						4.8	
Level of Service					A						A	
Approach Delay (s)		0.0			9.6			0.0			4.8	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.1		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			36.6%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

37: 6th Street/6th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	444	812
v/c Ratio	0.40	0.59
Control Delay	11.1	12.9
Queue Delay	0.0	0.0
Total Delay	11.1	12.9
Queue Length 50th (ft)	70	117
Queue Length 95th (ft)	109	213
Internal Link Dist (ft)	357	488
Turn Bay Length (ft)		
Base Capacity (vph)	1105	1385
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.40	0.59
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

37: 6th Street/6th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	93	320	0	0	0	0	0	622	133
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.96	
Flpb, ped/bikes					0.95						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					2947						2916	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					2947						2916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	100	344	0	0	0	0	0	669	143
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	444	0	0	0	0	0	812	0
Confl. Peds. (#/hr)	314		314	298		298	477		477	378		378
Heavy Vehicles (%)	2%	2%	2%	1%	8%	2%	2%	2%	2%	2%	1%	5%
Parking (#/hr)	0			0			0			0		0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					21.0						27.0	
Effective Green, g (s)					22.5						28.5	
Actuated g/C Ratio					0.38						0.48	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1105						1385	
v/s Ratio Prot											c0.28	
v/s Ratio Perm					0.15							
v/c Ratio					0.40						0.59	
Uniform Delay, d1					13.8						11.5	
Progression Factor					0.72						0.96	
Incremental Delay, d2					1.1						1.5	
Delay (s)					10.9						12.6	
Level of Service					B						B	
Approach Delay (s)		0.0			10.9			0.0			12.6	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			45.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

40: 5th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	565	200	1386
v/c Ratio	0.45	0.35	1.01
Control Delay	13.7	14.9	37.4
Queue Delay	0.0	0.0	0.0
Total Delay	13.7	14.9	37.4
Queue Length 50th (ft)	72	49	~227
Queue Length 95th (ft)	110	m54	m#239
Internal Link Dist (ft)	526		282
Turn Bay Length (ft)		100	
Base Capacity (vph)	1259	577	1379
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.45	0.35	1.01

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

40: 5th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑	↑↑					
Volume (vph)	0	0	0	0	359	172	188	1303	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5		4.5	4.5					
Lane Util. Factor					0.95		1.00	0.95					
Frbp, ped/bikes					0.96		1.00	1.00					
Flpb, ped/bikes					1.00		0.87	1.00					
Frt					0.95		1.00	1.00					
Flt Protected					1.00		0.95	1.00					
Satd. Flow (prot)					2964		1359	3247					
Flt Permitted					1.00		0.95	1.00					
Satd. Flow (perm)					2964		1359	3247					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	382	183	200	1386	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	565	0	200	1386	0	0	0	0	
Confl. Peds. (#/hr)	259		259	182		182	187		187	191		191	
Heavy Vehicles (%)	2%	2%	2%	2%	3%	1%	7%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	2	0	0	1	0	0	0	0	
Parking (#/hr)				0					0				
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					24.0		24.0	24.0					
Effective Green, g (s)					25.5		25.5	25.5					
Actuated g/C Ratio					0.42		0.42	0.42					
Clearance Time (s)					6.0		6.0	6.0					
Lane Grp Cap (vph)					1259		577	1379					
v/s Ratio Prot					c0.19			c0.43					
v/s Ratio Perm							0.15						
v/c Ratio					0.45		0.35	1.01					
Uniform Delay, d1					12.3		11.6	17.2					
Progression Factor					1.00		1.17	1.04					
Incremental Delay, d2					1.2		0.7	16.9					
Delay (s)					13.4		14.3	34.9					
Level of Service					B		B	C					
Approach Delay (s)		0.0			13.4			32.3			0.0		
Approach LOS		A			B			C			A		
Intersection Summary													
HCM 2000 Control Delay			27.4		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			61.7%		ICU Level of Service				B				
Analysis Period (min)			15										
c Critical Lane Group													

Queues

42: 6th St/6th Street & Chestnut St

7/22/2013



Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	432	130	123	794
v/c Ratio	0.63	0.49	0.28	0.57
Control Delay	16.9	18.6	13.9	13.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.9	18.6	13.9	13.9
Queue Length 50th (ft)	108	53	25	86
Queue Length 95th (ft)	m140	m71	m53	140
Internal Link Dist (ft)	389			512
Turn Bay Length (ft)			50	
Base Capacity (vph)	687	266	442	1396
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.49	0.28	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

42: 6th St/6th Street & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑	↗							↘	↑↑		
Volume (vph)	0	402	121	0	0	0	0	0	0	114	738	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5	4.5							4.5	4.5		
Lane Util. Factor		1.00	*0.60							1.00	0.95		
Frbp, ped/bikes		1.00	0.73							1.00	1.00		
Flpb, ped/bikes		1.00	1.00							0.68	1.00		
Frt		1.00	0.85							1.00	1.00		
Flt Protected		1.00	1.00							0.95	1.00		
Satd. Flow (prot)		1618	628							1040	3286		
Flt Permitted		1.00	1.00							0.95	1.00		
Satd. Flow (perm)		1618	628							1040	3286		
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.92	
Adj. Flow (vph)	0	432	130	0	0	0	0	0	0	123	794	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	432	130	0	0	0	0	0	0	123	794	0	
Confl. Peds. (#/hr)	369		369	476		476	192		192	548		548	
Heavy Vehicles (%)	2%	9%	0%	2%	2%	2%	2%	2%	2%	10%	2%	2%	
Bus Blockages (#/hr)	0	0	12	0	0	0	0	0	0	0	0	0	
Turn Type		NA	Perm							Perm	NA		
Protected Phases		2									4		
Permitted Phases			2							4			
Actuated Green, G (s)		24.0	24.0							24.0	24.0		
Effective Green, g (s)		25.5	25.5							25.5	25.5		
Actuated g/C Ratio		0.42	0.42							0.42	0.42		
Clearance Time (s)		6.0	6.0							6.0	6.0		
Lane Grp Cap (vph)		687	266							442	1396		
v/s Ratio Prot		c0.27									c0.24		
v/s Ratio Perm			0.21							0.12			
v/c Ratio		0.63	0.49							0.28	0.57		
Uniform Delay, d1		13.5	12.5							11.2	13.1		
Progression Factor		1.02	1.08							1.05	0.93		
Incremental Delay, d2		2.4	3.5							1.4	1.5		
Delay (s)		16.2	17.0							13.3	13.6		
Level of Service		B	B							B	B		
Approach Delay (s)		16.4			0.0			0.0			13.6		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			14.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			49.3%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: Race St & 8th St

7/22/2013



Lane Group	EBT	SBL	SBT
Lane Group Flow (vph)	1290	295	919
v/c Ratio	0.65	0.56	0.52
Control Delay	11.1	18.0	14.0
Queue Delay	0.0	0.0	0.0
Total Delay	11.1	18.0	14.0
Queue Length 50th (ft)	69	89	90
Queue Length 95th (ft)	142	169	125
Internal Link Dist (ft)	378		453
Turn Bay Length (ft)			
Base Capacity (vph)	1995	530	1768
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.65	0.56	0.52
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

46: Race St & 8th St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑								↘	↑↑↑		
Volume (vph)	0	1163	76	0	0	0	0	0	0	566	599	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5								4.5	4.5		
Lane Util. Factor		0.91								0.86	0.86		
Frbp, ped/bikes		0.99								1.00	1.00		
Flpb, ped/bikes		1.00								0.91	0.97		
Frt		0.99								1.00	1.00		
Flt Protected		1.00								0.95	0.98		
Satd. Flow (prot)		4694								1248	4162		
Flt Permitted		1.00								0.95	0.98		
Satd. Flow (perm)		4694								1248	4162		
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.92	
Adj. Flow (vph)	0	1211	79	0	0	0	0	0	0	590	624	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	1290	0	0	0	0	0	0	0	295	919	0	
Confl. Peds. (#/hr)	134		134	17		17	112		112	129		129	
Heavy Vehicles (%)	2%	1%	1%	2%	2%	2%	2%	2%	2%	5%	3%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0	
Parking (#/hr)			0										
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0								24.0	24.0		
Effective Green, g (s)		25.5								25.5	25.5		
Actuated g/C Ratio		0.42								0.42	0.42		
Clearance Time (s)		6.0								6.0	6.0		
Lane Grp Cap (vph)		1994								530	1768		
v/s Ratio Prot		c0.27											
v/s Ratio Perm										c0.24	0.22		
v/c Ratio		0.65								0.56	0.52		
Uniform Delay, d1		13.7								13.0	12.7		
Progression Factor		0.71								1.00	1.00		
Incremental Delay, d2		1.2								4.2	1.1		
Delay (s)		10.9								17.2	13.8		
Level of Service		B								B	B		
Approach Delay (s)		10.9			0.0			0.0			14.6		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.60										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			49.6%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

49: 6th St & Race St

7/22/2013



Lane Group	EBT	EBR	SBT
Lane Group Flow (vph)	1714	185	919
v/c Ratio	0.68	0.32	0.51
Control Delay	9.0	6.9	13.9
Queue Delay	0.0	0.0	0.0
Total Delay	9.0	6.9	13.9
Queue Length 50th (ft)	138	17	85
Queue Length 95th (ft)	151	m28	117
Internal Link Dist (ft)	400		133
Turn Bay Length (ft)			
Base Capacity (vph)	2503	570	1808
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.68	0.32	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

49: 6th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑	↑								↑↑↑			
Volume (vph)	0	1645	178	0	0	0	0	0	0	169	713	0		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)		4.5	4.5								4.5			
Lane Util. Factor		0.86	1.00								0.91			
Frpb, ped/bikes		1.00	0.91								1.00			
Flpb, ped/bikes		1.00	1.00								1.00			
Frt		1.00	0.85								1.00			
Flt Protected		1.00	1.00								0.99			
Satd. Flow (prot)		5891	1342								4253			
Flt Permitted		1.00	1.00								0.99			
Satd. Flow (perm)		5891	1342								4253			
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.92		
Adj. Flow (vph)	0	1714	185	0	0	0	0	0	0	176	743	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1714	185	0	0	0	0	0	0	0	919	0		
Confl. Peds. (#/hr)	109		109	3		3	88		88	26		26		
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	8%	2%		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	33	0		
Turn Type		NA	Perm							Perm	NA			
Protected Phases		2									4			
Permitted Phases			2							4				
Actuated Green, G (s)		24.0	24.0								24.0			
Effective Green, g (s)		25.5	25.5								25.5			
Actuated g/C Ratio		0.42	0.42								0.42			
Clearance Time (s)		6.0	6.0								6.0			
Lane Grp Cap (vph)		2503	570								1807			
v/s Ratio Prot		c0.29												
v/s Ratio Perm			0.14								0.22			
v/c Ratio		0.68	0.32								0.51			
Uniform Delay, d1		14.0	11.5								12.7			
Progression Factor		0.54	0.46								1.00			
Incremental Delay, d2		1.3	1.3								1.0			
Delay (s)		8.9	6.7								13.7			
Level of Service		A	A								B			
Approach Delay (s)		8.7			0.0			0.0			13.7			
Approach LOS		A			A			A			B			
Intersection Summary														
HCM 2000 Control Delay			10.3									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.60											
Actuated Cycle Length (s)			60.0								9.0		Sum of lost time (s)	
Intersection Capacity Utilization			48.8%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

Queues
50: 3rd St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	1089	518
v/c Ratio	0.67	0.48
Control Delay	10.4	23.3
Queue Delay	0.2	0.0
Total Delay	10.6	23.3
Queue Length 50th (ft)	125	116
Queue Length 95th (ft)	168	163
Internal Link Dist (ft)	370	275
Turn Bay Length (ft)		
Base Capacity (vph)	1626	1073
Starvation Cap Reductn	95	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.71	0.48
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

50: 3rd St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔						↔↔				
Volume (vph)	117	896	0	0	0	0	0	301	180	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.8						4.9				
Lane Util. Factor		0.95						0.95				
Frpb, ped/bikes		1.00						0.96				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.94				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3219						2858				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3219						2858				
Peak-hour factor, PHF	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	126	963	0	0	0	0	0	324	194	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1089	0	0	0	0	0	518	0	0	0	0
Confl. Peds. (#/hr)	89		89	115			115	121		121	33	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	7%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	6	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		45.0						33.3				
Effective Green, g (s)		45.5						33.8				
Actuated g/C Ratio		0.51						0.38				
Clearance Time (s)		6.3						5.4				
Lane Grp Cap (vph)		1627						1073				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.34										
v/c Ratio		0.67						0.48				
Uniform Delay, d1		16.6						21.4				
Progression Factor		0.51						1.00				
Incremental Delay, d2		1.7						1.6				
Delay (s)		10.2						23.0				
Level of Service		B						C				
Approach Delay (s)		10.2			0.0			23.0			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

59: 4th St & Race St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	1042	739
v/c Ratio	0.63	0.62
Control Delay	17.8	25.7
Queue Delay	0.5	0.0
Total Delay	18.3	25.7
Queue Length 50th (ft)	212	176
Queue Length 95th (ft)	277	237
Internal Link Dist (ft)	410	408
Turn Bay Length (ft)		
Base Capacity (vph)	1647	1191
Starvation Cap Reductn	238	0
Spillback Cap Reductn	46	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.74	0.62
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

59: 4th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	828	141	0	0	0	0	0	0	161	526	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.8									4.9		
Lane Util. Factor		0.95									0.95		
Frpb, ped/bikes		0.99									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		0.98									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		3189									3173		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		3189									3173		
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.92	
Adj. Flow (vph)	0	890	152	0	0	0	0	0	0	173	566	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	1042	0	0	0	0	0	0	0	0	739	0	
Confl. Peds. (#/hr)	55		55	37		37	41		41	37		37	
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	2%	2%	2%	0%	4%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0	
Parking (#/hr)												0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		45.0									33.3		
Effective Green, g (s)		46.5									33.8		
Actuated g/C Ratio		0.52									0.38		
Clearance Time (s)		6.3									5.4		
Lane Grp Cap (vph)		1647									1191		
v/s Ratio Prot		c0.33											
v/s Ratio Perm											0.23		
v/c Ratio		0.63									0.62		
Uniform Delay, d1		15.6									22.9		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.9									2.4		
Delay (s)		17.5									25.3		
Level of Service		B									C		
Approach Delay (s)		17.5			0.0			0.0			25.3		
Approach LOS		B			A			A			C		
Intersection Summary													
HCM 2000 Control Delay			20.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.7
Intersection Capacity Utilization			58.8%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

Queues

63: Race St & 2nd Street

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	1189	764
v/c Ratio	0.76	0.69
Control Delay	15.7	20.9
Queue Delay	0.0	0.0
Total Delay	15.7	20.9
Queue Length 50th (ft)	165	122
Queue Length 95th (ft)	229	172
Internal Link Dist (ft)	462	479
Turn Bay Length (ft)		
Base Capacity (vph)	1573	1107
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.76	0.69
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

63: Race St & 2nd Street

7/22/2013

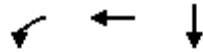


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑									↑↑			
Volume (vph)	0	824	223	0	0	0	0	0	0	110	562	0		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)		4.5									4.5			
Lane Util. Factor		0.95									0.95			
Frpb, ped/bikes		0.99									1.00			
Flpb, ped/bikes		1.00									1.00			
Frt		0.97									1.00			
Flt Protected		1.00									0.99			
Satd. Flow (prot)		3096									3241			
Flt Permitted		1.00									0.99			
Satd. Flow (perm)		3096									3241			
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88		
Adj. Flow (vph)	0	936	253	0	0	0	0	0	0	125	639	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	1189	0	0	0	0	0	0	0	0	764	0		
Confl. Peds. (#/hr)	69		69	50		50	86		86	9		9		
Heavy Vehicles (%)	2%	3%	6%	2%	2%	2%	2%	2%	2%	1%	2%	2%		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0		
Parking (#/hr)			0									0		
Turn Type		NA								Perm	NA			
Protected Phases		2									4			
Permitted Phases										4				
Actuated Green, G (s)		30.0									20.0			
Effective Green, g (s)		30.5									20.5			
Actuated g/C Ratio		0.51									0.34			
Clearance Time (s)		5.0									5.0			
Lane Grp Cap (vph)		1573									1107			
v/s Ratio Prot		c0.38												
v/s Ratio Perm											0.24			
v/c Ratio		0.76									0.69			
Uniform Delay, d1		11.8									17.0			
Progression Factor		1.00									1.00			
Incremental Delay, d2		3.4									3.5			
Delay (s)		15.2									20.5			
Level of Service		B									C			
Approach Delay (s)		15.2			0.0			0.0			20.5			
Approach LOS		B			A			A			C			
Intersection Summary														
HCM 2000 Control Delay			17.3									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.73											
Actuated Cycle Length (s)			60.0								9.0		Sum of lost time (s)	
Intersection Capacity Utilization			60.7%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

Queues

70: 8th Street/8th St & Vine St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	236	2266	738
v/c Ratio	0.12	0.60	0.50
Control Delay	10.8	19.8	27.0
Queue Delay	0.0	19.5	0.0
Total Delay	10.8	39.3	27.0
Queue Length 50th (ft)	50	346	125
Queue Length 95th (ft)	m68	386	163
Internal Link Dist (ft)		254	248
Turn Bay Length (ft)			
Base Capacity (vph)	2038	3782	1480
Starvation Cap Reductn	0	1584	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	1.03	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

70: 8th Street/8th St & Vine St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔	↑↑↑						↑↑↑	
Volume (vph)	0	0	0	227	2175	0	0	0	0	0	449	259
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				5.0	5.0						6.0	
Lane Util. Factor				0.97	0.86						0.91	
Frbp, ped/bikes				1.00	1.00						0.99	
Flpb, ped/bikes				0.99	1.00						1.00	
Frt				1.00	1.00						0.95	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				3563	6610						4847	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				3563	6610						4847	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.96
Adj. Flow (vph)	0	0	0	236	2266	0	0	0	0	0	468	270
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	236	2266	0	0	0	0	0	738	0
Confl. Peds. (#/hr)	59		59	26		26				4		4
Heavy Vehicles (%)	2%	2%	2%	0%	2%	2%	2%	2%	2%	2%	4%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				51.0	51.0						27.0	
Effective Green, g (s)				51.5	51.5						27.5	
Actuated g/C Ratio				0.57	0.57						0.31	
Clearance Time (s)				5.5	5.5						6.5	
Lane Grp Cap (vph)				2038	3782						1481	
v/s Ratio Prot					c0.34						c0.15	
v/s Ratio Perm				0.07								
v/c Ratio				0.12	0.60						0.50	
Uniform Delay, d1				8.8	12.5						25.6	
Progression Factor				1.20	1.52						1.00	
Incremental Delay, d2				0.1	0.6						1.2	
Delay (s)				10.7	19.6						26.8	
Level of Service				B	B						C	
Approach Delay (s)		0.0			18.8			0.0			26.8	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.6		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			11.0				
Intersection Capacity Utilization			58.5%		ICU Level of Service			B				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

71: 7th St & Vine St/Route 30

7/22/2013



Lane Group	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	2057	3	472	1531
v/c Ratio	0.68	0.00	0.29	0.67
Control Delay	20.4	0.0	15.5	21.9
Queue Delay	1.7	0.0	1.2	48.7
Total Delay	22.1	0.0	16.7	70.6
Queue Length 50th (ft)	256	0	78	245
Queue Length 95th (ft)	297	0	113	297
Internal Link Dist (ft)	594			178
Turn Bay Length (ft)		500		
Base Capacity (vph)	3047	777	1602	2280
Starvation Cap Reductn	0	0	871	984
Spillback Cap Reductn	769	0	9	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.90	0.00	0.65	1.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis

71: 7th St & Vine St/Route 30

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑↑	↑↑↑				
Volume (vph)	0	0	0	0	1954	3	448	1454	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5	4.5	4.5	4.5				
Lane Util. Factor					0.86	1.00	0.97	0.91				
Frbp, ped/bikes					1.00	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	1.00	1.00				
Frt					1.00	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					6610	1644	3605	5195				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					6610	1644	3605	5195				
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2057	3	472	1531	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	20	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2057	1	452	1531	0	0	0	0
Confl. Peds. (#/hr)	33		33	2		2	3		3	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	0%	3%	2%	2%	2%	2%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					6			8				
Permitted Phases						6	8					
Actuated Green, G (s)					40.0	40.0	38.0	38.0				
Effective Green, g (s)					41.5	41.5	39.5	39.5				
Actuated g/C Ratio					0.46	0.46	0.44	0.44				
Clearance Time (s)					6.0	6.0	6.0	6.0				
Lane Grp Cap (vph)					3047	758	1582	2280				
v/s Ratio Prot					c0.31			c0.29				
v/s Ratio Perm						0.00	0.13					
v/c Ratio					0.68	0.00	0.29	0.67				
Uniform Delay, d1					19.0	13.1	16.2	20.1				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					1.2	0.0	0.5	1.6				
Delay (s)					20.2	13.1	16.7	21.7				
Level of Service					C	B	B	C				
Approach Delay (s)		0.0			20.2			20.5			0.0	
Approach LOS		A			C			C			A	

Intersection Summary

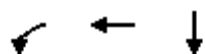
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

73: 8th St & Callowhill St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	324	868	497
v/c Ratio	0.42	0.56	0.34
Control Delay	14.3	14.7	12.4
Queue Delay	0.0	0.0	0.0
Total Delay	14.3	14.7	12.4
Queue Length 50th (ft)	78	118	60
Queue Length 95th (ft)	132	163	89
Internal Link Dist (ft)		389	389
Turn Bay Length (ft)			
Base Capacity (vph)	766	1551	1466
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.42	0.56	0.34
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

73: 8th St & Callowhill St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕						↕	↘
Volume (vph)	0	0	0	285	764	0	0	0	0	0	392	46
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				4.5	4.5						4.5	
Lane Util. Factor				1.00	0.95						0.95	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				0.99	1.00						1.00	
Fr t				1.00	1.00						0.98	
Fl t Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1804	3651						3451	
Fl t Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1804	3651						3451	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	0	0	324	868	0	0	0	0	0	445	52
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	324	868	0	0	0	0	0	497	0
Confl. Peds. (#/hr)	35		35	17		17	2		2	17		17
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				24.0	24.0						24.0	
Effective Green, g (s)				25.5	25.5						25.5	
Actuated g/C Ratio				0.42	0.42						0.42	
Clearance Time (s)				6.0	6.0						6.0	
Lane Grp Cap (vph)				766	1551						1466	
v/s Ratio Prot					c0.24						c0.14	
v/s Ratio Perm				0.18								
v/c Ratio				0.42	0.56						0.34	
Uniform Delay, d1				12.1	13.0						11.6	
Progression Factor				1.00	1.00						1.00	
Incremental Delay, d2				1.7	1.5						0.6	
Delay (s)				13.8	14.5						12.2	
Level of Service				B	B						B	
Approach Delay (s)		0.0			14.3			0.0			12.2	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.7		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			37.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

77: Franklin St & 7th St

7/22/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵			↑↑		
Volume (veh/h)	255	0	0	841	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	283	0	0	934	0	0
Pedestrians	35			63	63	
Lane Width (ft)	10.0			10.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	3			5	0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				285	312	
pX, platoon unblocked	0.81					
vC, conflicting volume	565	98	35			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	98	35			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	100	100			
cM capacity (veh/h)	804	867	1531			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	283	467	467			
Volume Left	283	0	0			
Volume Right	0	0	0			
cSH	804	1700	1700			
Volume to Capacity	0.35	0.27	0.27			
Queue Length 95th (ft)	40	0	0			
Control Delay (s)	11.9	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.9	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization		49.0%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

89: 9th Street & Vine Street

7/22/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	829	0	0	0	0	154
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	901	0	0	0	0	167
Pedestrians				32	3	
Lane Width (ft)				0.0	10.0	
Walking Speed (ft/s)				3.5	3.5	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				456		
pX, platoon unblocked						
vC, conflicting volume			904		904	486
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			904		904	486
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	68
cM capacity (veh/h)			746		276	526

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	451	451	167
Volume Left	0	0	0
Volume Right	0	0	167
cSH	1700	1700	526
Volume to Capacity	0.27	0.27	0.32
Queue Length 95th (ft)	0	0	34
Control Delay (s)	0.0	0.0	15.0
Lane LOS			B
Approach Delay (s)	0.0		15.0
Approach LOS			B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization	40.1%		ICU Level of Service A
Analysis Period (min)		15	

Queues

96: 7th St & Vine Street

7/22/2013



Lane Group	EBL	NBT
Lane Group Flow (vph)	932	1191
v/c Ratio	0.40	0.52
Control Delay	17.2	20.3
Queue Delay	0.9	0.0
Total Delay	18.0	20.3
Queue Length 50th (ft)	120	186
Queue Length 95th (ft)	154	228
Internal Link Dist (ft)	60	232
Turn Bay Length (ft)		
Base Capacity (vph)	2320	2306
Starvation Cap Reductn	1017	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.72	0.52
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

96: 7th St & Vine Street

7/22/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←←			↑↑↑		
Volume (vph)	857	0	0	1096	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	5.5			5.5		
Lane Util. Factor	0.94			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Fr t	1.00			1.00		
Fl t Protected	0.95			1.00		
Satd. Flow (prot)	5148			5211		
Fl t Permitted	0.95			1.00		
Satd. Flow (perm)	5148			5211		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	932	0	0	1191	0	0
RTOR Reduction (vph)	42	0	0	0	0	0
Lane Group Flow (vph)	890	0	0	1191	0	0
Confl. Peds. (#/hr)	10	10	10			
Bus Blockages (#/hr)	0	0	0	5	0	0
Turn Type	NA			NA		
Protected Phases	2			8		
Permitted Phases						
Actuated Green, G (s)	42.0			42.0		
Effective Green, g (s)	42.5			42.5		
Actuated g/C Ratio	0.44			0.44		
Clearance Time (s)	6.0			6.0		
Lane Grp Cap (vph)	2279			2306		
v/s Ratio Prot	c0.17			c0.23		
v/s Ratio Perm						
v/c Ratio	0.39			0.52		
Uniform Delay, d1	18.0			19.3		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.5			0.8		
Delay (s)	18.5			20.2		
Level of Service	B			C		
Approach Delay (s)	18.5			20.2		0.0
Approach LOS	B			C		A













Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group
















HCM 2010 Signalized Intersection Summary
 1: 7th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑	↑		↑↑				
Volume (veh/h)	0	1166	0	0	320	90	61	709	107	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	3	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.86	1.00		0.70			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00			
Adj Sat Flow veh/h/ln	0.0	180.0	0.0	0.0	154.9	189.0	181.4	178.6	181.4			
Lanes	0	3	0	0	2	1	0	2	0			
Cap, veh/h	0	2745	0	0	1575	701	70	854	136			
Arrive On Green	0.00	0.17	0.00	0.00	0.34	0.34	0.11	0.11	0.11			
Sat Flow, veh/h	0	5400	0	0	3098	1379	206	2500	399			
Grp Volume(v), veh/h	0	1227	0	0	337	95	496	0	427			
Grp Sat Flow(s),veh/h/ln	0	1800	0	0	1549	1379	1597	0	1509			
Q Serve(g_s), s	0.0	12.3	0.0	0.0	4.6	2.9	18.4	0.0	16.6			
Cycle Q Clear(g_c), s	0.0	12.3	0.0	0.0	4.6	2.9	18.4	0.0	16.6			
Prop In Lane	0.00		0.00	0.00		1.00	0.13		0.26			
Lane Grp Cap(c), veh/h	0	2745	0	0	1575	701	546	0	516			
V/C Ratio(X)	0.00	0.45	0.00	0.00	0.21	0.14	0.91	0.00	0.83			
Avail Cap(c_a), veh/h	0	2745	0	0	1575	701	546	0	516			
HCM Platoon Ratio	1.00	0.33	1.00	1.00	0.67	0.67	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	17.4	0.0	0.0	11.3	10.7	25.7	0.0	24.9			
Incr Delay (d2), s/veh	0.0	0.5	0.0	0.0	0.3	0.4	21.6	0.0	14.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.4			
%ile Back of Q (95%), veh/ln	0.0	10.1	0.0	0.0	3.1	1.7	16.7	0.0	13.7			
Lane Grp Delay (d), s/veh	0.0	17.9	0.0	0.0	11.6	11.1	47.9	0.0	39.4			
Lane Grp LOS		B			B	B	D		D			
Approach Vol, veh/h		1227			432			923				
Approach Delay, s/veh		17.9			11.5			44.0				
Approach LOS		B			B			D				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		35.0			35.0			25.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		29.0			29.0			19.0				
Max Q Clear Time (g_c+I1), s		14.3			6.6			20.4				
Green Ext Time (p_c), s		8.9			11.5			0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				26.2								
HCM 2010 LOS				C								
Notes												

HCM 2010 Signalized Intersection Summary
3: 8th St & Market St













7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	739	125	0	504	0	0	0	0	73	456	60
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	12	0	0	6	0				0	11	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00				1.00		0.65
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	181.0	189.0	0.0	176.6	0.0				181.4	177.9	181.4
Lanes	0	3	0	0	2	0				0	2	0
Cap, veh/h	0	2349	392	0	1855	0				121	777	107
Arrive On Green	0.00	1.00	1.00	0.00	0.17	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	4475	748	0	3533	0				373	2390	330
Grp Volume(v), veh/h	0	634	285	0	536	0				368	0	259
Grp Sat Flow(s),veh/h/ln	0	1810	1602	0	1766	0				1760	0	1332
Q Serve(g_s), s	0.0	0.0	0.0	0.0	7.9	0.0				12.0	0.0	11.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	7.9	0.0				12.0	0.0	11.1
Prop In Lane	0.00		0.47	0.00		0.00				0.21		0.25
Lane Grp Cap(c), veh/h	0	1900	841	0	1855	0				572	0	433
V/C Ratio(X)	0.00	0.33	0.34	0.00	0.29	0.00				0.64	0.00	0.60
Avail Cap(c_a), veh/h	0	1900	841	0	1855	0				572	0	433
HCM Platoon Ratio	1.00	2.00	2.00	1.00	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	15.1	0.0				23.5	0.0	23.0
Incr Delay (d2), s/veh	0.0	0.5	1.1	0.0	0.4	0.0				5.5	0.0	6.0
Initial Q Delay(d3),s/veh	0.0	0.2	0.2	0.0	0.1	0.0				1.9	0.0	2.9
%ile Back of Q (95%), veh/ln	0.0	0.3	0.5	0.0	7.0	0.0				11.0	0.0	8.6
Lane Grp Delay (d), s/veh	0.0	0.7	1.3	0.0	15.6	0.0				30.8	0.0	31.9
Lane Grp LOS		A	A		B					C		C
Approach Vol, veh/h		919			536						627	
Approach Delay, s/veh		0.9			15.6						31.3	
Approach LOS		A			B						C	
Timer												
Assigned Phs		2			6							4
Phs Duration (G+Y+Rc), s		36.0			36.0							24.0
Change Period (Y+Rc), s		6.0			6.0							6.0
Max Green Setting (Gmax), s		30.0			30.0							18.0
Max Q Clear Time (g_c+I1), s		2.0			9.9							14.0
Green Ext Time (p_c), s		10.4			9.0							1.3
Intersection Summary												
HCM 2010 Ctrl Delay				13.8								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

















5: 9th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑↑				
Volume (veh/h)	0	984	0	0	534	56	78	392	132	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	9	0	0	9	0	0	15	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.83	1.00		0.71			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	0.0	176.6	0.0	0.0	166.1	189.0	181.4	176.8	181.4			
Lanes	0	3	0	0	2	0	0	2	0			
Cap, veh/h	0	2782	0	0	1521	158	119	610	216			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	0	5299	0	0	2898	301	367	1877	664			
Grp Volume(v), veh/h	0	1025	0	0	317	297	386	0	241			
Grp Sat Flow(s),veh/h/ln	0	1766	0	0	1661	1537	1749	0	1159			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	11.9			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	11.9			
Prop In Lane	0.00		0.00	0.00		0.20	0.21		0.57			
Lane Grp Cap(c), veh/h	0	2782	0	0	872	807	568	0	377			
V/C Ratio(X)	0.00	0.37	0.00	0.00	0.36	0.37	0.68	0.00	0.64			
Avail Cap(c_a), veh/h	0	2782	0	0	872	807	568	0	377			
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	23.8	0.0	23.4			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	1.2	1.3	6.4	0.0	8.1			
Initial Q Delay(d3),s/veh	0.0	0.1	0.0	0.0	0.3	0.4	3.9	0.0	7.9			
%ile Back of Q (95%), veh/ln	0.0	0.2	0.0	0.0	0.6	0.6	11.9	0.0	8.9			
Lane Grp Delay (d), s/veh	0.0	0.5	0.0	0.0	1.5	1.6	34.1	0.0	39.4			
Lane Grp LOS		A			A	A	C		D			
Approach Vol, veh/h		1025			614			627				
Approach Delay, s/veh		0.5			1.6			36.1				
Approach LOS		A			A			D				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		36.0			36.0			24.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		30.0			30.0			18.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0			14.8				
Green Ext Time (p_c), s		12.1			12.1			1.2				
Intersection Summary												
HCM 2010 Ctrl Delay					10.6							
HCM 2010 LOS					B							
Notes												

















HCM 2010 Signalized Intersection Summary
12: 5th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	439	549	0	0	226	129	70	722	55	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	3	3	0	0	4	0	0	10	0			
Ped-Bike Adj(A_pbT)	0.84		1.00	1.00		0.65	1.00		0.64			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00			
Adj Sat Flow veh/h/ln	183.5	175.0	0.0	0.0	172.0	189.0	189.0	185.7	189.0			
Lanes	1	2	0	0	2	0	0	2	0			
Cap, veh/h	518	1896	0	0	592	289	81	875	70			
Arrive On Green	0.14	0.54	0.00	0.00	0.32	0.34	0.11	0.10	0.10			
Sat Flow, veh/h	1748	3500	0	0	1822	888	262	2838	226			
Grp Volume(v), veh/h	472	590	0	0	227	155	475	0	435			
Grp Sat Flow(s),veh/h/ln	1748	1750	0	0	1720	990	1658	0	1667			
Q Serve(g_s), s	8.5	5.6	0.0	0.0	6.2	7.4	17.1	0.0	15.4			
Cycle Q Clear(g_c), s	8.5	5.6	0.0	0.0	6.2	7.4	17.1	0.0	15.4			
Prop In Lane	1.00		0.00	0.00		0.90	0.16		0.14			
Lane Grp Cap(c), veh/h	518	1896	0	0	559	322	511	0	514			
V/C Ratio(X)	0.91	0.31	0.00	0.00	0.41	0.48	0.93	0.00	0.85			
Avail Cap(c_a), veh/h	518	1896	0	0	559	322	511	0	514			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	14.6	7.6	0.0	0.0	15.7	15.8	26.3	0.0	25.6			
Incr Delay (d2), s/veh	22.8	0.4	0.0	0.0	2.2	5.1	25.6	0.0	15.7			
Initial Q Delay(d3),s/veh	2.7	0.0	0.0	0.0	0.2	0.5	9.7	0.0	4.4			
%ile Back of Q (95%), veh/ln	6.3	3.9	0.0	0.0	5.1	3.9	18.1	0.0	14.7			
Lane Grp Delay (d), s/veh	40.0	8.0	0.0	0.0	18.1	21.4	61.6	0.0	45.7			
Lane Grp LOS	D	A			B	C	E		D			
Approach Vol, veh/h		1062			382			910				
Approach Delay, s/veh		22.3			19.4			54.0				
Approach LOS		C			B			D				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	13.0	37.0			24.0			23.0				
Change Period (Y+Rc), s	5.0	5.0			5.0			5.0				
Max Green Setting (Gmax), s	8.0	32.0			19.0			18.0				
Max Q Clear Time (g_c+I1), s	10.5	7.6			9.4			19.1				
Green Ext Time (p_c), s	0.0	6.5			4.1			0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					34.1							
HCM 2010 LOS					C							
Notes												













HCM 2010 Signalized Intersection Summary
 21: 10th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	650	101	0	384	0	0	0	0	113	278	90
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	5	0	0	5	0				0	5	5
Ped-Bike Adj(A_pbT)	1.00		0.64	1.00		1.00				1.00		0.55
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	179.7	189.0	0.0	158.8	0.0				189.0	183.2	181.7
Lanes	0	3	0	0	2	0				0	2	1
Cap, veh/h	0	2227	327	0	1668	0				323	851	274
Arrive On Green	0.00	0.52	0.52	0.00	1.00	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	4241	623	0	3176	0				994	2619	844
Grp Volume(v), veh/h	0	568	214	0	400	0				211	197	94
Grp Sat Flow(s),veh/h/ln	0	1797	1270	0	1588	0				1782	1832	844
Q Serve(g_s), s	0.0	5.3	5.8	0.0	0.0	0.0				5.5	4.9	5.1
Cycle Q Clear(g_c), s	0.0	5.3	5.8	0.0	0.0	0.0				5.5	4.9	5.1
Prop In Lane	0.00		0.49	0.00		0.00				0.56		1.00
Lane Grp Cap(c), veh/h	0	1887	667	0	1668	0				579	595	274
V/C Ratio(X)	0.00	0.30	0.32	0.00	0.24	0.00				0.37	0.33	0.34
Avail Cap(c_a), veh/h	0	1887	667	0	1668	0				579	595	274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	8.1	0.0	0.0	0.0				15.5	15.3	15.4
Incr Delay (d2), s/veh	0.0	0.4	1.3	0.0	0.3	0.0				1.8	1.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.1	0.0	0.1	0.0				0.2	0.2	3.6
%ile Back of Q (95%), veh/ln	0.0	3.9	3.2	0.0	0.2	0.0				4.6	4.2	2.5
Lane Grp Delay (d), s/veh	0.0	8.5	9.5	0.0	0.4	0.0				17.5	17.0	22.4
Lane Grp LOS		A	A		A					B	B	C
Approach Vol, veh/h		782			400						502	
Approach Delay, s/veh		8.8			0.4						18.2	
Approach LOS		A			A						B	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		36.0			36.0						24.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		30.0			30.0						18.0	
Max Q Clear Time (g_c+I1), s		7.8			2.0						7.5	
Green Ext Time (p_c), s		7.6			8.2						2.1	
Intersection Summary												
HCM 2010 Ctrl Delay			9.6									
HCM 2010 LOS			A									
Notes												















HCM 2010 Signalized Intersection Summary
 41: 6th Street/6th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑						↑↑	↑
Volume (veh/h)	0	921	117	48	219	0	0	0	0	124	591	114
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	3	3	3	3	0				0	1	1
Ped-Bike Adj(A_pbT)	1.00		0.81	0.97		1.00				1.00		0.68
Parking Bus Adj	1.00	1.00	0.98	1.00	1.00	1.00				0.90	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	181.7	189.0	178.3	176.6	0.0				189.0	188.3	162.9
Lanes	0	2	1	1	2	0				0	2	1
Cap, veh/h	0	1545	539	195	1501	0				250	1259	362
Arrive On Green	0.00	0.14	0.14	0.43	0.43	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	3635	1268	432	3533	0				588	2961	851
Grp Volume(v), veh/h	0	969	123	51	231	0				371	382	120
Grp Sat Flow(s),veh/h/ln	0	1817	1268	432	1766	0				1666	1883	851
Q Serve(g_s), s	0.0	15.1	5.2	6.6	2.4	0.0				12.4	11.2	7.6
Cycle Q Clear(g_c), s	0.0	15.1	5.2	21.7	2.4	0.0				12.4	11.2	7.6
Prop In Lane	0.00		1.00	1.00		0.00				0.35		1.00
Lane Grp Cap(c), veh/h	0	1545	539	195	1501	0				708	800	362
V/C Ratio(X)	0.00	0.63	0.23	0.26	0.15	0.00				0.52	0.48	0.33
Avail Cap(c_a), veh/h	0	1545	539	195	1501	0				708	800	362
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.3	17.1	23.2	10.6	0.0				20.2	19.6	18.1
Incr Delay (d2), s/veh	0.0	1.9	1.0	3.2	0.2	0.0				2.8	2.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.1	0.3	2.3	0.0	0.0				0.0	0.0	0.1
%ile Back of Q (95%), veh/ln	0.0	12.3	3.2	1.7	1.8	0.0				10.1	10.1	3.6
Lane Grp Delay (d), s/veh	0.0	23.3	18.3	28.8	10.9	0.0				22.9	21.7	20.6
Lane Grp LOS		C	B	C	B					C	C	C
Approach Vol, veh/h		1092			282						873	
Approach Delay, s/veh		22.8			14.1						22.1	
Approach LOS		C			B						C	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		30.0			30.0						30.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		24.0			24.0						24.0	
Max Q Clear Time (g_c+I1), s		17.1			23.7						14.4	
Green Ext Time (p_c), s		4.4			0.2						3.5	
Intersection Summary												
HCM 2010 Ctrl Delay			21.4									
HCM 2010 LOS			C									
Notes												
















HCM 2010 Signalized Intersection Summary
43: 5th St & Walnut St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	304	79	63	601	0	0	0	0
Number				1	6	16	3	8	18			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.84	1.00		1.00			
Parking Bus Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln				0.0	178.3	189.0	189.0	183.8	0.0			
Lanes				0	2	0	0	2	0			
Cap, veh/h				0	1121	281	101	738	0			
Arrive On Green				0.00	0.43	0.43	0.43	0.43	0.00			
Sat Flow, veh/h				0	2637	660	0	1737	0			
Grp Volume(v), veh/h				0	213	190	96	603	0			
Grp Sat Flow(s),veh/h/ln				0	1783	1514	65	1672	0			
Q Serve(g_s), s				0.0	4.7	5.0	0.0	19.5	0.0			
Cycle Q Clear(g_c), s				0.0	4.7	5.0	25.5	19.5	0.0			
Prop In Lane				0.00		0.44	0.69		0.00			
Lane Grp Cap(c), veh/h				0	758	644	129	711	0			
V/C Ratio(X)				0.00	0.28	0.30	0.74	0.85	0.00			
Avail Cap(c_a), veh/h				0	758	644	129	711	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)				0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	11.3	11.3	22.8	15.5	0.0			
Incr Delay (d2), s/veh				0.0	0.9	1.2	31.5	12.1	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln				0.0	3.6	3.4	4.5	14.7	0.0			
Lane Grp Delay (d), s/veh				0.0	12.2	12.5	54.3	27.6	0.0			
Lane Grp LOS					B	B	D	C				
Approach Vol, veh/h					403			699				
Approach Delay, s/veh					12.3			31.3				
Approach LOS					B			C				
Timer												
Assigned Phs					6			8				
Phs Duration (G+Y+Rc), s					30.0			30.0				
Change Period (Y+Rc), s					6.0			6.0				
Max Green Setting (Gmax), s					24.0			24.0				
Max Q Clear Time (g_c+I1), s					7.0			27.5				
Green Ext Time (p_c), s					2.0			0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					24.3							
HCM 2010 LOS					C							
Notes												
















HCM 2010 Signalized Intersection Summary
 48: 7th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	21	1396	0	0	0	0	0	815	354	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	1	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.92			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	189.0	181.8	0.0				0.0	185.3	185.3			
Lanes	0	5	0				0	2	1			
Cap, veh/h	71	3068	0				0	1575	616			
Arrive On Green	0.43	0.43	0.00				0.00	0.14	0.14			
Sat Flow, veh/h	0	7220	0				0	3706	1450			
Grp Volume(v), veh/h	129	1348	0				0	849	369			
Grp Sat Flow(s),veh/h/ln	603	1654	0				0	1853	1450			
Q Serve(g_s), s	0.0	8.8	0.0				0.0	12.8	14.3			
Cycle Q Clear(g_c), s	25.5	8.8	0.0				0.0	12.8	14.3			
Prop In Lane	0.18		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	327	2812	0				0	1575	616			
V/C Ratio(X)	0.39	0.48	0.00				0.00	0.54	0.60			
Avail Cap(c_a), veh/h	327	2812	0				0	1575	616			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	13.1	12.5	0.0				0.0	20.3	21.0			
Incr Delay (d2), s/veh	3.5	0.6	0.0				0.0	1.3	4.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	2.5	6.1	0.0				0.0	10.8	10.4			
Lane Grp Delay (d), s/veh	16.6	13.0	0.0				0.0	21.7	25.2			
Lane Grp LOS	B	B						C	C			
Approach Vol, veh/h		1477						1218				
Approach Delay, s/veh		13.4						22.7				
Approach LOS		B						C				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						16.3				
Green Ext Time (p_c), s		0.0						4.3				
Intersection Summary												
HCM 2010 Ctrl Delay			17.6									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
52: 5th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	703	0	0	0	0	0	863	67	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.94			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	189.0	187.2	0.0				0.0	185.3	162.9			
Lanes	0	2	0				0	2	1			
Cap, veh/h	64	1178	0				0	1575	499			
Arrive On Green	0.43	0.43	0.00				0.00	0.43	0.43			
Sat Flow, veh/h	0	2771	0				0	3706	1175			
Grp Volume(v), veh/h	297	469	0				0	918	71			
Grp Sat Flow(s),veh/h/ln	1068	1703	0				0	1853	1175			
Q Serve(g_s), s	0.0	13.1	0.0				0.0	11.4	2.2			
Cycle Q Clear(g_c), s	25.5	13.1	0.0				0.0	11.4	2.2			
Prop In Lane	0.06		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	517	724	0				0	1575	499			
V/C Ratio(X)	0.57	0.65	0.00				0.00	0.58	0.14			
Avail Cap(c_a), veh/h	517	724	0				0	1575	499			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	12.8	13.7	0.0				0.0	13.2	10.6			
Incr Delay (d2), s/veh	4.6	4.5	0.0				0.0	1.6	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	6.1	9.8	0.0				0.0	8.8	1.2			
Lane Grp Delay (d), s/veh	17.4	18.2	0.0				0.0	14.8	11.2			
Lane Grp LOS	B	B						B	B			
Approach Vol, veh/h		766						989				
Approach Delay, s/veh		17.8						14.5				
Approach LOS		B						B				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						13.4				
Green Ext Time (p_c), s		0.0						4.5				
Intersection Summary												
HCM 2010 Ctrl Delay			16.0									
HCM 2010 LOS			B									
Notes												

FRIDAY CASINO PEAK HOUR LOS

Queues

2: 7th St & Chestnut St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	454	544
v/c Ratio	0.55	0.42
Control Delay	27.4	23.5
Queue Delay	0.0	0.0
Total Delay	27.4	23.5
Queue Length 50th (ft)	151	103
Queue Length 95th (ft)	223	148
Internal Link Dist (ft)	336	210
Turn Bay Length (ft)		
Base Capacity (vph)	819	1309
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.55	0.42
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2: 7th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	110	317	0	0	0	0	0	392	119	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		0.98						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		1929						3080				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		1929						3080				
Peak-hour factor, PHF	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	117	337	0	0	0	0	0	417	127	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	454	0	0	0	0	0	544	0	0	0	0
Confl. Peds. (#/hr)	110		110	46		46	134		134	131		131
Heavy Vehicles (%)	0%	6%	2%	2%	2%	2%	2%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	8	0	0	0	0	0	7	0	0	0	0
Parking (#/hr)	0						0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		24.0						24.0				
Effective Green, g (s)		25.5						25.5				
Actuated g/C Ratio		0.42						0.42				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		819						1309				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.24										
v/c Ratio		0.55						0.42				
Uniform Delay, d1		13.0						12.0				
Progression Factor		1.88						1.83				
Incremental Delay, d2		2.0						0.9				
Delay (s)		26.5						23.0				
Level of Service		C						C				
Approach Delay (s)		26.5			0.0			23.0			0.0	
Approach LOS		C			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			24.6					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			39.1%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

4: 8th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	542	735
v/c Ratio	0.68	0.55
Control Delay	15.9	5.5
Queue Delay	0.0	0.0
Total Delay	15.9	5.5
Queue Length 50th (ft)	98	21
Queue Length 95th (ft)	220	m28
Internal Link Dist (ft)	398	143
Turn Bay Length (ft)		
Base Capacity (vph)	802	1336
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.68	0.55

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: 8th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	415	95	0	0	0	0	0	0	110	581	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		*0.60									0.95		
Frpb, ped/bikes		0.98									1.00		
Flpb, ped/bikes		1.00									0.97		
Frt		0.97									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		1889									3144		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		1889									3144		
Peak-hour factor, PHF	0.92	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.92	
Adj. Flow (vph)	0	441	101	0	0	0	0	0	0	117	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	542	0	0	0	0	0	0	0	0	735	0	
Confl. Peds. (#/hr)	162		162	196		196	118		118	240		240	
Heavy Vehicles (%)	2%	5%	0%	2%	2%	2%	2%	2%	2%	0%	1%	2%	
Bus Blockages (#/hr)	0	11	0	0	0	0	0	0	0	0	10	0	
Parking (#/hr)	0											0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0									24.0		
Effective Green, g (s)		25.5									25.5		
Actuated g/C Ratio		0.42									0.42		
Clearance Time (s)		6.0									6.0		
Lane Grp Cap (vph)		802									1336		
v/s Ratio Prot		c0.29											
v/s Ratio Perm											0.23		
v/c Ratio		0.68									0.55		
Uniform Delay, d1		13.9									12.9		
Progression Factor		0.80									0.33		
Incremental Delay, d2		4.2									1.1		
Delay (s)		15.4									5.4		
Level of Service		B									A		
Approach Delay (s)		15.4			0.0			0.0			5.4		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.6									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			46.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

6: 9th St & Chestnut St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	437	459
v/c Ratio	0.45	0.40
Control Delay	12.0	11.2
Queue Delay	0.0	0.0
Total Delay	12.0	11.2
Queue Length 50th (ft)	54	40
Queue Length 95th (ft)	125	58
Internal Link Dist (ft)	343	223
Turn Bay Length (ft)		
Base Capacity (vph)	965	1137
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.45	0.40
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

6: 9th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	58	366	0	0	0	0	0	326	119	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.96				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		2033						3032				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		2033						3032				
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	60	377	0	0	0	0	0	336	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	437	0	0	0	0	0	459	0	0	0	0
Confl. Peds. (#/hr)	105		105	104		104	176		176	258		258
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%	2%	0%	0%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	9	0	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		27.0						21.0				
Effective Green, g (s)		28.5						22.5				
Actuated g/C Ratio		0.48						0.38				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		965						1137				
v/s Ratio Prot								c0.15				
v/s Ratio Perm		0.21										
v/c Ratio		0.45						0.40				
Uniform Delay, d1		10.5						13.8				
Progression Factor		0.98						0.72				
Incremental Delay, d2		1.3						1.1				
Delay (s)		11.6						11.0				
Level of Service		B						B				
Approach Delay (s)		11.6			0.0			11.0			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.3					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			34.2%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: 9th St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	479	466
v/c Ratio	0.34	0.39
Control Delay	12.5	10.4
Queue Delay	0.0	0.0
Total Delay	12.5	10.4
Queue Length 50th (ft)	58	41
Queue Length 95th (ft)	90	71
Internal Link Dist (ft)	674	621
Turn Bay Length (ft)		
Base Capacity (vph)	1390	1201
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.39
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

7: 9th St & Race St

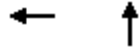
7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	68	373	0	0	0	0	0	211	218	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.0						5.0				
Lane Util. Factor		0.95						0.95				
Frbp, ped/bikes		1.00						0.96				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.92				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3274						2942				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3274						2942				
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)	74	405	0	0	0	0	0	229	237	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	479	0	0	0	0	0	466	0	0	0	0
Confl. Peds. (#/hr)	68		68	47		47	106		106	109		109
Heavy Vehicles (%)	0%	1%	2%	2%	2%	2%	2%	0%	1%	2%	2%	2%
Parking (#/hr)			0				0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		25.0						24.0				
Effective Green, g (s)		25.5						24.5				
Actuated g/C Ratio		0.42						0.41				
Clearance Time (s)		5.5						5.5				
Lane Grp Cap (vph)		1391						1201				
v/s Ratio Prot								c0.16				
v/s Ratio Perm		0.15										
v/c Ratio		0.34						0.39				
Uniform Delay, d1		11.6						12.5				
Progression Factor		1.00						0.74				
Incremental Delay, d2		0.7						0.9				
Delay (s)		12.3						10.2				
Level of Service		B						B				
Approach Delay (s)		12.3			0.0			10.2			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.3					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			36.7%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
8: 7th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	489	482
v/c Ratio	0.36	0.37
Control Delay	20.2	13.4
Queue Delay	0.0	0.0
Total Delay	20.2	13.4
Queue Length 50th (ft)	81	61
Queue Length 95th (ft)	121	93
Internal Link Dist (ft)	382	135
Turn Bay Length (ft)		
Base Capacity (vph)	1343	1318
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.37
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

8: 7th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑			↑↑					
Volume (vph)	0	0	0	0	390	60	111	342	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5			4.5					
Lane Util. Factor					0.95			0.95					
Frbp, ped/bikes					0.99			1.00					
Flpb, ped/bikes					1.00			0.98					
Frt					0.98			1.00					
Flt Protected					1.00			0.99					
Satd. Flow (prot)					3043			3230					
Flt Permitted					1.00			0.99					
Satd. Flow (perm)					3043			3230					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	424	65	118	364	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	489	0	0	482	0	0	0	0	
Confl. Peds. (#/hr)	62		62	67		67	96		96	126		126	
Heavy Vehicles (%)	2%	2%	2%	2%	3%	10%	0%	1%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	15	0	0	0	0	0	0	0	
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					25.0			23.0					
Effective Green, g (s)					26.5			24.5					
Actuated g/C Ratio					0.44			0.41					
Clearance Time (s)					6.0			6.0					
Lane Grp Cap (vph)					1343			1318					
v/s Ratio Prot					0.16								
v/s Ratio Perm								0.15					
v/c Ratio					0.36			0.37					
Uniform Delay, d1					11.1			12.3					
Progression Factor					1.71			1.00					
Incremental Delay, d2					0.7			0.8					
Delay (s)					19.8			13.1					
Level of Service					B			B					
Approach Delay (s)		0.0			19.8			13.1			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			16.5		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.36										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			36.9%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues
9: 8th St & Vine Street

7/22/2013



Lane Group	EBT	EBR	SBT	SEL	SER
Lane Group Flow (vph)	332	250	437	328	283
v/c Ratio	0.49	0.53	0.46	0.36	0.36
Control Delay	35.7	37.9	31.9	14.9	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	37.9	31.9	14.9	15.1
Queue Length 50th (ft)	90	73	90	107	96
Queue Length 95th (ft)	132	115	124	167	157
Internal Link Dist (ft)	164		246	146	
Turn Bay Length (ft)					
Base Capacity (vph)	682	473	955	915	792
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.53	0.46	0.36	0.36

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: 8th St & Vine Street

7/22/2013



Movement	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations	↑↑	↑↑		↑↑↑	↑↑	↑
Volume (vph)	305	230	87	315	273	289
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.0	4.0		3.5	4.0	4.0
Lane Util. Factor	0.95	0.88		0.91	1.00	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frft	1.00	0.85		1.00	0.99	0.85
Flt Protected	1.00	1.00		0.99	0.96	1.00
Satd. Flow (prot)	3724	2584		5212	1810	1567
Flt Permitted	1.00	1.00		0.99	0.96	1.00
Satd. Flow (perm)	3724	2584		5212	1810	1567
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	332	250	95	342	297	314
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	332	250	0	437	328	283
Confl. Peds. (#/hr)		24	3		24	24
Heavy Vehicles (%)	0%	6%	0%	2%	2%	1%
Bus Blockages (#/hr)	0	33	0	0	0	0
Turn Type	NA	Prot	Split	NA	NA	Prot
Protected Phases	2	2	4	4	1	1
Permitted Phases						
Actuated Green, G (s)	15.0	15.0		15.0	44.0	44.0
Effective Green, g (s)	16.5	16.5		16.5	45.5	45.5
Actuated g/C Ratio	0.18	0.18		0.18	0.51	0.51
Clearance Time (s)	5.5	5.5		5.0	5.5	5.5
Lane Grp Cap (vph)	682	473		955	915	792
v/s Ratio Prot	0.09	c0.10		c0.08	c0.18	0.18
v/s Ratio Perm						
v/c Ratio	0.49	0.53		0.46	0.36	0.36
Uniform Delay, d1	33.0	33.2		32.8	13.4	13.4
Progression Factor	1.00	1.00		0.92	1.00	1.00
Incremental Delay, d2	2.5	4.2		1.5	1.1	1.3
Delay (s)	35.4	37.4		31.7	14.5	14.7
Level of Service	D	D		C	B	B
Approach Delay (s)	36.3			31.7	14.6	
Approach LOS	D			C	B	

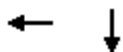
Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

13: 6th St & Arch St

7/22/2013

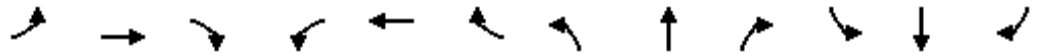


Lane Group	WBT	SBT
Lane Group Flow (vph)	495	772
v/c Ratio	0.37	0.41
Control Delay	13.1	5.1
Queue Delay	0.0	0.0
Total Delay	13.1	5.1
Queue Length 50th (ft)	78	21
Queue Length 95th (ft)	114	28
Internal Link Dist (ft)	322	632
Turn Bay Length (ft)		
Base Capacity (vph)	1337	1903
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.41
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

13: 6th St & Arch St

7/22/2013

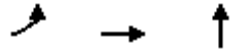


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑						↑↑↑		
Volume (vph)	0	0	0	112	324	0	0	0	0	0	589	91	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5						4.5		
Lane Util. Factor					0.95						0.91		
Frbp, ped/bikes					1.00						0.99		
Flpb, ped/bikes					0.99						1.00		
Frt					1.00						0.98		
Flt Protected					0.99						1.00		
Satd. Flow (prot)					3149						4479		
Flt Permitted					0.99						1.00		
Satd. Flow (perm)					3149						4479		
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.88	0.88	
Adj. Flow (vph)	0	0	0	127	368	0	0	0	0	0	669	103	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	495	0	0	0	0	0	772	0	
Confl. Peds. (#/hr)	23		23	63		63	94		94	102		102	
Heavy Vehicles (%)	2%	2%	2%	4%	3%	2%	2%	2%	2%	2%	3%	12%	
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0	
Parking (#/hr)						0				0			
Turn Type				Perm	NA						NA		
Protected Phases					6						4		
Permitted Phases				6									
Actuated Green, G (s)					24.0						24.0		
Effective Green, g (s)					25.5						25.5		
Actuated g/C Ratio					0.42						0.42		
Clearance Time (s)					6.0						6.0		
Lane Grp Cap (vph)					1338						1903		
v/s Ratio Prot											c0.17		
v/s Ratio Perm					0.16								
v/c Ratio					0.37						0.41		
Uniform Delay, d1					11.8						12.0		
Progression Factor					1.03						0.37		
Incremental Delay, d2					0.8						0.6		
Delay (s)					12.9						5.1		
Level of Service					B						A		
Approach Delay (s)		0.0			12.9			0.0			5.1		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.1		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.39										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			37.4%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

14: 5th St & Chestnut St

7/22/2013



Lane Group	EBL	EBT	NBT
Lane Group Flow (vph)	122	303	492
v/c Ratio	0.20	0.42	0.36
Control Delay	14.4	16.8	23.7
Queue Delay	0.0	0.0	0.0
Total Delay	14.4	16.8	23.7
Queue Length 50th (ft)	28	74	95
Queue Length 95th (ft)	m42	97	141
Internal Link Dist (ft)		348	499
Turn Bay Length (ft)			
Base Capacity (vph)	620	720	1381
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.42	0.36

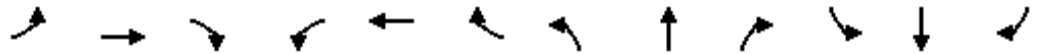
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: 5th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑						↑↑				
Volume (vph)	113	282	0	0	0	0	0	406	51	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.5	4.5						4.5				
Lane Util. Factor	1.00	1.00						0.95				
Frpb, ped/bikes	1.00	1.00						0.99				
Flpb, ped/bikes	0.91	1.00						1.00				
Frt	1.00	1.00						0.98				
Flt Protected	0.95	1.00						1.00				
Satd. Flow (prot)	1459	1696						3252				
Flt Permitted	0.95	1.00						1.00				
Satd. Flow (perm)	1459	1696						3252				
Peak-hour factor, PHF	0.93	0.93	0.92	0.92	0.92	0.92	0.97	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	122	303	0	0	0	0	0	437	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	122	303	0	0	0	0	0	492	0	0	0	0
Confl. Peds. (#/hr)	134		134	195		195	85		85	349		349
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%	2%	0%	0%	2%	2%	2%
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)	24.0	24.0						24.0				
Effective Green, g (s)	25.5	25.5						25.5				
Actuated g/C Ratio	0.42	0.42						0.42				
Clearance Time (s)	6.0	6.0						6.0				
Lane Grp Cap (vph)	620	720						1382				
v/s Ratio Prot		c0.18						c0.15				
v/s Ratio Perm	0.08											
v/c Ratio	0.20	0.42						0.36				
Uniform Delay, d1	10.8	12.1						11.7				
Progression Factor	1.23	1.21						1.94				
Incremental Delay, d2	0.6	1.6						0.7				
Delay (s)	13.9	16.2						23.3				
Level of Service	B	B						C				
Approach Delay (s)		15.5			0.0			23.3			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

22: 10th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	489	456
v/c Ratio	0.64	0.34
Control Delay	18.5	9.6
Queue Delay	0.0	0.0
Total Delay	18.5	9.6
Queue Length 50th (ft)	110	39
Queue Length 95th (ft)	173	50
Internal Link Dist (ft)	521	472
Turn Bay Length (ft)		
Base Capacity (vph)	760	1354
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.64	0.34
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

22: 10th St & Chestnut St

7/22/2013

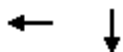


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑									↑↑	
Volume (vph)	0	310	111	0	0	0	0	0	0	71	321	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5									4.5	
Lane Util. Factor		*0.60									0.95	
Frbp, ped/bikes		0.95									1.00	
Flpb, ped/bikes		1.00									0.97	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		1791									3188	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		1791									3188	
Peak-hour factor, PHF	0.92	0.86	0.86	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.86	0.92
Adj. Flow (vph)	0	360	129	0	0	0	0	0	0	83	373	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	489	0	0	0	0	0	0	0	0	456	0
Confl. Peds. (#/hr)	284		284	190		190	243		243	238		238
Heavy Vehicles (%)	2%	6%	1%	2%	2%	2%	2%	2%	2%	1%	1%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	0											0
Turn Type		NA								Perm	NA	
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		24.0									24.0	
Effective Green, g (s)		25.5									25.5	
Actuated g/C Ratio		0.42									0.42	
Clearance Time (s)		6.0									6.0	
Lane Grp Cap (vph)		761									1354	
v/s Ratio Prot		c0.27										
v/s Ratio Perm											0.14	
v/c Ratio		0.64									0.34	
Uniform Delay, d1		13.6									11.6	
Progression Factor		1.00									0.76	
Incremental Delay, d2		4.1									0.7	
Delay (s)		17.8									9.4	
Level of Service		B									A	
Approach Delay (s)		17.8			0.0			0.0			9.4	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			13.7				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			36.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

24: 10th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	533	367
v/c Ratio	0.39	0.29
Control Delay	7.0	14.6
Queue Delay	0.0	0.0
Total Delay	7.0	14.6
Queue Length 50th (ft)	15	47
Queue Length 95th (ft)	21	69
Internal Link Dist (ft)	360	507
Turn Bay Length (ft)		
Base Capacity (vph)	1360	1256
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.39	0.29
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 10th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	62	439	0	0	0	0	0	257	88
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.95	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3202						2955	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3202						2955	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	66	467	0	0	0	0	0	273	94
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	533	0	0	0	0	0	367	0
Confl. Peds. (#/hr)	211		211	132		132	302		302	284		284
Heavy Vehicles (%)	2%	2%	2%	3%	0%	2%	2%	2%	2%	2%	4%	1%
Bus Blockages (#/hr)	0	0	0	0	12	0	0	0	0	0	0	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1360						1255	
v/s Ratio Prot											c0.12	
v/s Ratio Perm					0.17							
v/c Ratio					0.39						0.29	
Uniform Delay, d1					11.9						11.3	
Progression Factor					0.51						1.22	
Incremental Delay, d2					0.8						0.5	
Delay (s)					6.9						14.3	
Level of Service					A						B	
Approach Delay (s)		0.0			6.9			0.0			14.3	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			9.9		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			37.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

25: 8th St & Arch St

7/22/2013



Lane Group	WBT	SBT	SBR
Lane Group Flow (vph)	351	453	123
v/c Ratio	0.27	0.34	0.23
Control Delay	5.8	11.4	12.1
Queue Delay	0.0	0.0	0.0
Total Delay	5.8	11.4	12.1
Queue Length 50th (ft)	19	33	17
Queue Length 95th (ft)	25	70	49
Internal Link Dist (ft)	373	120	
Turn Bay Length (ft)			
Base Capacity (vph)	1322	1341	537
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.34	0.23
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

25: 8th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations					↑↑						↑↑	↑		
Volume (vph)	0	0	0	46	277	0	0	0	0	0	417	113		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)					5.0						5.0	5.0		
Lane Util. Factor					0.95						0.95	1.00		
Frbp, ped/bikes					1.00						1.00	0.91		
Flpb, ped/bikes					1.00						1.00	1.00		
Frt					1.00						1.00	0.85		
Flt Protected					0.99						1.00	1.00		
Satd. Flow (prot)					3111						3286	1316		
Flt Permitted					0.99						1.00	1.00		
Satd. Flow (perm)					3111						3286	1316		
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	50	301	0	0	0	0	0	453	123		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	351	0	0	0	0	0	453	123		
Confl. Peds. (#/hr)	67		67	45		45	103		103	109		109		
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%		
Bus Blockages (#/hr)	0	0	0	0	5	0	0	0	0	0	0	4		
Parking (#/hr)				0		0								
Turn Type				Perm	NA						NA	Perm		
Protected Phases					6						4			
Permitted Phases				6								4		
Actuated Green, G (s)					25.0						24.0	24.0		
Effective Green, g (s)					25.5						24.5	24.5		
Actuated g/C Ratio					0.42						0.41	0.41		
Clearance Time (s)					5.5						5.5	5.5		
Lane Grp Cap (vph)					1322						1341	537		
v/s Ratio Prot											c0.14			
v/s Ratio Perm					0.11							0.09		
v/c Ratio					0.27						0.34	0.23		
Uniform Delay, d1					11.2						12.2	11.6		
Progression Factor					0.46						0.87	0.93		
Incremental Delay, d2					0.5						0.6	0.9		
Delay (s)					5.7						11.2	11.7		
Level of Service					A						B	B		
Approach Delay (s)		0.0			5.7			0.0			11.3			
Approach LOS		A			A			A			B			
Intersection Summary														
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.30											
Actuated Cycle Length (s)			60.0								10.0		Sum of lost time (s)	
Intersection Capacity Utilization			32.3%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

Queues

26: 7th St & Arch St

7/22/2013



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	319	137	457
v/c Ratio	0.24	0.23	0.35
Control Delay	12.7	13.5	13.0
Queue Delay	0.0	0.0	0.0
Total Delay	12.7	13.5	13.0
Queue Length 50th (ft)	53	44	90
Queue Length 95th (ft)	88	90	129
Internal Link Dist (ft)	389		653
Turn Bay Length (ft)			
Base Capacity (vph)	1343	594	1314
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.23	0.35
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

26: 7th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑	↗		↖↑					
Volume (vph)	0	0	0	0	290	125	38	378	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					5.0	5.0		5.0					
Lane Util. Factor					0.95	1.00		0.95					
Frbp, ped/bikes					1.00	0.97		1.00					
Flpb, ped/bikes					1.00	1.00		0.99					
Frt					1.00	0.85		1.00					
Flt Protected					1.00	1.00		1.00					
Satd. Flow (prot)					3162	1399		3220					
Flt Permitted					1.00	1.00		1.00					
Satd. Flow (perm)					3162	1399		3220					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	319	137	42	415	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	319	137	0	457	0	0	0	0	
Confl. Peds. (#/hr)	44		44	19		19	89		89	122		122	
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0	
Parking (#/hr)							0		0				
Turn Type					NA	Perm	Perm	NA					
Protected Phases					6			8					
Permitted Phases						6	8						
Actuated Green, G (s)					25.0	25.0		24.0					
Effective Green, g (s)					25.5	25.5		24.5					
Actuated g/C Ratio					0.42	0.42		0.41					
Clearance Time (s)					5.5	5.5		5.5					
Lane Grp Cap (vph)					1343	594		1314					
v/s Ratio Prot					c0.10								
v/s Ratio Perm						0.10		0.14					
v/c Ratio					0.24	0.23		0.35					
Uniform Delay, d1					11.0	11.0		12.2					
Progression Factor					1.10	1.11		0.99					
Incremental Delay, d2					0.4	0.9		0.7					
Delay (s)					12.5	13.0		12.8					
Level of Service					B	B		B					
Approach Delay (s)		0.0			12.6			12.8			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			12.7		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						10.0		
Intersection Capacity Utilization			31.3%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

28: 9th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	426	148	322
v/c Ratio	0.32	0.25	0.24
Control Delay	18.5	18.2	17.0
Queue Delay	0.0	0.0	0.0
Total Delay	18.5	18.2	17.0
Queue Length 50th (ft)	50	39	43
Queue Length 95th (ft)	92	m80	m76
Internal Link Dist (ft)	344		682
Turn Bay Length (ft)			
Base Capacity (vph)	1311	585	1360
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.25	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

28: 9th St & Arch St

7/22/2013

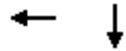


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↑	↑↑				
Volume (vph)	0	0	0	0	320	67	135	293	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0		5.0	5.0				
Lane Util. Factor					0.95		1.00	0.95				
Frbp, ped/bikes					0.99		1.00	1.00				
Flpb, ped/bikes					1.00		0.90	1.00				
Frt					0.97		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					3085		1435	3331				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					3085		1435	3331				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	352	74	148	322	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	426	0	148	322	0	0	0	0
Confl. Peds. (#/hr)	89		89	65		65	137		137	205		205
Heavy Vehicles (%)	2%	2%	2%	2%	5%	0%	5%	0%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	3	0	0	0	0
Parking (#/hr)				0		0						
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					25.0		24.0	24.0				
Effective Green, g (s)					25.5		24.5	24.5				
Actuated g/C Ratio					0.42		0.41	0.41				
Clearance Time (s)					5.5		5.5	5.5				
Lane Grp Cap (vph)					1311		585	1360				
v/s Ratio Prot					c0.14			0.10				
v/s Ratio Perm							c0.10					
v/c Ratio					0.32		0.25	0.24				
Uniform Delay, d1					11.5		11.7	11.6				
Progression Factor					1.52		1.42	1.41				
Incremental Delay, d2					0.6		1.0	0.4				
Delay (s)					18.1		17.6	16.8				
Level of Service					B		B	B				
Approach Delay (s)		0.0			18.1			17.0			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			17.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					10.0		
Intersection Capacity Utilization			28.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

29: 10th St & Arch St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	548	537
v/c Ratio	0.44	0.46
Control Delay	8.2	14.5
Queue Delay	0.0	0.0
Total Delay	8.2	14.5
Queue Length 50th (ft)	40	71
Queue Length 95th (ft)	62	108
Internal Link Dist (ft)	371	412
Turn Bay Length (ft)		
Base Capacity (vph)	1239	1176
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.44	0.46
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

29: 10th St & Arch St

7/22/2013

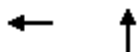


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	116	377	0	0	0	0	0	327	157
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0						5.0	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.92	
Flpb, ped/bikes					0.95						1.00	
Frt					1.00						0.95	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					2917						2884	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					2917						2884	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	0	0	0	129	419	0	0	0	0	0	363	174
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	548	0	0	0	0	0	537	0
Confl. Peds. (#/hr)	444		444	322		322	188		188	331		331
Heavy Vehicles (%)	2%	2%	2%	3%	8%	2%	2%	2%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	3	0
Parking (#/hr)				0		0						0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					25.0						24.0	
Effective Green, g (s)					25.5						24.5	
Actuated g/C Ratio					0.42						0.41	
Clearance Time (s)					5.5						5.5	
Lane Grp Cap (vph)					1239						1177	
v/s Ratio Prot											c0.19	
v/s Ratio Perm					0.19							
v/c Ratio					0.44						0.46	
Uniform Delay, d1					12.2						12.9	
Progression Factor					0.57						1.00	
Incremental Delay, d2					1.1						1.3	
Delay (s)					8.1						14.2	
Level of Service					A						B	
Approach Delay (s)		0.0			8.1			0.0			14.2	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.1								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			60.0							10.0		
Intersection Capacity Utilization			42.5%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

33: 9th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	555	307
v/c Ratio	0.44	0.23
Control Delay	9.2	11.6
Queue Delay	0.0	0.0
Total Delay	9.2	11.6
Queue Length 50th (ft)	22	35
Queue Length 95th (ft)	31	58
Internal Link Dist (ft)	368	360
Turn Bay Length (ft)		
Base Capacity (vph)	1264	1330
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.44	0.23
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

33: 9th St & Walnut St

7/22/2013

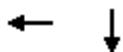


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑			↑↑					
Volume (vph)	0	0	0	0	452	59	69	213	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5			4.5					
Lane Util. Factor					0.95			0.95					
Frbp, ped/bikes					0.99			1.00					
Flpb, ped/bikes					1.00			0.97					
Frt					0.98			1.00					
Flt Protected					1.00			0.99					
Satd. Flow (prot)					2975			3131					
Flt Permitted					1.00			0.99					
Satd. Flow (perm)					2975			3131					
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	0	491	64	75	232	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	555	0	0	307	0	0	0	0	
Confl. Peds. (#/hr)	136		136	89		89	192		192	280		280	
Heavy Vehicles (%)	2%	2%	2%	2%	4%	14%	0%	3%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	21	0	0	0	0	0	0	0	
Parking (#/hr)									0				
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					24.0			24.0					
Effective Green, g (s)					25.5			25.5					
Actuated g/C Ratio					0.42			0.42					
Clearance Time (s)					6.0			6.0					
Lane Grp Cap (vph)					1264			1330					
v/s Ratio Prot					c0.19								
v/s Ratio Perm								0.10					
v/c Ratio					0.44			0.23					
Uniform Delay, d1					12.2			11.0					
Progression Factor					0.66			1.00					
Incremental Delay, d2					1.0			0.4					
Delay (s)					9.1			11.4					
Level of Service					A			B					
Approach Delay (s)		0.0			9.1			11.4			0.0		
Approach LOS		A			A			B			A		
Intersection Summary													
HCM 2000 Control Delay			9.9		HCM 2000 Level of Service				A				
HCM 2000 Volume to Capacity ratio			0.33										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			35.5%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues

34: Walnut St & 8th St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	533	446
v/c Ratio	0.42	0.36
Control Delay	11.5	3.7
Queue Delay	0.0	0.0
Total Delay	11.5	3.7
Queue Length 50th (ft)	70	13
Queue Length 95th (ft)	118	20
Internal Link Dist (ft)	353	489
Turn Bay Length (ft)		
Base Capacity (vph)	1270	1244
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.42	0.36
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

34: Walnut St & 8th St

7/22/2013

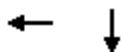


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕						↕↕	
Volume (vph)	0	0	0	80	421	0	0	0	0	0	326	93
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.94	
Flpb, ped/bikes					0.97						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					2990						2928	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					2990						2928	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.92	0.88	0.94	0.94
Adj. Flow (vph)	0	0	0	85	448	0	0	0	0	0	347	99
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	533	0	0	0	0	0	446	0
Confl. Peds. (#/hr)	39		39	305		305	114		114	369		369
Heavy Vehicles (%)	2%	2%	2%	0%	6%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	11	0	0	0	0	0	10	0
Parking (#/hr)				0						0		
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1270						1244	
v/s Ratio Prot											c0.15	
v/s Ratio Perm					0.18							
v/c Ratio					0.42						0.36	
Uniform Delay, d1					12.1						11.7	
Progression Factor					0.86						0.25	
Incremental Delay, d2					1.0						0.7	
Delay (s)					11.3						3.6	
Level of Service					B						A	
Approach Delay (s)		0.0			11.3			0.0			3.6	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					9.0		
Intersection Capacity Utilization			38.9%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

37: 6th Street/6th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	403	673
v/c Ratio	0.34	0.48
Control Delay	8.0	11.8
Queue Delay	0.0	0.0
Total Delay	8.0	11.8
Queue Length 50th (ft)	57	70
Queue Length 95th (ft)	80	178
Internal Link Dist (ft)	357	488
Turn Bay Length (ft)		
Base Capacity (vph)	1180	1406
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.48
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

37: 6th Street/6th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	65	310	0	0	0	0	0	489	137
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.97	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3149						2961	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3149						2961	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.93	0.93
Adj. Flow (vph)	0	0	0	70	333	0	0	0	0	0	526	147
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	403	0	0	0	0	0	673	0
Confl. Peds. (#/hr)	144		144	94		94	141		141	220		220
Heavy Vehicles (%)	2%	2%	2%	0%	5%	2%	2%	2%	2%	2%	0%	3%
Parking (#/hr)	0			0			0			0		0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					21.0						27.0	
Effective Green, g (s)					22.5						28.5	
Actuated g/C Ratio					0.38						0.48	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1180						1406	
v/s Ratio Prot											c0.23	
v/s Ratio Perm					0.13							
v/c Ratio					0.34						0.48	
Uniform Delay, d1					13.4						10.7	
Progression Factor					0.53						0.98	
Incremental Delay, d2					0.8						1.1	
Delay (s)					7.9						11.5	
Level of Service					A						B	
Approach Delay (s)		0.0			7.9			0.0			11.5	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.2								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			60.0								Sum of lost time (s)	9.0
Intersection Capacity Utilization			41.0%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

40: 5th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	320	122	731
v/c Ratio	0.24	0.20	0.52
Control Delay	11.7	11.2	12.2
Queue Delay	0.0	0.0	0.0
Total Delay	11.7	11.2	12.2
Queue Length 50th (ft)	37	21	77
Queue Length 95th (ft)	61	m43	132
Internal Link Dist (ft)	526		282
Turn Bay Length (ft)		100	
Base Capacity (vph)	1327	610	1393
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.20	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

40: 5th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑	↑↑					
Volume (vph)	0	0	0	0	236	77	120	716	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5		4.5	4.5					
Lane Util. Factor					0.95		1.00	0.95					
Frbp, ped/bikes					0.99		1.00	1.00					
Flpb, ped/bikes					1.00		0.94	1.00					
Frt					0.96		1.00	1.00					
Flt Protected					1.00		0.95	1.00					
Satd. Flow (prot)					3123		1436	3279					
Flt Permitted					1.00		0.95	1.00					
Satd. Flow (perm)					3123		1436	3279					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	241	79	122	731	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	320	0	122	731	0	0	0	0	
Confl. Peds. (#/hr)	75		75	21		21	81		81	43		43	
Heavy Vehicles (%)	2%	2%	2%	2%	3%	0%	10%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	2	0	0	1	0	0	0	0	
Parking (#/hr)				0					0				
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					24.0		24.0	24.0					
Effective Green, g (s)					25.5		25.5	25.5					
Actuated g/C Ratio					0.42		0.42	0.42					
Clearance Time (s)					6.0		6.0	6.0					
Lane Grp Cap (vph)					1327		610	1393					
v/s Ratio Prot					c0.10			c0.22					
v/s Ratio Perm							0.08						
v/c Ratio					0.24		0.20	0.52					
Uniform Delay, d1					11.1		10.8	12.8					
Progression Factor					1.00		0.95	0.85					
Incremental Delay, d2					0.4		0.6	1.1					
Delay (s)					11.5		10.8	11.9					
Level of Service					B		B	B					
Approach Delay (s)		0.0			11.5			11.8			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			11.7		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.38										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			36.9%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues

42: 6th St/6th Street & Chestnut St

7/22/2013



Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	388	108	124	625
v/c Ratio	0.56	0.34	0.25	0.44
Control Delay	12.3	12.5	11.8	11.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.3	12.5	11.8	11.4
Queue Length 50th (ft)	56	26	22	57
Queue Length 95th (ft)	134	m78	57	108
Internal Link Dist (ft)	389			512
Turn Bay Length (ft)			50	
Base Capacity (vph)	694	322	505	1410
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.34	0.25	0.44

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

42: 6th St/6th Street & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑	↗							↖	↑↑		
Volume (vph)	0	357	99	0	0	0	0	0	0	114	575	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5	4.5							4.5	4.5		
Lane Util. Factor		1.00	*0.60							1.00	0.95		
Frbp, ped/bikes		1.00	0.91							1.00	1.00		
Flpb, ped/bikes		1.00	1.00							0.74	1.00		
Frt		1.00	0.85							1.00	1.00		
Flt Protected		1.00	1.00							0.95	1.00		
Satd. Flow (prot)		1633	758							1189	3318		
Flt Permitted		1.00	1.00							0.95	1.00		
Satd. Flow (perm)		1633	758							1189	3318		
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	388	108	0	0	0	0	0	0	124	625	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	388	108	0	0	0	0	0	0	124	625	0	
Confl. Peds. (#/hr)	110		110	147		147	84		84	371		371	
Heavy Vehicles (%)	2%	8%	3%	2%	2%	2%	2%	2%	2%	4%	1%	2%	
Bus Blockages (#/hr)	0	0	12	0	0	0	0	0	0	0	0	0	
Turn Type		NA	Perm							Perm	NA		
Protected Phases		2									4		
Permitted Phases			2							4			
Actuated Green, G (s)		24.0	24.0							24.0	24.0		
Effective Green, g (s)		25.5	25.5							25.5	25.5		
Actuated g/C Ratio		0.42	0.42							0.42	0.42		
Clearance Time (s)		6.0	6.0							6.0	6.0		
Lane Grp Cap (vph)		694	322							505	1410		
v/s Ratio Prot		c0.24									c0.19		
v/s Ratio Perm			0.14							0.10			
v/c Ratio		0.56	0.34							0.25	0.44		
Uniform Delay, d1		13.0	11.6							11.1	12.2		
Progression Factor		0.69	0.80							0.92	0.84		
Incremental Delay, d2		2.9	2.5							1.1	1.0		
Delay (s)		11.9	11.7							11.3	11.2		
Level of Service		B	B							B	B		
Approach Delay (s)		11.8			0.0			0.0			11.2		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			11.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.50										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			42.4%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: Race St & 8th St

7/22/2013



Lane Group	EBT	SBL	SBT
Lane Group Flow (vph)	659	218	686
v/c Ratio	0.33	0.40	0.38
Control Delay	7.5	14.7	12.6
Queue Delay	0.0	0.0	0.0
Total Delay	7.5	14.7	12.6
Queue Length 50th (ft)	31	60	62
Queue Length 95th (ft)	45	117	89
Internal Link Dist (ft)	378		453
Turn Bay Length (ft)			
Base Capacity (vph)	1983	547	1814
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.40	0.38
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

46: Race St & 8th St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↑↑↑	
Volume (vph)	0	528	65	0	0	0	0	0	0	322	491	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5								4.5	4.5	
Lane Util. Factor		0.91								0.86	0.86	
Frbp, ped/bikes		0.99								1.00	1.00	
Flpb, ped/bikes		1.00								0.93	0.99	
Frt		0.98								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		4666								1289	4269	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		4666								1289	4269	
Peak-hour factor, PHF	0.96	0.90	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.92
Adj. Flow (vph)	0	587	72	0	0	0	0	0	0	358	546	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	659	0	0	0	0	0	0	0	218	686	0
Confl. Peds. (#/hr)	63		63	8		8	94		94	99		99
Heavy Vehicles (%)	2%	1%	0%	2%	2%	2%	2%	2%	2%	4%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Parking (#/hr)			0									
Turn Type		NA								Perm	NA	
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		24.0								24.0	24.0	
Effective Green, g (s)		25.5								25.5	25.5	
Actuated g/C Ratio		0.42								0.42	0.42	
Clearance Time (s)		6.0								6.0	6.0	
Lane Grp Cap (vph)		1983								547	1814	
v/s Ratio Prot		c0.14										
v/s Ratio Perm										c0.17	0.16	
v/c Ratio		0.33								0.40	0.38	
Uniform Delay, d1		11.6								11.9	11.8	
Progression Factor		0.60								1.00	1.00	
Incremental Delay, d2		0.4								2.2	0.6	
Delay (s)		7.4								14.1	12.4	
Level of Service		A								B	B	
Approach Delay (s)		7.4			0.0			0.0			12.8	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.5								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			60.0								Sum of lost time (s)	9.0
Intersection Capacity Utilization			31.8%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues
49: 6th St & Race St

7/22/2013



Lane Group	EBT	EBR	SBT
Lane Group Flow (vph)	803	95	897
v/c Ratio	0.32	0.16	0.48
Control Delay	5.1	4.8	13.5
Queue Delay	0.0	0.0	0.0
Total Delay	5.1	4.8	13.5
Queue Length 50th (ft)	16	7	81
Queue Length 95th (ft)	20	14	109
Internal Link Dist (ft)	400		133
Turn Bay Length (ft)			
Base Capacity (vph)	2479	596	1870
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.16	0.48
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

49: 6th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑	↗								↖↑↑			
Volume (vph)	0	707	84	0	0	0	0	0	0	201	589	0		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)		4.5	4.5								4.5			
Lane Util. Factor		0.86	1.00								0.91			
Frpb, ped/bikes		1.00	0.95								1.00			
Flpb, ped/bikes		1.00	1.00								1.00			
Frt		1.00	0.85								1.00			
Flt Protected		1.00	1.00								0.99			
Satd. Flow (prot)		5835	1404								4402			
Flt Permitted		1.00	1.00								0.99			
Satd. Flow (perm)		5835	1404								4402			
Peak-hour factor, PHF	0.96	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92		
Adj. Flow (vph)	0	803	95	0	0	0	0	0	0	228	669	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	803	95	0	0	0	0	0	0	0	897	0		
Confl. Peds. (#/hr)	48		48	1		1	97		97	2		2		
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%	2%	2%	2%	1%	4%	2%		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	33	0		
Turn Type		NA	Perm							Perm	NA			
Protected Phases		2									4			
Permitted Phases			2							4				
Actuated Green, G (s)		24.0	24.0								24.0			
Effective Green, g (s)		25.5	25.5								25.5			
Actuated g/C Ratio		0.42	0.42								0.42			
Clearance Time (s)		6.0	6.0								6.0			
Lane Grp Cap (vph)		2479	596								1870			
v/s Ratio Prot		c0.14												
v/s Ratio Perm			0.07								0.20			
v/c Ratio		0.32	0.16								0.48			
Uniform Delay, d1		11.5	10.6								12.5			
Progression Factor		0.41	0.39								1.00			
Incremental Delay, d2		0.3	0.6								0.9			
Delay (s)		5.1	4.7								13.3			
Level of Service		A	A								B			
Approach Delay (s)		5.0			0.0			0.0			13.3			
Approach LOS		A			A			A			B			
Intersection Summary														
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.40											
Actuated Cycle Length (s)			60.0								9.0		Sum of lost time (s)	
Intersection Capacity Utilization			33.3%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

Queues
50: 3rd St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	880	456
v/c Ratio	0.53	0.41
Control Delay	10.3	22.2
Queue Delay	0.1	0.0
Total Delay	10.4	22.2
Queue Length 50th (ft)	92	98
Queue Length 95th (ft)	117	133
Internal Link Dist (ft)	370	275
Turn Bay Length (ft)		
Base Capacity (vph)	1649	1100
Starvation Cap Reductn	112	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.57	0.41
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

50: 3rd St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	104	653	0	0	0	0	0	245	147	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.8						4.9				
Lane Util. Factor		0.95						0.95				
Frpb, ped/bikes		1.00						0.94				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.94				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3264						2930				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3264						2930				
Peak-hour factor, PHF	0.86	0.86	0.92	0.92	0.92	0.92	0.92	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	121	759	0	0	0	0	0	285	171	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	880	0	0	0	0	0	456	0	0	0	0
Confl. Peds. (#/hr)	135		135	165		165	173		173	43		43
Heavy Vehicles (%)	0%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	6	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		45.0						33.3				
Effective Green, g (s)		45.5						33.8				
Actuated g/C Ratio		0.51						0.38				
Clearance Time (s)		6.3						5.4				
Lane Grp Cap (vph)		1650						1100				
v/s Ratio Prot								c0.16				
v/s Ratio Perm		0.27										
v/c Ratio		0.53						0.41				
Uniform Delay, d1		15.1						20.8				
Progression Factor		0.60						1.00				
Incremental Delay, d2		1.1						1.2				
Delay (s)		10.2						21.9				
Level of Service		B						C				
Approach Delay (s)		10.2			0.0			21.9			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

59: 4th St & Race St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	788	479
v/c Ratio	0.47	0.40
Control Delay	15.1	21.9
Queue Delay	0.0	0.0
Total Delay	15.1	21.9
Queue Length 50th (ft)	143	103
Queue Length 95th (ft)	190	145
Internal Link Dist (ft)	410	408
Turn Bay Length (ft)		
Base Capacity (vph)	1665	1203
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.47	0.40
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

59: 4th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	631	94	0	0	0	0	0	0	134	306	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.8									4.9		
Lane Util. Factor		0.95									0.95		
Frbp, ped/bikes		1.00									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		0.98									1.00		
Flt Protected		1.00									0.98		
Satd. Flow (prot)		3221									3205		
Flt Permitted		1.00									0.98		
Satd. Flow (perm)		3221									3205		
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	686	102	0	0	0	0	0	0	146	333	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	788	0	0	0	0	0	0	0	0	479	0	
Confl. Peds. (#/hr)	46		46	30		30	72		72	28		28	
Heavy Vehicles (%)	2%	1%	5%	2%	2%	2%	2%	2%	2%	1%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0	
Parking (#/hr)												0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		45.0									33.3		
Effective Green, g (s)		46.5									33.8		
Actuated g/C Ratio		0.52									0.38		
Clearance Time (s)		6.3									5.4		
Lane Grp Cap (vph)		1664									1203		
v/s Ratio Prot		c0.24											
v/s Ratio Perm											0.15		
v/c Ratio		0.47									0.40		
Uniform Delay, d1		13.9									20.6		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.0									1.0		
Delay (s)		14.9									21.6		
Level of Service		B									C		
Approach Delay (s)		14.9			0.0			0.0			21.6		
Approach LOS		B			A			A			C		
Intersection Summary													
HCM 2000 Control Delay			17.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.7
Intersection Capacity Utilization			44.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

63: Race St & 2nd Street

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	843	673
v/c Ratio	0.52	0.60
Control Delay	11.4	19.1
Queue Delay	0.0	0.0
Total Delay	11.4	19.1
Queue Length 50th (ft)	98	103
Queue Length 95th (ft)	143	152
Internal Link Dist (ft)	462	479
Turn Bay Length (ft)		
Base Capacity (vph)	1611	1120
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.52	0.60
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

63: Race St & 2nd Street

7/22/2013

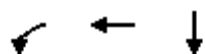


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	607	168	0	0	0	0	0	0	76	543	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		0.95									0.95		
Frpb, ped/bikes		0.99									1.00		
Flpb, ped/bikes		1.00									1.00		
Frt		0.97									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		3172									3279		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		3172									3279		
Peak-hour factor, PHF	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.88	
Adj. Flow (vph)	0	660	183	0	0	0	0	0	0	83	590	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	843	0	0	0	0	0	0	0	0	673	0	
Confl. Peds. (#/hr)	74		74	56		56	123		123	8		8	
Heavy Vehicles (%)	2%	1%	1%	2%	2%	2%	2%	2%	2%	0%	1%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0	
Parking (#/hr)			0									0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		30.0									20.0		
Effective Green, g (s)		30.5									20.5		
Actuated g/C Ratio		0.51									0.34		
Clearance Time (s)		5.0									5.0		
Lane Grp Cap (vph)		1612									1120		
v/s Ratio Prot		0.27											
v/s Ratio Perm											0.21		
v/c Ratio		0.52									0.60		
Uniform Delay, d1		9.9									16.4		
Progression Factor		1.00									1.00		
Incremental Delay, d2		1.2									2.4		
Delay (s)		11.1									18.7		
Level of Service		B									B		
Approach Delay (s)		11.1			0.0			0.0			18.7		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			14.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			51.5%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

70: 8th Street/8th St & Vine St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	175	2021	631
v/c Ratio	0.09	0.53	0.43
Control Delay	11.6	19.0	26.2
Queue Delay	0.0	3.4	0.0
Total Delay	11.6	22.5	26.2
Queue Length 50th (ft)	35	299	104
Queue Length 95th (ft)	54	312	127
Internal Link Dist (ft)		254	248
Turn Bay Length (ft)			
Base Capacity (vph)	2031	3820	1451
Starvation Cap Reductn	0	1675	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.09	0.94	0.43
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

70: 8th Street/8th St & Vine St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔	↑↑↑						↑↑↑	
Volume (vph)	0	0	0	147	1698	0	0	0	0	0	243	287
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				5.0	5.0						6.0	
Lane Util. Factor				0.97	0.86						0.91	
Frbp, ped/bikes				1.00	1.00						0.99	
Flpb, ped/bikes				0.99	1.00						1.00	
Frt				1.00	1.00						0.92	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				3550	6676						4749	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				3550	6676						4749	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.84	0.84
Adj. Flow (vph)	0	0	0	175	2021	0	0	0	0	0	289	342
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	175	2021	0	0	0	0	0	631	0
Confl. Peds. (#/hr)	23		23	14		14	1		1	2		2
Heavy Vehicles (%)	2%	2%	2%	1%	1%	2%	2%	2%	2%	2%	3%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				51.0	51.0						27.0	
Effective Green, g (s)				51.5	51.5						27.5	
Actuated g/C Ratio				0.57	0.57						0.31	
Clearance Time (s)				5.5	5.5						6.5	
Lane Grp Cap (vph)				2031	3820						1451	
v/s Ratio Prot					c0.30						c0.13	
v/s Ratio Perm				0.05								
v/c Ratio				0.09	0.53						0.43	
Uniform Delay, d1				8.7	11.8						25.0	
Progression Factor				1.31	1.56						1.00	
Incremental Delay, d2				0.1	0.5						1.0	
Delay (s)				11.5	18.9						26.0	
Level of Service				B	B						C	
Approach Delay (s)		0.0			18.3			0.0			26.0	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			11.0				
Intersection Capacity Utilization			43.9%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

71: 7th St & Vine St/Route 30

7/22/2013



Lane Group	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1619	10	365	1023
v/c Ratio	0.53	0.01	0.23	0.44
Control Delay	18.0	0.0	14.5	18.4
Queue Delay	0.1	0.0	0.7	3.4
Total Delay	18.1	0.0	15.3	21.8
Queue Length 50th (ft)	183	0	57	143
Queue Length 95th (ft)	217	1	86	180
Internal Link Dist (ft)	594			178
Turn Bay Length (ft)		500		
Base Capacity (vph)	3078	787	1605	2302
Starvation Cap Reductn	0	0	905	1154
Spillback Cap Reductn	372	0	3	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.01	0.52	0.89

Intersection Summary

HCM Signalized Intersection Capacity Analysis

71: 7th St & Vine St/Route 30

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑↑	↗	↘↘	↑↑↑↑				
Volume (vph)	0	0	0	0	1506	9	339	951	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5	4.5	4.5	4.5				
Lane Util. Factor					0.86	1.00	0.97	0.91				
Frbp, ped/bikes					1.00	1.00	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	1.00	1.00				
Frt					1.00	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					6676	1666	3612	5246				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					6676	1666	3612	5246				
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.93	0.93	0.93	0.93	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1619	10	365	1023	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	5	20	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1619	5	345	1023	0	0	0	0
Confl. Peds. (#/hr)	3		3							1		1
Heavy Vehicles (%)	2%	2%	2%	2%	1%	0%	0%	2%	2%	2%	2%	2%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					6			8				
Permitted Phases						6	8					
Actuated Green, G (s)					40.0	40.0	38.0	38.0				
Effective Green, g (s)					41.5	41.5	39.5	39.5				
Actuated g/C Ratio					0.46	0.46	0.44	0.44				
Clearance Time (s)					6.0	6.0	6.0	6.0				
Lane Grp Cap (vph)					3078	768	1585	2302				
v/s Ratio Prot					c0.24			c0.20				
v/s Ratio Perm						0.00	0.10					
v/c Ratio					0.53	0.01	0.22	0.44				
Uniform Delay, d1					17.3	13.1	15.7	17.6				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.6	0.0	0.3	0.6				
Delay (s)					17.9	13.1	16.0	18.2				
Level of Service					B	B	B	B				
Approach Delay (s)		0.0			17.9			17.6			0.0	
Approach LOS		A			B			B			A	

Intersection Summary

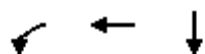
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

73: 8th St & Callowhill St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	308	546	307
v/c Ratio	0.40	0.35	0.21
Control Delay	13.9	12.5	11.4
Queue Delay	0.0	0.0	0.0
Total Delay	13.9	12.5	11.4
Queue Length 50th (ft)	73	66	35
Queue Length 95th (ft)	123	95	55
Internal Link Dist (ft)		389	389
Turn Bay Length (ft)			
Base Capacity (vph)	770	1551	1480
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.35	0.21
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

73: 8th St & Callowhill St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕						↕	↘
Volume (vph)	0	0	0	268	475	0	0	0	0	0	240	27
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				4.5	4.5						4.5	
Lane Util. Factor				1.00	0.95						0.95	
Frbp, ped/bikes				1.00	1.00						0.99	
Flpb, ped/bikes				0.99	1.00						1.00	
Fr _t				1.00	1.00						0.98	
Fl _t Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1814	3651						3484	
Fl _t Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1814	3651						3484	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.87	0.87
Adj. Flow (vph)	0	0	0	308	546	0	0	0	0	0	276	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	308	546	0	0	0	0	0	307	0
Confl. Peds. (#/hr)	13		13	9		9	3		3	67		67
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				24.0	24.0						24.0	
Effective Green, g (s)				25.5	25.5						25.5	
Actuated g/C Ratio				0.42	0.42						0.42	
Clearance Time (s)				6.0	6.0						6.0	
Lane Grp Cap (vph)				770	1551						1480	
v/s Ratio Prot					0.15						c0.09	
v/s Ratio Perm				c0.17								
v/c Ratio				0.40	0.35						0.21	
Uniform Delay, d1				12.0	11.7						10.9	
Progression Factor				1.00	1.00						1.00	
Incremental Delay, d2				1.5	0.6						0.3	
Delay (s)				13.5	12.3						11.2	
Level of Service				B	B						B	
Approach Delay (s)		0.0			12.7			0.0			11.2	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			9.0				
Intersection Capacity Utilization			28.2%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

77: Franklin St & 7th St

7/22/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↵			↑↑		
Volume (veh/h)	175	0	0	466	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.92	0.92	0.90	0.92	0.92
Hourly flow rate (vph)	194	0	0	518	0	0
Pedestrians	22			58	58	
Lane Width (ft)	10.0			10.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	2			5	0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				285	312	
pX, platoon unblocked	0.92					
vC, conflicting volume	339	80	22			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	119	80	22			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	100	100			
cM capacity (veh/h)	787	904	1564			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	194	259	259			
Volume Left	194	0	0			
Volume Right	0	0	0			
cSH	787	1700	1700			
Volume to Capacity	0.25	0.15	0.15			
Queue Length 95th (ft)	24	0	0			
Control Delay (s)	11.1	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.1	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization			32.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

89: 9th Street & Vine Street

7/22/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	373	0	0	0	0	104
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.92	0.95
Hourly flow rate (vph)	393	0	0	0	0	109
Pedestrians	25			25	5	
Lane Width (ft)	10.0			0.0	10.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	2			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				456		
pX, platoon unblocked						
vC, conflicting volume			398		423	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			398		423	226
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			1153		546	780

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	196	196	109
Volume Left	0	0	0
Volume Right	0	0	109
cSH	1700	1700	780
Volume to Capacity	0.12	0.12	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.0	10.4
Lane LOS			B
Approach Delay (s)	0.0		10.4
Approach LOS			B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization	27.7%		ICU Level of Service A
Analysis Period (min)		15	

Queues

96: 7th St & Vine Street

7/22/2013



Lane Group	EBL	NBT
Lane Group Flow (vph)	723	697
v/c Ratio	0.29	0.30
Control Delay	8.5	17.7
Queue Delay	0.3	0.0
Total Delay	8.8	17.7
Queue Length 50th (ft)	45	97
Queue Length 95th (ft)	69	125
Internal Link Dist (ft)	60	232
Turn Bay Length (ft)		
Base Capacity (vph)	2480	2306
Starvation Cap Reductn	1070	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.51	0.30
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

96: 7th St & Vine Street

7/22/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←←			↑↑↑		
Volume (vph)	665	0	0	641	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	5.5			5.5		
Lane Util. Factor	0.94			0.91		
Frbp, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Fr t	1.00			1.00		
Fl t Protected	0.95			1.00		
Satd. Flow (prot)	5148			5211		
Fl t Permitted	0.95			1.00		
Satd. Flow (perm)	5148			5211		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	723	0	0	697	0	0
RTOR Reduction (vph)	202	0	0	0	0	0
Lane Group Flow (vph)	521	0	0	697	0	0
Confl. Peds. (#/hr)	10	10	10			
Bus Blockages (#/hr)	0	0	0	5	0	0
Turn Type	NA			NA		
Protected Phases	2			8		
Permitted Phases						
Actuated Green, G (s)	42.0			42.0		
Effective Green, g (s)	42.5			42.5		
Actuated g/C Ratio	0.44			0.44		
Clearance Time (s)	6.0			6.0		
Lane Grp Cap (vph)	2279			2306		
v/s Ratio Prot	c0.10			c0.13		
v/s Ratio Perm						
v/c Ratio	0.23			0.30		
Uniform Delay, d1	16.6			17.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.2			0.3		
Delay (s)	16.8			17.5		
Level of Service	B			B		
Approach Delay (s)	16.8			17.5	0.0	
Approach LOS	B			B	A	













Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group
















HCM 2010 Signalized Intersection Summary
1: 7th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑	↑		↑↑				
Volume (veh/h)	0	725	0	0	294	43	56	371	56	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.93			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00			
Adj Sat Flow veh/h/ln	0.0	181.7	0.0	0.0	171.8	189.0	181.4	180.1	181.4			
Lanes	0	3	0	0	2	1	0	2	0			
Cap, veh/h	0	2771	0	0	1747	807	125	866	136			
Arrive On Green	0.00	0.17	0.00	0.00	0.17	0.17	0.11	0.11	0.11			
Sat Flow, veh/h	0	5452	0	0	3436	1588	365	2533	397			
Grp Volume(v), veh/h	0	755	0	0	306	45	254	0	248			
Grp Sat Flow(s),veh/h/ln	0	1817	0	0	1718	1588	1602	0	1693			
Q Serve(g_s), s	0.0	7.2	0.0	0.0	4.6	1.4	8.9	0.0	8.2			
Cycle Q Clear(g_c), s	0.0	7.2	0.0	0.0	4.6	1.4	8.9	0.0	8.2			
Prop In Lane	0.00		0.00	0.00		1.00	0.23		0.23			
Lane Grp Cap(c), veh/h	0	2771	0	0	1747	807	547	0	578			
V/C Ratio(X)	0.00	0.27	0.00	0.00	0.18	0.06	0.46	0.00	0.43			
Avail Cap(c_a), veh/h	0	2771	0	0	1747	807	547	0	578			
HCM Platoon Ratio	1.00	0.33	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	15.3	0.0	0.0	14.2	12.9	21.5	0.0	21.2			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.1	2.8	0.0	2.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	0.0	6.5	0.0	0.0	3.6	1.0	7.6	0.0	7.3			
Lane Grp Delay (d), s/veh	0.0	15.5	0.0	0.0	14.4	13.0	24.3	0.0	23.5			
Lane Grp LOS		B			B	B	C		C			
Approach Vol, veh/h		755			351			502				
Approach Delay, s/veh		15.5			14.2			23.9				
Approach LOS		B			B			C				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		35.0			35.0			25.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		29.0			29.0			19.0				
Max Q Clear Time (g_c+I1), s		9.2			6.6			10.9				
Green Ext Time (p_c), s		6.8			7.1			1.7				
Intersection Summary												
HCM 2010 Ctrl Delay					17.9							
HCM 2010 LOS					B							
Notes												

HCM 2010 Signalized Intersection Summary
 3: 8th St & Market St













7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	624	125	0	419	0	0	0	0	77	576	46
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	1.00		1.00				1.00		0.81
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	182.6	189.0	0.0	176.6	0.0				181.4	179.4	181.4
Lanes	0	3	0	0	2	0				0	2	0
Cap, veh/h	0	2292	448	0	1855	0				113	882	74
Arrive On Green	0.00	1.00	1.00	0.00	0.17	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	4365	853	0	3533	0				348	2713	228
Grp Volume(v), veh/h	0	553	244	0	446	0				419	0	325
Grp Sat Flow(s),veh/h/ln	0	1826	1566	0	1766	0				1776	0	1512
Q Serve(g_s), s	0.0	0.0	0.0	0.0	6.5	0.0				13.7	0.0	12.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	6.5	0.0				13.7	0.0	12.4
Prop In Lane	0.00		0.54	0.00		0.00				0.20		0.15
Lane Grp Cap(c), veh/h	0	1917	822	0	1855	0				577	0	492
V/C Ratio(X)	0.00	0.29	0.30	0.00	0.24	0.00				0.73	0.00	0.66
Avail Cap(c_a), veh/h	0	1917	822	0	1855	0				577	0	492
HCM Platoon Ratio	1.00	2.00	2.00	1.00	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	14.5	0.0				24.2	0.0	23.6
Incr Delay (d2), s/veh	0.0	0.4	0.9	0.0	0.3	0.0				7.7	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.0	0.2	0.4	0.0	5.6	0.0				12.3	0.0	10.0
Lane Grp Delay (d), s/veh	0.0	0.4	0.9	0.0	14.8	0.0				31.9	0.0	30.5
Lane Grp LOS		A	A		B					C		C
Approach Vol, veh/h		797			446						744	
Approach Delay, s/veh		0.5			14.8						31.3	
Approach LOS		A			B						C	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		36.0			36.0						24.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		30.0			30.0						18.0	
Max Q Clear Time (g_c+I1), s		2.0			8.5						15.7	
Green Ext Time (p_c), s		8.6			7.8						1.0	
Intersection Summary												
HCM 2010 Ctrl Delay				15.3								
HCM 2010 LOS				B								
Notes												

HCM 2010 Signalized Intersection Summary

















5: 9th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑↑				
Volume (veh/h)	0	695	0	0	540	52	46	263	78	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	1.00		0.76			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	0.0	173.4	0.0	0.0	174.4	189.0	181.4	177.7	181.4			
Lanes	0	3	0	0	2	0	0	2	0			
Cap, veh/h	0	2731	0	0	1632	156	115	663	201			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	0	5202	0	0	3109	296	355	2039	619			
Grp Volume(v), veh/h	0	781	0	0	340	325	258	0	178			
Grp Sat Flow(s),veh/h/ln	0	1734	0	0	1744	1661	1759	0	1254			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	8.0			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	8.0			
Prop In Lane	0.00		0.00	0.00		0.18	0.20		0.49			
Lane Grp Cap(c), veh/h	0	2731	0	0	915	872	572	0	408			
V/C Ratio(X)	0.00	0.29	0.00	0.00	0.37	0.37	0.45	0.00	0.44			
Avail Cap(c_a), veh/h	0	2731	0	0	915	872	572	0	408			
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	21.8	0.0	21.6			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	1.2	1.2	2.6	0.0	3.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	0.0	0.1	0.0	0.0	0.5	0.5	7.7	0.0	5.5			
Lane Grp Delay (d), s/veh	0.0	0.3	0.0	0.0	1.2	1.2	24.3	0.0	25.0			
Lane Grp LOS		A			A	A	C		C			
Approach Vol, veh/h		781			665			436				
Approach Delay, s/veh		0.3			1.2			24.6				
Approach LOS		A			A			C				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		36.0			36.0			24.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		30.0			30.0			18.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0			10.2				
Green Ext Time (p_c), s		10.2			10.2			1.5				
Intersection Summary												
HCM 2010 Ctrl Delay					6.2							
HCM 2010 LOS					A							
Notes												

















HCM 2010 Signalized Intersection Summary
 12: 5th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	280	478	0	0	300	80	69	432	53	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.93		1.00	1.00		0.86	1.00		0.72			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00			
Adj Sat Flow veh/h/ln	181.7	183.5	0.0	0.0	182.1	189.0	189.0	187.5	189.0			
Lanes	1	2	0	0	2	0	0	2	0			
Cap, veh/h	558	1988	0	0	874	226	123	803	102			
Arrive On Green	0.14	0.54	0.00	0.00	0.32	0.34	0.11	0.10	0.10			
Sat Flow, veh/h	1731	3670	0	0	2689	696	398	2605	331			
Grp Volume(v), veh/h	286	488	0	0	204	184	293	0	272			
Grp Sat Flow(s),veh/h/ln	1731	1835	0	0	1821	1564	1668	0	1666			
Q Serve(g_s), s	5.9	4.2	0.0	0.0	5.1	5.4	10.1	0.0	9.3			
Cycle Q Clear(g_c), s	5.9	4.2	0.0	0.0	5.1	5.4	10.1	0.0	9.3			
Prop In Lane	1.00		0.00	0.00		0.44	0.24		0.20			
Lane Grp Cap(c), veh/h	558	1988	0	0	592	508	514	0	514			
V/C Ratio(X)	0.51	0.25	0.00	0.00	0.34	0.36	0.57	0.00	0.53			
Avail Cap(c_a), veh/h	558	1988	0	0	592	508	514	0	514			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.7	7.3	0.0	0.0	15.4	15.3	23.1	0.0	22.8			
Incr Delay (d2), s/veh	3.3	0.3	0.0	0.0	1.6	2.0	4.5	0.0	3.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	4.8	3.1	0.0	0.0	4.3	4.0	8.8	0.0	8.3			
Lane Grp Delay (d), s/veh	13.0	7.6	0.0	0.0	17.0	17.3	27.7	0.0	26.7			
Lane Grp LOS	B	A			B	B	C		C			
Approach Vol, veh/h		774			388			565				
Approach Delay, s/veh		9.6			17.1			27.2				
Approach LOS		A			B			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	13.0	37.0			24.0			23.0				
Change Period (Y+Rc), s	5.0	5.0			5.0			5.0				
Max Green Setting (Gmax), s	8.0	32.0			19.0			18.0				
Max Q Clear Time (g_c+I1), s	7.9	6.2			7.4			12.1				
Green Ext Time (p_c), s	0.0	5.4			3.9			1.6				
Intersection Summary												
HCM 2010 Ctrl Delay				17.0								
HCM 2010 LOS				B								
Notes												



















HCM 2010 Signalized Intersection Summary
 21: 10th St/10th Street & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	522	93	0	382	0	0	0	0	73	252	106
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.78	1.00		1.00				1.00		0.69
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	184.3	189.0	0.0	176.6	0.0				189.0	184.7	185.3
Lanes	0	3	0	0	2	0				0	2	1
Cap, veh/h	0	2312	391	0	1855	0				254	933	356
Arrive On Green	0.00	0.52	0.52	0.00	1.00	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	4404	744	0	3533	0				783	2871	1094
Grp Volume(v), veh/h	0	454	193	0	402	0				178	164	112
Grp Sat Flow(s),veh/h/ln	0	1843	1462	0	1766	0				1807	1847	1094
Q Serve(g_s), s	0.0	4.0	4.3	0.0	0.0	0.0				4.4	4.0	4.6
Cycle Q Clear(g_c), s	0.0	4.0	4.3	0.0	0.0	0.0				4.4	4.0	4.6
Prop In Lane	0.00		0.51	0.00		0.00				0.43		1.00
Lane Grp Cap(c), veh/h	0	1935	768	0	1855	0				587	600	356
V/C Ratio(X)	0.00	0.23	0.25	0.00	0.22	0.00				0.30	0.27	0.31
Avail Cap(c_a), veh/h	0	1935	768	0	1855	0				587	600	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.7	7.8	0.0	0.0	0.0				15.2	15.0	15.2
Incr Delay (d2), s/veh	0.0	0.3	0.8	0.0	0.3	0.0				1.3	1.1	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.0	3.0	2.7	0.0	0.1	0.0				3.7	3.4	2.5
Lane Grp Delay (d), s/veh	0.0	8.0	8.6	0.0	0.3	0.0				16.5	16.1	17.5
Lane Grp LOS		A	A		A					B	B	B
Approach Vol, veh/h		647			402						454	
Approach Delay, s/veh		8.2			0.3						16.6	
Approach LOS		A			A						B	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		36.0			36.0						24.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		30.0			30.0						18.0	
Max Q Clear Time (g_c+I1), s		6.3			2.0						6.6	
Green Ext Time (p_c), s		6.6			6.9						1.9	
Intersection Summary												
HCM 2010 Ctrl Delay			8.6									
HCM 2010 LOS			A									
Notes												















HCM 2010 Signalized Intersection Summary
 41: 6th Street/6th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	649	90	64	292	0	0	0	0	124	478	73
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00				1.00		0.82
Parking Bus Adj	1.00	1.00	0.98	1.00	1.00	1.00				0.90	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	183.5	185.3	189.0	181.7	0.0				189.0	185.6	160.2
Lanes	0	2	1	1	2	0				0	2	1
Cap, veh/h	0	1560	622	279	1545	0				292	1192	429
Arrive On Green	0.00	0.14	0.14	0.43	0.43	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	3670	1464	626	3635	0				687	2806	1010
Grp Volume(v), veh/h	0	683	95	67	307	0				312	322	77
Grp Sat Flow(s),veh/h/ln	0	1835	1464	626	1817	0				1636	1856	1010
Q Serve(g_s), s	0.0	10.2	3.4	5.4	3.2	0.0				10.5	9.5	4.0
Cycle Q Clear(g_c), s	0.0	10.2	3.4	15.6	3.2	0.0				10.5	9.5	4.0
Prop In Lane	0.00		1.00	1.00		0.00				0.42		1.00
Lane Grp Cap(c), veh/h	0	1560	622	279	1545	0				695	789	429
V/C Ratio(X)	0.00	0.44	0.15	0.24	0.20	0.00				0.45	0.41	0.18
Avail Cap(c_a), veh/h	0	1560	622	279	1545	0				695	789	429
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	19.2	16.3	18.7	10.8	0.0				19.3	18.9	16.6
Incr Delay (d2), s/veh	0.0	0.9	0.5	2.0	0.3	0.0				2.1	1.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.0	8.9	2.4	1.7	2.4	0.0				8.7	8.7	2.0
Lane Grp Delay (d), s/veh	0.0	20.1	16.8	20.7	11.1	0.0				21.4	20.5	17.5
Lane Grp LOS		C	B	C	B					C	C	B
Approach Vol, veh/h		778			374						711	
Approach Delay, s/veh		19.7			12.8						20.6	
Approach LOS		B			B						C	
Timer												
Assigned Phs		2			6							4
Phs Duration (G+Y+Rc), s		30.0			30.0						30.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		24.0			24.0						24.0	
Max Q Clear Time (g_c+I1), s		12.2			17.6						12.5	
Green Ext Time (p_c), s		5.3			3.5						3.0	
Intersection Summary												
HCM 2010 Ctrl Delay			18.7									
HCM 2010 LOS			B									
Notes												
















HCM 2010 Signalized Intersection Summary
 43: 5th St & Walnut St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	348	66	41	402	0	0	0	0
Number				1	6	16	3	8	18			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.94	1.00		1.00			
Parking Bus Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln				0.0	184.3	189.0	189.0	179.7	0.0			
Lanes				0	2	0	0	2	0			
Cap, veh/h				0	1270	236	101	723	0			
Arrive On Green				0.00	0.43	0.43	0.43	0.43	0.00			
Sat Flow, veh/h				0	2989	555	0	1700	0			
Grp Volume(v), veh/h				0	224	211	63	403	0			
Grp Sat Flow(s),veh/h/ln				0	1843	1701	66	1635	0			
Q Serve(g_s), s				0.0	4.8	4.9	0.0	11.3	0.0			
Cycle Q Clear(g_c), s				0.0	4.8	4.9	25.5	11.3	0.0			
Prop In Lane				0.00		0.33	0.68		0.00			
Lane Grp Cap(c), veh/h				0	783	723	129	695	0			
V/C Ratio(X)				0.00	0.29	0.29	0.49	0.58	0.00			
Avail Cap(c_a), veh/h				0	783	723	129	695	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)				0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	11.3	11.3	18.9	13.2	0.0			
Incr Delay (d2), s/veh				0.0	0.9	1.0	12.7	3.5	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln				0.0	3.8	3.6	2.5	8.4	0.0			
Lane Grp Delay (d), s/veh				0.0	12.2	12.4	31.6	16.7	0.0			
Lane Grp LOS					B	B	C	B				
Approach Vol, veh/h					435			466				
Approach Delay, s/veh					12.3			18.7				
Approach LOS					B			B				
Timer												
Assigned Phs					6			8				
Phs Duration (G+Y+Rc), s					30.0			30.0				
Change Period (Y+Rc), s					6.0			6.0				
Max Green Setting (Gmax), s					24.0			24.0				
Max Q Clear Time (g_c+I1), s					6.9			27.5				
Green Ext Time (p_c), s					2.1			0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					15.6							
HCM 2010 LOS					B							
Notes												
















HCM 2010 Signalized Intersection Summary
48: 7th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	663	0	0	0	0	0	440	109	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	189.0	183.6	0.0				0.0	185.3	178.3			
Lanes	0	5	0				0	2	1			
Cap, veh/h	120	2840	0				0	1575	619			
Arrive On Green	0.43	0.43	0.00				0.00	0.14	0.14			
Sat Flow, veh/h	0	6682	0				0	3706	1456			
Grp Volume(v), veh/h	29	713	0				0	473	117			
Grp Sat Flow(s),veh/h/ln	0	1670	0				0	1853	1456			
Q Serve(g_s), s	0.0	4.1	0.0				0.0	6.9	4.3			
Cycle Q Clear(g_c), s	25.5	4.1	0.0				0.0	6.9	4.3			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	120	2840	0				0	1575	619			
V/C Ratio(X)	0.24	0.25	0.00				0.00	0.30	0.19			
Avail Cap(c_a), veh/h	120	2840	0				0	1575	619			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33			
Upstream Filter(l)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	30.0	11.1	0.0				0.0	17.8	16.7			
Incr Delay (d2), s/veh	4.7	0.2	0.0				0.0	0.5	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	1.0	2.8	0.0				0.0	6.2	2.9			
Lane Grp Delay (d), s/veh	34.7	11.3	0.0				0.0	18.3	17.3			
Lane Grp LOS	C	B						B	B			
Approach Vol, veh/h		742						590				
Approach Delay, s/veh		12.2						18.1				
Approach LOS		B						B				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						8.9				
Green Ext Time (p_c), s		0.0						3.0				
Intersection Summary												
HCM 2010 Ctrl Delay			14.8									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
 52: 5th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	4	561	0	0	0	0	0	380	34	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.94			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	189.0	187.1	0.0				0.0	185.3	183.5			
Lanes	0	2	0				0	2	1			
Cap, veh/h	61	1321	0				0	1575	563			
Arrive On Green	0.43	0.43	0.00				0.00	0.43	0.43			
Sat Flow, veh/h	0	3108	0				0	3706	1324			
Grp Volume(v), veh/h	272	329	0				0	404	36			
Grp Sat Flow(s),veh/h/ln	1405	1703	0				0	1853	1324			
Q Serve(g_s), s	0.0	8.3	0.0				0.0	4.2	1.0			
Cycle Q Clear(g_c), s	25.5	8.3	0.0				0.0	4.2	1.0			
Prop In Lane	0.01		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	658	724	0				0	1575	563			
V/C Ratio(X)	0.41	0.45	0.00				0.00	0.26	0.06			
Avail Cap(c_a), veh/h	658	724	0				0	1575	563			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	11.9	12.3	0.0				0.0	11.1	10.2			
Incr Delay (d2), s/veh	1.9	2.1	0.0				0.0	0.4	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	5.0	6.3	0.0				0.0	3.3	0.6			
Lane Grp Delay (d), s/veh	13.9	14.4	0.0				0.0	11.5	10.4			
Lane Grp LOS	B	B						B	B			
Approach Vol, veh/h		601						440				
Approach Delay, s/veh		14.1						11.4				
Approach LOS		B						B				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						6.2				
Green Ext Time (p_c), s		0.0						2.3				
Intersection Summary												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									
Notes												

SATURDAY CASINO PEAK HOUR LOS

Queues

2: 7th St & Chestnut St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	495	346
v/c Ratio	0.60	0.27
Control Delay	26.7	23.9
Queue Delay	0.0	0.0
Total Delay	26.7	23.9
Queue Length 50th (ft)	168	67
Queue Length 95th (ft)	240	105
Internal Link Dist (ft)	336	210
Turn Bay Length (ft)		
Base Capacity (vph)	825	1286
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.60	0.27
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

2: 7th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	123	357	0	0	0	0	0	244	91	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.97				
Flpb, ped/bikes		0.97						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		1944						3027				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		1944						3027				
Peak-hour factor, PHF	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.92
Adj. Flow (vph)	127	368	0	0	0	0	0	252	94	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	495	0	0	0	0	0	346	0	0	0	0
Confl. Peds. (#/hr)	187		187	62		62	149		149	219		219
Heavy Vehicles (%)	0%	3%	2%	2%	2%	2%	2%	2%	0%	2%	2%	2%
Bus Blockages (#/hr)	0	8	0	0	0	0	0	7	0	0	0	0
Parking (#/hr)	0						0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		24.0						24.0				
Effective Green, g (s)		25.5						25.5				
Actuated g/C Ratio		0.42						0.42				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		826						1286				
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.25										
v/c Ratio		0.60						0.27				
Uniform Delay, d1		13.3						11.2				
Progression Factor		1.74						2.06				
Incremental Delay, d2		2.6						0.5				
Delay (s)		25.7						23.5				
Level of Service		C						C				
Approach Delay (s)		25.7			0.0			23.5			0.0	
Approach LOS		C			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			24.8					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			35.9%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

4: 8th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	503	708
v/c Ratio	0.62	0.53
Control Delay	14.4	6.2
Queue Delay	0.0	0.0
Total Delay	14.4	6.2
Queue Length 50th (ft)	87	24
Queue Length 95th (ft)	174	33
Internal Link Dist (ft)	398	143
Turn Bay Length (ft)		
Base Capacity (vph)	808	1326
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.62	0.53
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

4: 8th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	339	104	0	0	0	0	0	0	141	482	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		*0.60									0.95		
Frpb, ped/bikes		0.98									1.00		
Flpb, ped/bikes		1.00									0.97		
Frt		0.96									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		1903									3121		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		1903									3121		
Peak-hour factor, PHF	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.92	
Adj. Flow (vph)	0	385	118	0	0	0	0	0	0	160	548	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	503	0	0	0	0	0	0	0	0	708	0	
Confl. Peds. (#/hr)	94		94	230		230	208		208	185		185	
Heavy Vehicles (%)	2%	4%	0%	2%	2%	2%	2%	2%	2%	1%	1%	2%	
Bus Blockages (#/hr)	0	11	0	0	0	0	0	0	0	0	10	0	
Parking (#/hr)	0											0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0									24.0		
Effective Green, g (s)		25.5									25.5		
Actuated g/C Ratio		0.42									0.42		
Clearance Time (s)		6.0									6.0		
Lane Grp Cap (vph)		808									1326		
v/s Ratio Prot		c0.26											
v/s Ratio Perm											0.23		
v/c Ratio		0.62									0.53		
Uniform Delay, d1		13.5									12.8		
Progression Factor		0.79									0.38		
Incremental Delay, d2		3.2									1.2		
Delay (s)		13.9									6.1		
Level of Service		B									A		
Approach Delay (s)		13.9			0.0			0.0			6.1		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.3		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			42.4%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

6: 9th St & Chestnut St

7/22/2013

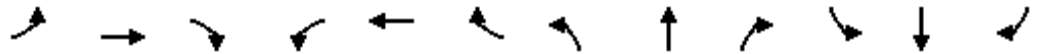


Lane Group	EBT	NBT
Lane Group Flow (vph)	468	563
v/c Ratio	0.49	0.49
Control Delay	12.1	10.6
Queue Delay	0.0	0.0
Total Delay	12.1	10.6
Queue Length 50th (ft)	54	42
Queue Length 95th (ft)	115	54
Internal Link Dist (ft)	343	223
Turn Bay Length (ft)		
Base Capacity (vph)	950	1156
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.49	0.49
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

6: 9th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	51	338	0	0	0	0	0	350	117	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		*0.60						0.95				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		0.98						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		1999						3086				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		1999						3086				
Peak-hour factor, PHF	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	61	407	0	0	0	0	0	422	141	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	468	0	0	0	0	0	563	0	0	0	0
Confl. Peds. (#/hr)	183		183	258		258	78		78	61		61
Heavy Vehicles (%)	2%	1%	2%	2%	2%	2%	2%	1%	0%	2%	2%	2%
Bus Blockages (#/hr)	0	12	0	0	0	0	0	9	0	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		27.0						21.0				
Effective Green, g (s)		28.5						22.5				
Actuated g/C Ratio		0.48						0.38				
Clearance Time (s)		6.0						6.0				
Lane Grp Cap (vph)		949						1157				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.23										
v/c Ratio		0.49						0.49				
Uniform Delay, d1		10.8						14.3				
Progression Factor		0.94						0.63				
Incremental Delay, d2		1.6						1.4				
Delay (s)		11.7						10.4				
Level of Service		B						B				
Approach Delay (s)		11.7			0.0			10.4			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.0					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			33.2%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: 9th St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	463	498
v/c Ratio	0.34	0.42
Control Delay	12.5	11.0
Queue Delay	0.0	0.0
Total Delay	12.5	11.0
Queue Length 50th (ft)	56	43
Queue Length 95th (ft)	87	79
Internal Link Dist (ft)	674	621
Turn Bay Length (ft)		
Base Capacity (vph)	1367	1190
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.42
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

7: 9th St & Race St

7/22/2013

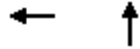


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↑						↑↔				
Volume (vph)	120	324	0	0	0	0	0	229	249	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.0						5.0				
Lane Util. Factor		0.95						0.95				
Frpb, ped/bikes		1.00						0.95				
Flpb, ped/bikes		0.98						1.00				
Frt		1.00						0.92				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3217						2916				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3217						2916				
Peak-hour factor, PHF	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	125	338	0	0	0	0	0	239	259	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	463	0	0	0	0	0	498	0	0	0	0
Confl. Peds. (#/hr)	105		105	34		34	121		121	103		103
Heavy Vehicles (%)	0%	1%	2%	2%	2%	2%	2%	0%	1%	2%	2%	2%
Parking (#/hr)			0				0					
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		25.0						24.0				
Effective Green, g (s)		25.5						24.5				
Actuated g/C Ratio		0.42						0.41				
Clearance Time (s)		5.5						5.5				
Lane Grp Cap (vph)		1367						1190				
v/s Ratio Prot								c0.17				
v/s Ratio Perm		0.14										
v/c Ratio		0.34						0.42				
Uniform Delay, d1		11.6						12.7				
Progression Factor		1.00						0.77				
Incremental Delay, d2		0.7						1.1				
Delay (s)		12.3						10.8				
Level of Service		B						B				
Approach Delay (s)		12.3			0.0			10.8			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.5					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			38.6%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

8: 7th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	508	589
v/c Ratio	0.37	0.45
Control Delay	21.0	14.3
Queue Delay	0.0	0.0
Total Delay	21.0	14.3
Queue Length 50th (ft)	88	77
Queue Length 95th (ft)	117	104
Internal Link Dist (ft)	382	135
Turn Bay Length (ft)		
Base Capacity (vph)	1370	1305
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.37	0.45
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

8: 7th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑↑				
Volume (vph)	0	0	0	0	364	57	116	373	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frbp, ped/bikes					0.99			1.00				
Flpb, ped/bikes					1.00			0.97				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3102			3196				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3102			3196				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.83	0.83	0.83	0.83	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	439	69	140	449	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	508	0	0	589	0	0	0	0
Confl. Peds. (#/hr)	46		46	84		84	145		145	106		106
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	15	0	0	0	0	0	0	0
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					25.0			23.0				
Effective Green, g (s)					26.5			24.5				
Actuated g/C Ratio					0.44			0.41				
Clearance Time (s)					6.0			6.0				
Lane Grp Cap (vph)					1370			1305				
v/s Ratio Prot					0.16							
v/s Ratio Perm								0.18				
v/c Ratio					0.37			0.45				
Uniform Delay, d1					11.2			12.9				
Progression Factor					1.78			1.00				
Incremental Delay, d2					0.7			1.1				
Delay (s)					20.6			14.0				
Level of Service					C			B				
Approach Delay (s)		0.0			20.6			14.0			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			17.1									B
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			60.0								9.0	
Intersection Capacity Utilization			37.2%									A
Analysis Period (min)			15									
c Critical Lane Group												

Queues
9: 8th St & Vine Street

7/22/2013

	→	↘	↓	↙	↘
Lane Group	EBT	EBR	SBT	SEL	SER
Lane Group Flow (vph)	278	214	375	335	220
v/c Ratio	0.41	0.44	0.39	0.36	0.28
Control Delay	34.6	36.1	36.2	14.8	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	36.1	36.2	14.8	14.0
Queue Length 50th (ft)	74	61	78	110	71
Queue Length 95th (ft)	112	100	109	170	121
Internal Link Dist (ft)	164		246	146	
Turn Bay Length (ft)					
Base Capacity (vph)	675	482	956	934	792
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.44	0.39	0.36	0.28
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

9: 8th St & Vine Street

7/22/2013



Movement	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations	↑↑	↑↑		↑↑↑	↑↑	↑
Volume (vph)	256	197	65	280	285	225
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.0	4.0		3.5	4.0	4.0
Lane Util. Factor	0.95	0.88		0.91	1.00	0.95
Frbp, ped/bikes	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	0.85		1.00	0.99	0.85
Fl _t Protected	1.00	1.00		0.99	0.96	1.00
Satd. Flow (prot)	3687	2633		5216	1848	1567
Fl _t Permitted	1.00	1.00		0.99	0.96	1.00
Satd. Flow (perm)	3687	2633		5216	1848	1567
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	214	71	304	310	245
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	278	214	0	375	335	220
Confl. Peds. (#/hr)		13	1		13	13
Heavy Vehicles (%)	1%	4%	0%	2%	0%	1%
Bus Blockages (#/hr)	0	33	0	0	0	0
Turn Type	NA	Prot	Split	NA	NA	Prot
Protected Phases	2	2	4	4	1	1
Permitted Phases						
Actuated Green, G (s)	15.0	15.0		15.0	44.0	44.0
Effective Green, g (s)	16.5	16.5		16.5	45.5	45.5
Actuated g/C Ratio	0.18	0.18		0.18	0.51	0.51
Clearance Time (s)	5.5	5.5		5.0	5.5	5.5
Lane Grp Cap (vph)	675	482		956	934	792
v/s Ratio Prot	0.08	c0.08		c0.07	c0.18	0.14
v/s Ratio Perm						
v/c Ratio	0.41	0.44		0.39	0.36	0.28
Uniform Delay, d ₁	32.5	32.7		32.3	13.4	12.8
Progression Factor	1.00	1.00		1.08	1.00	1.00
Incremental Delay, d ₂	1.9	2.9		1.2	1.1	0.9
Delay (s)	34.3	35.6		36.0	14.5	13.7
Level of Service	C	D		D	B	B
Approach Delay (s)	34.9			36.0	14.2	
Approach LOS	C			D	B	

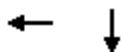
Intersection Summary

HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

13: 6th St & Arch St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	395	689
v/c Ratio	0.29	0.36
Control Delay	11.0	5.7
Queue Delay	0.0	0.0
Total Delay	11.0	5.7
Queue Length 50th (ft)	59	23
Queue Length 95th (ft)	85	29
Internal Link Dist (ft)	322	632
Turn Bay Length (ft)		
Base Capacity (vph)	1366	1923
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.29	0.36
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

13: 6th St & Arch St

7/22/2013

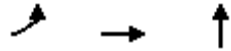


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑↑	
Volume (vph)	0	0	0	67	265	0	0	0	0	0	482	97
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.91	
Frbp, ped/bikes					1.00						0.99	
Flpb, ped/bikes					1.00						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3216						4526	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3216						4526	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.84	0.84
Adj. Flow (vph)	0	0	0	80	315	0	0	0	0	0	574	115
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	395	0	0	0	0	0	689	0
Confl. Peds. (#/hr)	6		6	11		11	52		52	45		45
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	8%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)						0				0		
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1366						1923	
v/s Ratio Prot											c0.15	
v/s Ratio Perm					0.12							
v/c Ratio					0.29						0.36	
Uniform Delay, d1					11.3						11.7	
Progression Factor					0.91						0.44	
Incremental Delay, d2					0.5						0.5	
Delay (s)					10.8						5.6	
Level of Service					B						A	
Approach Delay (s)		0.0			10.8			0.0			5.6	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.5		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			32.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

Queues

14: 5th St & Chestnut St

7/22/2013



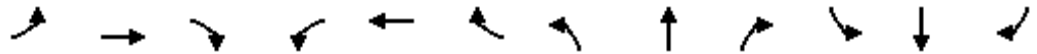
Lane Group	EBL	EBT	NBT
Lane Group Flow (vph)	121	311	456
v/c Ratio	0.19	0.43	0.33
Control Delay	14.8	17.8	23.2
Queue Delay	0.0	0.0	0.0
Total Delay	14.8	17.8	23.2
Queue Length 50th (ft)	29	82	86
Queue Length 95th (ft)	46	106	130
Internal Link Dist (ft)		348	499
Turn Bay Length (ft)			
Base Capacity (vph)	645	728	1374
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.43	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis

14: 5th St & Chestnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↖						↕	↗	↘	↘	↖
Volume (vph)	111	286	0	0	0	0	0	360	60	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)	4.5	4.5						4.5				
Lane Util. Factor	1.00	1.00						0.95				
Frpb, ped/bikes	1.00	1.00						0.99				
Flpb, ped/bikes	0.92	1.00						1.00				
Frt	1.00	1.00						0.98				
Flt Protected	0.95	1.00						1.00				
Satd. Flow (prot)	1518	1713						3232				
Flt Permitted	0.95	1.00						1.00				
Satd. Flow (perm)	1518	1713						3232				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	311	0	0	0	0	0	391	65	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	121	311	0	0	0	0	0	456	0	0	0	0
Confl. Peds. (#/hr)	108		108	124		124	71		71	247		247
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)	24.0	24.0						24.0				
Effective Green, g (s)	25.5	25.5						25.5				
Actuated g/C Ratio	0.42	0.42						0.42				
Clearance Time (s)	6.0	6.0						6.0				
Lane Grp Cap (vph)	645	728						1373				
v/s Ratio Prot		c0.18						c0.14				
v/s Ratio Perm	0.08											
v/c Ratio	0.19	0.43						0.33				
Uniform Delay, d1	10.8	12.1						11.5				
Progression Factor	1.28	1.28						1.92				
Incremental Delay, d2	0.6	1.7						0.6				
Delay (s)	14.4	17.2						22.8				
Level of Service	B	B						C				
Approach Delay (s)		16.4			0.0			22.8			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

22: 10th St & Chestnut St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	475	322
v/c Ratio	0.61	0.23
Control Delay	17.5	9.1
Queue Delay	0.0	0.0
Total Delay	17.5	9.1
Queue Length 50th (ft)	105	25
Queue Length 95th (ft)	161	32
Internal Link Dist (ft)	521	472
Turn Bay Length (ft)		
Base Capacity (vph)	782	1399
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.61	0.23
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

22: 10th St & Chestnut St

7/22/2013

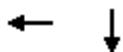


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	306	98	0	0	0	0	0	0	32	241	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		*0.60									0.95		
Frpb, ped/bikes		0.97									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		0.96									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		1839									3293		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		1839									3293		
Peak-hour factor, PHF	0.92	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.92	
Adj. Flow (vph)	0	360	115	0	0	0	0	0	0	38	284	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	475	0	0	0	0	0	0	0	0	322	0	
Confl. Peds. (#/hr)	174		174	132		132	113		113	141		141	
Heavy Vehicles (%)	2%	6%	1%	2%	2%	2%	2%	2%	2%	0%	0%	2%	
Bus Blockages (#/hr)	0	12	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)	0											0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0									24.0		
Effective Green, g (s)		25.5									25.5		
Actuated g/C Ratio		0.42									0.42		
Clearance Time (s)		6.0									6.0		
Lane Grp Cap (vph)		781									1399		
v/s Ratio Prot		c0.26											
v/s Ratio Perm											0.10		
v/c Ratio		0.61									0.23		
Uniform Delay, d1		13.4									11.0		
Progression Factor		1.00									0.78		
Incremental Delay, d2		3.5									0.4		
Delay (s)		16.9									8.9		
Level of Service		B									A		
Approach Delay (s)		16.9			0.0			0.0			8.9		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			13.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			33.6%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

24: 10th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	537	342
v/c Ratio	0.40	0.26
Control Delay	8.6	15.7
Queue Delay	0.0	0.0
Total Delay	8.6	15.7
Queue Length 50th (ft)	20	47
Queue Length 95th (ft)	28	72
Internal Link Dist (ft)	360	507
Turn Bay Length (ft)		
Base Capacity (vph)	1337	1304
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.40	0.26
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

24: 10th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	43	467	0	0	0	0	0	233	92
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5						4.5	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.96	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.96	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					3147						3071	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					3147						3071	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	45	492	0	0	0	0	0	245	97
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	537	0	0	0	0	0	342	0
Confl. Peds. (#/hr)	111		111	126		126	180		180	202		202
Heavy Vehicles (%)	2%	2%	2%	0%	3%	2%	2%	2%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	12	0	0	0	0	0	0	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					24.0						24.0	
Effective Green, g (s)					25.5						25.5	
Actuated g/C Ratio					0.42						0.42	
Clearance Time (s)					6.0						6.0	
Lane Grp Cap (vph)					1337						1305	
v/s Ratio Prot											c0.11	
v/s Ratio Perm					0.17							
v/c Ratio					0.40						0.26	
Uniform Delay, d1					12.0						11.2	
Progression Factor					0.63						1.34	
Incremental Delay, d2					0.8						0.5	
Delay (s)					8.4						15.4	
Level of Service					A						B	
Approach Delay (s)		0.0			8.4			0.0			15.4	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			36.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

25: 8th St & Arch St

7/22/2013



Lane Group	WBT	SBT	SBR
Lane Group Flow (vph)	297	407	136
v/c Ratio	0.22	0.30	0.26
Control Delay	7.0	9.8	10.6
Queue Delay	0.0	0.0	0.0
Total Delay	7.0	9.8	10.6
Queue Length 50th (ft)	19	30	19
Queue Length 95th (ft)	26	54	45
Internal Link Dist (ft)	373	120	
Turn Bay Length (ft)			
Base Capacity (vph)	1328	1341	533
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.30	0.26
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

25: 8th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕↕						↕↕	↗	
Volume (vph)	0	0	0	29	250	0	0	0	0	0	383	128	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					5.0						5.0	5.0	
Lane Util. Factor					0.95						0.95	1.00	
Frbp, ped/bikes					1.00						1.00	0.93	
Flpb, ped/bikes					1.00						1.00	1.00	
Frt					1.00						1.00	0.85	
Flt Protected					0.99						1.00	1.00	
Satd. Flow (prot)					3126						3286	1306	
Flt Permitted					0.99						1.00	1.00	
Satd. Flow (perm)					3126						3286	1306	
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.94	0.94	
Adj. Flow (vph)	0	0	0	31	266	0	0	0	0	0	407	136	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	297	0	0	0	0	0	407	136	
Confl. Peds. (#/hr)	35		35	30		30	65		65	81		81	
Heavy Vehicles (%)	2%	2%	2%	0%	6%	2%	2%	2%	2%	2%	2%	5%	
Bus Blockages (#/hr)	0	0	0	0	5	0	0	0	0	0	0	4	
Parking (#/hr)				0		0							
Turn Type				Perm	NA						NA	Perm	
Protected Phases					6						4		
Permitted Phases				6								4	
Actuated Green, G (s)					25.0						24.0	24.0	
Effective Green, g (s)					25.5						24.5	24.5	
Actuated g/C Ratio					0.42						0.41	0.41	
Clearance Time (s)					5.5						5.5	5.5	
Lane Grp Cap (vph)					1328						1341	533	
v/s Ratio Prot											c0.12		
v/s Ratio Perm					0.10							0.10	
v/c Ratio					0.22						0.30	0.26	
Uniform Delay, d1					11.0						12.0	11.7	
Progression Factor					0.59						0.76	0.78	
Incremental Delay, d2					0.4						0.6	1.1	
Delay (s)					6.9						9.7	10.2	
Level of Service					A						A	B	
Approach Delay (s)		0.0			6.9			0.0			9.8		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.8		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.26										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					10.0			
Intersection Capacity Utilization			30.1%		ICU Level of Service					A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

26: 7th St & Arch St

7/22/2013



Lane Group	WBT	WBR	NBT
Lane Group Flow (vph)	278	112	413
v/c Ratio	0.21	0.18	0.31
Control Delay	11.9	12.4	12.2
Queue Delay	0.0	0.0	0.0
Total Delay	11.9	12.4	12.2
Queue Length 50th (ft)	42	32	72
Queue Length 95th (ft)	73	71	107
Internal Link Dist (ft)	389		653
Turn Bay Length (ft)			
Base Capacity (vph)	1356	609	1336
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.18	0.31
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

26: 7th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑	↑		↑↑					
Volume (vph)	0	0	0	0	261	105	32	356	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					5.0	5.0		5.0					
Lane Util. Factor					0.95	1.00		0.95					
Frbp, ped/bikes					1.00	0.98		1.00					
Flpb, ped/bikes					1.00	1.00		1.00					
Frt					1.00	0.85		1.00					
Flt Protected					1.00	1.00		1.00					
Satd. Flow (prot)					3192	1434		3271					
Flt Permitted					1.00	1.00		1.00					
Satd. Flow (perm)					3192	1434		3271					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	278	112	34	379	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	278	112	0	413	0	0	0	0	
Confl. Peds. (#/hr)	36		36	12		12	61		61	47		47	
Heavy Vehicles (%)	2%	2%	2%	2%	5%	0%	9%	1%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0	
Parking (#/hr)							0		0				
Turn Type					NA	Perm	Perm	NA					
Protected Phases					6			8					
Permitted Phases						6	8						
Actuated Green, G (s)					25.0	25.0		24.0					
Effective Green, g (s)					25.5	25.5		24.5					
Actuated g/C Ratio					0.42	0.42		0.41					
Clearance Time (s)					5.5	5.5		5.5					
Lane Grp Cap (vph)					1356	609		1335					
v/s Ratio Prot					c0.09								
v/s Ratio Perm						0.08		0.13					
v/c Ratio					0.21	0.18		0.31					
Uniform Delay, d1					10.9	10.8		12.0					
Progression Factor					1.05	1.06		0.95					
Incremental Delay, d2					0.3	0.6		0.6					
Delay (s)					11.7	12.0		12.0					
Level of Service					B	B		B					
Approach Delay (s)		0.0			11.8			12.0			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio			0.26										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				10.0				
Intersection Capacity Utilization			29.7%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

Queues

28: 9th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	440	128	336
v/c Ratio	0.33	0.20	0.25
Control Delay	16.0	16.9	16.5
Queue Delay	0.0	0.0	0.0
Total Delay	16.0	16.9	16.5
Queue Length 50th (ft)	48	32	45
Queue Length 95th (ft)	83	69	75
Internal Link Dist (ft)	344		682
Turn Bay Length (ft)			
Base Capacity (vph)	1326	628	1347
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.20	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis

28: 9th St & Arch St

7/22/2013

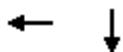


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑	↑↑					
Volume (vph)	0	0	0	0	334	58	114	299	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					5.0		5.0	5.0					
Lane Util. Factor					0.95		1.00	0.95					
Frbp, ped/bikes					0.99		1.00	1.00					
Flpb, ped/bikes					1.00		0.94	1.00					
Frt					0.98		1.00	1.00					
Flt Protected					1.00		0.95	1.00					
Satd. Flow (prot)					3121		1540	3299					
Flt Permitted					1.00		0.95	1.00					
Satd. Flow (perm)					3121		1540	3299					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	375	65	128	336	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	440	0	128	336	0	0	0	0	
Confl. Peds. (#/hr)	113		113	73		73	85		85	160		160	
Heavy Vehicles (%)	2%	2%	2%	2%	4%	0%	2%	1%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	3	0	0	3	0	0	0	0	
Parking (#/hr)				0		0							
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					25.0		24.0	24.0					
Effective Green, g (s)					25.5		24.5	24.5					
Actuated g/C Ratio					0.42		0.41	0.41					
Clearance Time (s)					5.5		5.5	5.5					
Lane Grp Cap (vph)					1326		628	1347					
v/s Ratio Prot					c0.14			c0.10					
v/s Ratio Perm							0.08						
v/c Ratio					0.33		0.20	0.25					
Uniform Delay, d1					11.5		11.5	11.7					
Progression Factor					1.30		1.37	1.35					
Incremental Delay, d2					0.7		0.7	0.4					
Delay (s)					15.7		16.4	16.2					
Level of Service					B		B	B					
Approach Delay (s)		0.0			15.7			16.3			0.0		
Approach LOS		A			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			16.0		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						10.0		
Intersection Capacity Utilization			28.5%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

29: 10th St & Arch St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	494	461
v/c Ratio	0.39	0.39
Control Delay	7.3	13.8
Queue Delay	0.0	0.0
Total Delay	7.3	13.8
Queue Length 50th (ft)	31	59
Queue Length 95th (ft)	50	92
Internal Link Dist (ft)	371	412
Turn Bay Length (ft)		
Base Capacity (vph)	1283	1178
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.39	0.39
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

29: 10th St & Arch St

7/22/2013

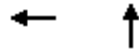


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑						↑↑	
Volume (vph)	0	0	0	88	366	0	0	0	0	0	270	155
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					5.0						5.0	
Lane Util. Factor					0.95						0.95	
Frbp, ped/bikes					1.00						0.92	
Flpb, ped/bikes					0.96						1.00	
Frt					1.00						0.95	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					3020						2887	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					3020						2887	
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	96	398	0	0	0	0	0	293	168
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	494	0	0	0	0	0	461	0
Confl. Peds. (#/hr)	387		387	295		295	182		182	288		288
Heavy Vehicles (%)	2%	2%	2%	0%	6%	2%	2%	2%	2%	2%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	3	0
Parking (#/hr)				0		0						0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					25.0						24.0	
Effective Green, g (s)					25.5						24.5	
Actuated g/C Ratio					0.42						0.41	
Clearance Time (s)					5.5						5.5	
Lane Grp Cap (vph)					1283						1178	
v/s Ratio Prot											c0.16	
v/s Ratio Perm					0.16							
v/c Ratio					0.39						0.39	
Uniform Delay, d1					11.9						12.5	
Progression Factor					0.54						1.00	
Incremental Delay, d2					0.8						1.0	
Delay (s)					7.2						13.5	
Level of Service					A						B	
Approach Delay (s)		0.0			7.2			0.0			13.5	
Approach LOS		A			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.2								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			60.0							10.0		
Intersection Capacity Utilization			40.0%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

33: 9th St & Walnut St

7/22/2013



Lane Group	WBT	NBT
Lane Group Flow (vph)	534	430
v/c Ratio	0.42	0.33
Control Delay	9.1	12.4
Queue Delay	0.0	0.0
Total Delay	9.1	12.4
Queue Length 50th (ft)	21	52
Queue Length 95th (ft)	30	81
Internal Link Dist (ft)	368	360
Turn Bay Length (ft)		
Base Capacity (vph)	1283	1322
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.42	0.33
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

33: 9th St & Walnut St

7/22/2013

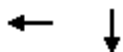


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑			↑↑				
Volume (vph)	0	0	0	0	445	57	94	310	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5			4.5				
Lane Util. Factor					0.95			0.95				
Frbp, ped/bikes					0.98			1.00				
Flpb, ped/bikes					1.00			0.95				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					3018			3110				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					3018			3110				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	473	61	100	330	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	534	0	0	430	0	0	0	0
Confl. Peds. (#/hr)	138		138	251		251	317		317	391		391
Heavy Vehicles (%)	2%	2%	2%	2%	2%	5%	1%	1%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	21	0	0	0	0	0	0	0
Parking (#/hr)									0			
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Actuated Green, G (s)					24.0			24.0				
Effective Green, g (s)					25.5			25.5				
Actuated g/C Ratio					0.42			0.42				
Clearance Time (s)					6.0			6.0				
Lane Grp Cap (vph)					1282			1321				
v/s Ratio Prot					c0.18							
v/s Ratio Perm								0.14				
v/c Ratio					0.42			0.33				
Uniform Delay, d1					12.1			11.5				
Progression Factor					0.66			1.00				
Incremental Delay, d2					0.9			0.7				
Delay (s)					8.9			12.2				
Level of Service					A			B				
Approach Delay (s)		0.0			8.9			12.2			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.4					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			37.3%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

34: Walnut St & 8th St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	534	383
v/c Ratio	0.41	0.32
Control Delay	11.7	4.4
Queue Delay	0.0	0.0
Total Delay	11.7	4.4
Queue Length 50th (ft)	64	14
Queue Length 95th (ft)	108	22
Internal Link Dist (ft)	353	489
Turn Bay Length (ft)		
Base Capacity (vph)	1317	1203
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.32
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

34: Walnut St & 8th St

7/22/2013

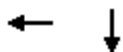


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑						↑↑		
Volume (vph)	0	0	0	67	414	0	0	0	0	0	252	93	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5						4.5		
Lane Util. Factor					0.95						0.95		
Frbp, ped/bikes					1.00						0.92		
Flpb, ped/bikes					0.97						1.00		
Frt					1.00						0.96		
Flt Protected					0.99						1.00		
Satd. Flow (prot)					3101						2831		
Flt Permitted					0.99						1.00		
Satd. Flow (perm)					3101						2831		
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.92	0.92	0.92	0.92	0.88	0.90	0.90	
Adj. Flow (vph)	0	0	0	74	460	0	0	0	0	0	280	103	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	534	0	0	0	0	0	383	0	
Confl. Peds. (#/hr)	28		28	318		318	86		86	395		395	
Heavy Vehicles (%)	2%	2%	2%	0%	2%	2%	2%	2%	2%	2%	2%	5%	
Bus Blockages (#/hr)	0	0	0	0	11	0	0	0	0	0	10	0	
Parking (#/hr)				0						0			
Turn Type				Perm	NA						NA		
Protected Phases					6						4		
Permitted Phases				6									
Actuated Green, G (s)					24.0						24.0		
Effective Green, g (s)					25.5						25.5		
Actuated g/C Ratio					0.42						0.42		
Clearance Time (s)					6.0						6.0		
Lane Grp Cap (vph)					1317						1203		
v/s Ratio Prot											c0.14		
v/s Ratio Perm					0.17								
v/c Ratio					0.41						0.32		
Uniform Delay, d1					12.0						11.5		
Progression Factor					0.88						0.33		
Incremental Delay, d2					0.9						0.6		
Delay (s)					11.5						4.3		
Level of Service					B						A		
Approach Delay (s)		0.0			11.5			0.0			4.3		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.5		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.36										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			36.8%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

37: 6th Street/6th St & Walnut St

7/22/2013



Lane Group	WBT	SBT
Lane Group Flow (vph)	393	531
v/c Ratio	0.33	0.38
Control Delay	7.8	10.5
Queue Delay	0.0	0.0
Total Delay	7.8	10.5
Queue Length 50th (ft)	41	57
Queue Length 95th (ft)	57	94
Internal Link Dist (ft)	357	488
Turn Bay Length (ft)		
Base Capacity (vph)	1192	1403
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.33	0.38
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

37: 6th Street/6th St & Walnut St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations					↑↑						↑↑			
Volume (vph)	0	0	0	48	302	0	0	0	0	0	361	111		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)					4.5						4.5			
Lane Util. Factor					0.95						0.95			
Frbp, ped/bikes					1.00						0.97			
Flpb, ped/bikes					0.98						1.00			
Frt					1.00						0.96			
Flt Protected					0.99						1.00			
Satd. Flow (prot)					3182						2953			
Flt Permitted					0.99						1.00			
Satd. Flow (perm)					3182						2953			
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89		
Adj. Flow (vph)	0	0	0	54	339	0	0	0	0	0	406	125		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	0	0	0	393	0	0	0	0	0	531	0		
Confl. Peds. (#/hr)	129		129	176		176	235		235	196		196		
Heavy Vehicles (%)	2%	2%	2%	0%	3%	2%	2%	2%	2%	2%	1%	0%		
Parking (#/hr)	0			0			0			0		0		
Turn Type				Perm	NA						NA			
Protected Phases					6						4			
Permitted Phases				6										
Actuated Green, G (s)					21.0						27.0			
Effective Green, g (s)					22.5						28.5			
Actuated g/C Ratio					0.38						0.48			
Clearance Time (s)					6.0						6.0			
Lane Grp Cap (vph)					1193						1402			
v/s Ratio Prot											c0.18			
v/s Ratio Perm					0.12									
v/c Ratio					0.33						0.38			
Uniform Delay, d1					13.4						10.1			
Progression Factor					0.52						0.94			
Incremental Delay, d2					0.7						0.7			
Delay (s)					7.7						10.3			
Level of Service					A						B			
Approach Delay (s)		0.0			7.7			0.0			10.3			
Approach LOS		A			A			A			B			
Intersection Summary														
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.36											
Actuated Cycle Length (s)			60.0								9.0		Sum of lost time (s)	
Intersection Capacity Utilization			36.0%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

Queues

40: 5th St & Arch St

7/22/2013



Lane Group	WBT	NBL	NBT
Lane Group Flow (vph)	256	85	601
v/c Ratio	0.19	0.14	0.43
Control Delay	11.3	9.4	9.9
Queue Delay	0.0	0.0	0.0
Total Delay	11.3	9.4	9.9
Queue Length 50th (ft)	28	14	61
Queue Length 95th (ft)	49	m31	90
Internal Link Dist (ft)	526		282
Turn Bay Length (ft)		100	
Base Capacity (vph)	1339	592	1393
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	0.14	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

40: 5th St & Arch St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑		↑	↑↑					
Volume (vph)	0	0	0	0	190	61	83	589	0	0	0	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)					4.5		4.5	4.5					
Lane Util. Factor					0.95		1.00	0.95					
Frbp, ped/bikes					0.99		1.00	1.00					
Flpb, ped/bikes					1.00		0.95	1.00					
Frt					0.96		1.00	1.00					
Flt Protected					1.00		0.95	1.00					
Satd. Flow (prot)					3151		1395	3279					
Flt Permitted					1.00		0.95	1.00					
Satd. Flow (perm)					3151		1395	3279					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	194	62	85	601	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	256	0	85	601	0	0	0	0	
Confl. Peds. (#/hr)	55		55	16		16	72		72	40		40	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	14%	2%	2%	2%	2%	2%	
Bus Blockages (#/hr)	0	0	0	0	2	0	0	1	0	0	0	0	
Parking (#/hr)				0					0				
Turn Type					NA		Perm	NA					
Protected Phases					6			8					
Permitted Phases							8						
Actuated Green, G (s)					24.0		24.0	24.0					
Effective Green, g (s)					25.5		25.5	25.5					
Actuated g/C Ratio					0.42		0.42	0.42					
Clearance Time (s)					6.0		6.0	6.0					
Lane Grp Cap (vph)					1339		592	1393					
v/s Ratio Prot					c0.08			c0.18					
v/s Ratio Perm							0.06						
v/c Ratio					0.19		0.14	0.43					
Uniform Delay, d1					10.8		10.6	12.1					
Progression Factor					1.00		0.82	0.73					
Incremental Delay, d2					0.3		0.4	0.9					
Delay (s)					11.1		9.1	9.7					
Level of Service					B		A	A					
Approach Delay (s)		0.0			11.1			9.6			0.0		
Approach LOS		A			B			A			A		
Intersection Summary													
HCM 2000 Control Delay			10.0		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.31										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			31.5%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues

42: 6th St/6th Street & Chestnut St

7/22/2013















Lane Group	EBT	EBR	SBL	SBT
Lane Group Flow (vph)	364	93	142	533
v/c Ratio	0.50	0.28	0.27	0.38
Control Delay	12.1	12.7	9.6	9.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.1	12.7	9.6	9.2
Queue Length 50th (ft)	51	21	24	48
Queue Length 95th (ft)	117	m60	51	76
Internal Link Dist (ft)	389			512
Turn Bay Length (ft)			50	
Base Capacity (vph)	728	337	535	1410
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.50	0.28	0.27	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 42: 6th St/6th Street & Chestnut St

7/22/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑	↗							↖	↑↑		
Volume (vph)	0	309	79	0	0	0	0	0	0	121	453	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5	4.5							4.5	4.5		
Lane Util. Factor		1.00	*0.60							1.00	0.95		
Frpb, ped/bikes		1.00	0.93							1.00	1.00		
Flpb, ped/bikes		1.00	1.00							0.77	1.00		
Frt		1.00	0.85							1.00	1.00		
Flt Protected		1.00	1.00							0.95	1.00		
Satd. Flow (prot)		1713	793							1260	3318		
Flt Permitted		1.00	1.00							0.95	1.00		
Satd. Flow (perm)		1713	793							1260	3318		
Peak-hour factor, PHF	0.92	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.92	
Adj. Flow (vph)	0	364	93	0	0	0	0	0	0	142	533	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	364	93	0	0	0	0	0	0	142	533	0	
Confl. Peds. (#/hr)	77		77	149		149	70		70	330		330	
Heavy Vehicles (%)	2%	3%	1%	2%	2%	2%	2%	2%	2%	2%	1%	2%	
Bus Blockages (#/hr)	0	0	12	0	0	0	0	0	0	0	0	0	
Turn Type		NA	Perm							Perm	NA		
Protected Phases		2									4		
Permitted Phases			2							4			
Actuated Green, G (s)		24.0	24.0							24.0	24.0		
Effective Green, g (s)		25.5	25.5							25.5	25.5		
Actuated g/C Ratio		0.42	0.42							0.42	0.42		
Clearance Time (s)		6.0	6.0							6.0	6.0		
Lane Grp Cap (vph)		728	337							535	1410		
v/s Ratio Prot		c0.21									c0.16		
v/s Ratio Perm			0.12							0.11			
v/c Ratio		0.50	0.28							0.27	0.38		
Uniform Delay, d1		12.6	11.2							11.2	11.8		
Progression Factor		0.76	0.91							0.72	0.70		
Incremental Delay, d2		2.1	1.7							1.2	0.8		
Delay (s)		11.7	12.0							9.2	9.1		
Level of Service		B	B							A	A		
Approach Delay (s)		11.8			0.0			0.0			9.1		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			10.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			36.4%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

46: Race St & 8th St

7/22/2013



Lane Group	EBT	SBL	SBT
Lane Group Flow (vph)	628	185	581
v/c Ratio	0.32	0.33	0.32
Control Delay	7.7	13.6	12.1
Queue Delay	0.0	0.0	0.0
Total Delay	7.7	13.6	12.1
Queue Length 50th (ft)	31	50	51
Queue Length 95th (ft)	48	97	75
Internal Link Dist (ft)	378		453
Turn Bay Length (ft)			
Base Capacity (vph)	1981	566	1841
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.33	0.32
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

46: Race St & 8th St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑								↘	↑↑↑		
Volume (vph)	0	502	69	0	0	0	0	0	0	231	466	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5								4.5	4.5		
Lane Util. Factor		0.91								0.86	0.86		
Frbp, ped/bikes		1.00								1.00	1.00		
Flpb, ped/bikes		1.00								0.95	0.99		
Frt		0.98								1.00	1.00		
Flt Protected		1.00								0.95	0.99		
Satd. Flow (prot)		4661								1332	4333		
Flt Permitted		1.00								0.95	0.99		
Satd. Flow (perm)		4661								1332	4333		
Peak-hour factor, PHF	0.96	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.92	
Adj. Flow (vph)	0	552	76	0	0	0	0	0	0	254	512	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	628	0	0	0	0	0	0	0	185	581	0	
Confl. Peds. (#/hr)	34		34	6		6	40		40	68		68	
Heavy Vehicles (%)	2%	1%	1%	2%	2%	2%	2%	2%	2%	3%	3%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0	
Parking (#/hr)			0										
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		24.0								24.0	24.0		
Effective Green, g (s)		25.5								25.5	25.5		
Actuated g/C Ratio		0.42								0.42	0.42		
Clearance Time (s)		6.0								6.0	6.0		
Lane Grp Cap (vph)		1980								566	1841		
v/s Ratio Prot		c0.13											
v/s Ratio Perm										c0.14	0.13		
v/c Ratio		0.32								0.33	0.32		
Uniform Delay, d1		11.5								11.5	11.5		
Progression Factor		0.63								1.00	1.00		
Incremental Delay, d2		0.4								1.5	0.5		
Delay (s)		7.6								13.1	11.9		
Level of Service		A								B	B		
Approach Delay (s)		7.6			0.0			0.0			12.2		
Approach LOS		A			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			10.1		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.32										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			29.5%		ICU Level of Service						A		
Analysis Period (min)			15										
c Critical Lane Group													

Queues
49: 6th St & Race St

7/22/2013



Lane Group	EBT	EBR	SBT
Lane Group Flow (vph)	603	100	742
v/c Ratio	0.24	0.16	0.40
Control Delay	4.4	4.7	12.7
Queue Delay	0.0	0.0	0.0
Total Delay	4.4	4.7	12.7
Queue Length 50th (ft)	11	7	64
Queue Length 95th (ft)	15	13	90
Internal Link Dist (ft)	400		133
Turn Bay Length (ft)			
Base Capacity (vph)	2479	609	1869
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.16	0.40
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

49: 6th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑↑	↗								↖↑↑			
Volume (vph)	0	537	89	0	0	0	0	0	0	168	492	0		
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100		
Total Lost time (s)		4.5	4.5								4.5			
Lane Util. Factor		0.86	1.00								0.91			
Frpb, ped/bikes		1.00	0.96								1.00			
Flpb, ped/bikes		1.00	1.00								1.00			
Frt		1.00	0.85								1.00			
Flt Protected		1.00	1.00								0.99			
Satd. Flow (prot)		5835	1435								4400			
Flt Permitted		1.00	1.00								0.99			
Satd. Flow (perm)		5835	1435								4400			
Peak-hour factor, PHF	0.96	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.92		
Adj. Flow (vph)	0	603	100	0	0	0	0	0	0	189	553	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	603	100	0	0	0	0	0	0	0	742	0		
Confl. Peds. (#/hr)	45		45	2		2	2		2	18		18		
Heavy Vehicles (%)	2%	4%	0%	2%	2%	2%	2%	2%	2%	0%	4%	2%		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	33	0		
Turn Type		NA	Perm							Perm	NA			
Protected Phases		2									4			
Permitted Phases			2							4				
Actuated Green, G (s)		24.0	24.0								24.0			
Effective Green, g (s)		25.5	25.5								25.5			
Actuated g/C Ratio		0.42	0.42								0.42			
Clearance Time (s)		6.0	6.0								6.0			
Lane Grp Cap (vph)		2479	609								1870			
v/s Ratio Prot		c0.10												
v/s Ratio Perm			0.07								0.17			
v/c Ratio		0.24	0.16								0.40			
Uniform Delay, d1		11.1	10.7								11.9			
Progression Factor		0.38	0.37								1.00			
Incremental Delay, d2		0.2	0.6								0.6			
Delay (s)		4.4	4.5								12.6			
Level of Service		A	A								B			
Approach Delay (s)		4.4			0.0			0.0			12.6			
Approach LOS		A			A			A			B			
Intersection Summary														
HCM 2000 Control Delay			8.6									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.32											
Actuated Cycle Length (s)			60.0								9.0		Sum of lost time (s)	
Intersection Capacity Utilization			29.7%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

Queues
50: 3rd St & Race St

7/22/2013



Lane Group	EBT	NBT
Lane Group Flow (vph)	573	359
v/c Ratio	0.34	0.32
Control Delay	6.9	21.0
Queue Delay	0.0	0.0
Total Delay	6.9	21.0
Queue Length 50th (ft)	27	75
Queue Length 95th (ft)	33	101
Internal Link Dist (ft)	370	275
Turn Bay Length (ft)		
Base Capacity (vph)	1664	1106
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.34	0.32
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

50: 3rd St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕				
Volume (vph)	88	393	0	0	0	0	0	174	128	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)		5.8						4.9				
Lane Util. Factor		0.95						0.95				
Frpb, ped/bikes		1.00						0.96				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.94				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		3292						2946				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		3292						2946				
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.92	0.92	0.92
Adj. Flow (vph)	105	468	0	0	0	0	0	207	152	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	573	0	0	0	0	0	359	0	0	0	0
Confl. Peds. (#/hr)	63		63	131			131	113		113	35	
Heavy Vehicles (%)	1%	0%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	6	0	0	0
Parking (#/hr)	0								0			
Turn Type	Perm	NA						NA				
Protected Phases		2						8				
Permitted Phases	2											
Actuated Green, G (s)		45.0						33.3				
Effective Green, g (s)		45.5						33.8				
Actuated g/C Ratio		0.51						0.38				
Clearance Time (s)		6.3						5.4				
Lane Grp Cap (vph)		1664						1106				
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.17										
v/c Ratio		0.34						0.32				
Uniform Delay, d1		13.3						20.0				
Progression Factor		0.47						1.00				
Incremental Delay, d2		0.5						0.8				
Delay (s)		6.8						20.8				
Level of Service		A						C				
Approach Delay (s)		6.8			0.0			20.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.7
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

59: 4th St & Race St

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	593	405
v/c Ratio	0.36	0.33
Control Delay	13.7	21.0
Queue Delay	0.0	0.0
Total Delay	13.7	21.0
Queue Length 50th (ft)	100	84
Queue Length 95th (ft)	126	114
Internal Link Dist (ft)	410	408
Turn Bay Length (ft)		
Base Capacity (vph)	1663	1222
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.33
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

59: 4th St & Race St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	414	90	0	0	0	0	0	0	69	275	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.8									4.9		
Lane Util. Factor		0.95									0.95		
Frpb, ped/bikes		0.99									1.00		
Flpb, ped/bikes		1.00									0.99		
Frt		0.97									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		3221									3256		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		3221									3256		
Peak-hour factor, PHF	0.92	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.92	
Adj. Flow (vph)	0	487	106	0	0	0	0	0	0	81	324	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	593	0	0	0	0	0	0	0	0	405	0	
Confl. Peds. (#/hr)	32		32	32		32	27		27	32		32	
Heavy Vehicles (%)	2%	0%	4%	2%	2%	2%	2%	2%	2%	0%	1%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0	
Parking (#/hr)												0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		45.0									33.3		
Effective Green, g (s)		46.5									33.8		
Actuated g/C Ratio		0.52									0.38		
Clearance Time (s)		6.3									5.4		
Lane Grp Cap (vph)		1664									1222		
v/s Ratio Prot		c0.18											
v/s Ratio Perm											0.12		
v/c Ratio		0.36									0.33		
Uniform Delay, d1		12.9									20.0		
Progression Factor		1.00									1.00		
Incremental Delay, d2		0.6									0.7		
Delay (s)		13.5									20.8		
Level of Service		B									C		
Approach Delay (s)		13.5			0.0			0.0			20.8		
Approach LOS		B			A			A			C		
Intersection Summary													
HCM 2000 Control Delay			16.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.35										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.7
Intersection Capacity Utilization			35.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

63: Race St & 2nd Street

7/22/2013



Lane Group	EBT	SBT
Lane Group Flow (vph)	555	442
v/c Ratio	0.35	0.39
Control Delay	9.6	16.3
Queue Delay	0.0	0.0
Total Delay	9.6	16.3
Queue Length 50th (ft)	57	62
Queue Length 95th (ft)	87	96
Internal Link Dist (ft)	462	479
Turn Bay Length (ft)		
Base Capacity (vph)	1601	1131
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.35	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis

63: Race St & 2nd Street

7/22/2013

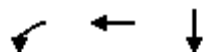


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑									↑↑		
Volume (vph)	0	391	136	0	0	0	0	0	0	40	380	0	
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Total Lost time (s)		4.5									4.5		
Lane Util. Factor		0.95									0.95		
Frpb, ped/bikes		0.99									1.00		
Flpb, ped/bikes		1.00									1.00		
Frt		0.96									1.00		
Flt Protected		1.00									1.00		
Satd. Flow (prot)		3152									3313		
Flt Permitted		1.00									1.00		
Satd. Flow (perm)		3152									3313		
Peak-hour factor, PHF	0.88	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.88	
Adj. Flow (vph)	0	412	143	0	0	0	0	0	0	42	400	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	555	0	0	0	0	0	0	0	0	442	0	
Confl. Peds. (#/hr)	60		60	48		48	48		48	10		10	
Heavy Vehicles (%)	2%	1%	1%	2%	2%	2%	2%	2%	2%	0%	0%	2%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	3	0	
Parking (#/hr)			0									0	
Turn Type		NA								Perm	NA		
Protected Phases		2									4		
Permitted Phases										4			
Actuated Green, G (s)		30.0									20.0		
Effective Green, g (s)		30.5									20.5		
Actuated g/C Ratio		0.51									0.34		
Clearance Time (s)		5.0									5.0		
Lane Grp Cap (vph)		1602									1131		
v/s Ratio Prot		c0.18											
v/s Ratio Perm											0.13		
v/c Ratio		0.35									0.39		
Uniform Delay, d1		8.8									15.0		
Progression Factor		1.00									1.00		
Incremental Delay, d2		0.6									1.0		
Delay (s)		9.4									16.0		
Level of Service		A									B		
Approach Delay (s)		9.4			0.0			0.0			16.0		
Approach LOS		A			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.3									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.36										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			38.9%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues

70: 8th Street/8th St & Vine St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	180	2015	532
v/c Ratio	0.09	0.53	0.39
Control Delay	11.6	19.4	25.6
Queue Delay	0.0	5.0	0.0
Total Delay	11.6	24.4	25.6
Queue Length 50th (ft)	37	307	86
Queue Length 95th (ft)	60	337	116
Internal Link Dist (ft)		254	248
Turn Bay Length (ft)			
Base Capacity (vph)	2013	3820	1378
Starvation Cap Reductn	0	1729	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.09	0.96	0.39
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

70: 8th Street/8th St & Vine St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↔	↑↑↑						↑↑↑	
Volume (vph)	0	0	0	160	1793	0	0	0	0	0	187	287
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				5.0	5.0						6.0	
Lane Util. Factor				0.97	0.86						0.91	
Frbp, ped/bikes				1.00	1.00						0.99	
Flpb, ped/bikes				0.99	1.00						1.00	
Frt				1.00	1.00						0.91	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				3519	6676						4511	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				3519	6676						4511	
Peak-hour factor, PHF	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.89	0.89
Adj. Flow (vph)	0	0	0	180	2015	0	0	0	0	0	210	322
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	180	2015	0	0	0	0	0	532	0
Confl. Peds. (#/hr)	7		7	12		12				3		3
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	2%	2%	3%	3%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				51.0	51.0						27.0	
Effective Green, g (s)				51.5	51.5						27.5	
Actuated g/C Ratio				0.57	0.57						0.31	
Clearance Time (s)				5.5	5.5						6.5	
Lane Grp Cap (vph)				2013	3820						1378	
v/s Ratio Prot					c0.30						c0.12	
v/s Ratio Perm				0.05								
v/c Ratio				0.09	0.53						0.39	
Uniform Delay, d1				8.7	11.8						24.6	
Progression Factor				1.32	1.59						1.00	
Incremental Delay, d2				0.1	0.5						0.8	
Delay (s)				11.5	19.2						25.4	
Level of Service				B	B						C	
Approach Delay (s)		0.0			18.6			0.0			25.4	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			19.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			11.0				
Intersection Capacity Utilization			44.1%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

71: 7th St & Vine St/Route 30

7/22/2013



Lane Group	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	1680	6	333	900
v/c Ratio	0.55	0.01	0.21	0.38
Control Delay	18.4	0.0	14.3	17.6
Queue Delay	0.2	0.0	0.6	1.8
Total Delay	18.5	0.0	14.9	19.5
Queue Length 50th (ft)	193	0	51	122
Queue Length 95th (ft)	227	0	78	155
Internal Link Dist (ft)	594			178
Turn Bay Length (ft)		500		
Base Capacity (vph)	3047	772	1574	2348
Starvation Cap Reductn	0	0	888	1233
Spillback Cap Reductn	443	0	3	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.01	0.49	0.81

Intersection Summary

HCM Signalized Intersection Capacity Analysis

71: 7th St & Vine St/Route 30

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑	↑	↑↑	↑↑↑				
Volume (vph)	0	0	0	0	1630	6	323	873	0	0	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)					4.5	4.5	4.5	4.5				
Lane Util. Factor					0.86	1.00	0.97	0.91				
Fr _t					1.00	0.85	1.00	1.00				
Fl _t Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					6610	1633	3541	5351				
Fl _t Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					6610	1633	3541	5351				
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.97	0.97	0.97	0.97	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1680	6	333	900	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	3	20	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1680	3	313	900	0	0	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	2%	2%	2%	2%
Turn Type					NA	Perm	Perm	NA				
Protected Phases					6			8				
Permitted Phases						6	8					
Actuated Green, G (s)					40.0	40.0	38.0	38.0				
Effective Green, g (s)					41.5	41.5	39.5	39.5				
Actuated g/C Ratio					0.46	0.46	0.44	0.44				
Clearance Time (s)					6.0	6.0	6.0	6.0				
Lane Grp Cap (vph)					3047	752	1554	2348				
v/s Ratio Prot					c0.25			c0.17				
v/s Ratio Perm						0.00	0.09					
v/c Ratio					0.55	0.00	0.20	0.38				
Uniform Delay, d ₁					17.5	13.1	15.5	17.0				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d ₂					0.7	0.0	0.3	0.5				
Delay (s)					18.2	13.1	15.8	17.5				
Level of Service					B	B	B	B				
Approach Delay (s)		0.0			18.2			17.1			0.0	
Approach LOS		A			B			B			A	

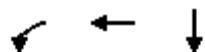
Intersection Summary

HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

73: 8th St & Callowhill St

7/22/2013



Lane Group	WBL	WBT	SBT
Lane Group Flow (vph)	301	444	257
v/c Ratio	0.39	0.28	0.17
Control Delay	13.8	11.9	11.1
Queue Delay	0.0	0.0	0.0
Total Delay	13.8	11.9	11.1
Queue Length 50th (ft)	71	52	28
Queue Length 95th (ft)	120	77	47
Internal Link Dist (ft)		389	389
Turn Bay Length (ft)			
Base Capacity (vph)	774	1566	1513
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.28	0.17
Intersection Summary			

HCM Signalized Intersection Capacity Analysis

73: 8th St & Callowhill St

7/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕						↕	↘
Volume (vph)	0	0	0	262	386	0	0	0	0	0	206	17
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Total Lost time (s)				4.5	4.5						4.5	
Lane Util. Factor				1.00	0.95						0.95	
Frbp, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Fr t				1.00	1.00						0.99	
Fl t Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1823	3687						3562	
Fl t Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1823	3687						3562	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.88	0.88	0.88	0.88	0.88	0.87	0.87
Adj. Flow (vph)	0	0	0	301	444	0	0	0	0	0	237	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	301	444	0	0	0	0	0	257	0
Confl. Peds. (#/hr)	16		16	2		2	26		26	28		28
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	2%	2%	2%	2%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	6	0
Turn Type				Perm	NA						NA	
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)				24.0	24.0						24.0	
Effective Green, g (s)				25.5	25.5						25.5	
Actuated g/C Ratio				0.42	0.42						0.42	
Clearance Time (s)				6.0	6.0						6.0	
Lane Grp Cap (vph)				774	1566						1513	
v/s Ratio Prot					0.12						c0.07	
v/s Ratio Perm				c0.17								
v/c Ratio				0.39	0.28						0.17	
Uniform Delay, d1				11.9	11.3						10.7	
Progression Factor				1.00	1.00						1.00	
Incremental Delay, d2				1.5	0.5						0.2	
Delay (s)				13.4	11.7						10.9	
Level of Service				B	B						B	
Approach Delay (s)		0.0			12.4			0.0			10.9	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				9.0			
Intersection Capacity Utilization			26.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

77: Franklin St & 7th St

7/22/2013

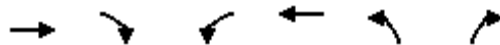


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶			↷		
Volume (veh/h)	167	0	0	441	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.92	0.92	0.95	0.92	0.92
Hourly flow rate (vph)	176	0	0	464	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				285	312	
pX, platoon unblocked	0.94					
vC, conflicting volume	232	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	59	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	100	100			
cM capacity (veh/h)	889	1084	1622			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	176	232	232			
Volume Left	176	0	0			
Volume Right	0	0	0			
cSH	889	1700	1700			
Volume to Capacity	0.20	0.14	0.14			
Queue Length 95th (ft)	18	0	0			
Control Delay (s)	10.0	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.0	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization		27.0%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

89: 9th Street & Vine Street

7/22/2013



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑					↗
Volume (veh/h)	305	0	0	0	0	118
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.92	0.92	0.92	0.92	0.95
Hourly flow rate (vph)	359	0	0	0	0	124
Pedestrians	13			13		
Lane Width (ft)	10.0			0.0		
Walking Speed (ft/s)	3.5			3.5		
Percent Blockage	1			0		
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				456		
pX, platoon unblocked						
vC, conflicting volume			359		372	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			359		372	192
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	85
cM capacity (veh/h)			1196		596	823

Direction, Lane #	EB 1	EB 2	NB 1
Volume Total	179	179	124
Volume Left	0	0	0
Volume Right	0	0	124
cSH	1700	1700	823
Volume to Capacity	0.11	0.11	0.15
Queue Length 95th (ft)	0	0	13
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0		10.2
Approach LOS			B

Intersection Summary			
Average Delay		2.6	
Intersection Capacity Utilization	24.1%		ICU Level of Service A
Analysis Period (min)		15	

Queues

96: 7th St & Vine Street

7/22/2013



Lane Group	EBL	NBT
Lane Group Flow (vph)	659	661
v/c Ratio	0.26	0.29
Control Delay	5.8	17.5
Queue Delay	0.0	0.0
Total Delay	5.8	17.5
Queue Length 50th (ft)	28	91
Queue Length 95th (ft)	50	119
Internal Link Dist (ft)	60	232
Turn Bay Length (ft)		
Base Capacity (vph)	2519	2306
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.26	0.29
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

96: 7th St & Vine Street

7/22/2013















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←←			→→→		
Volume (vph)	606	0	0	608	0	0
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Total Lost time (s)	5.5			5.5		
Lane Util. Factor	0.94			0.91		
Fr _t	1.00			1.00		
Fl _t Protected	0.95			1.00		
Satd. Flow (prot)	5148			5211		
Fl _t Permitted	0.95			1.00		
Satd. Flow (perm)	5148			5211		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	659	0	0	661	0	0
RTOR Reduction (vph)	240	0	0	0	0	0
Lane Group Flow (vph)	419	0	0	661	0	0
Bus Blockages (#/hr)	0	0	0	5	0	0
Turn Type	NA			NA		
Protected Phases	2			8		
Permitted Phases						
Actuated Green, G (s)	42.0			42.0		
Effective Green, g (s)	42.5			42.5		
Actuated g/C Ratio	0.44			0.44		
Clearance Time (s)	6.0			6.0		
Lane Grp Cap (vph)	2279			2306		
v/s Ratio Prot	c0.08			c0.13		
v/s Ratio Perm						
v/c Ratio	0.18			0.29		
Uniform Delay, d ₁	16.2			17.1		
Progression Factor	1.00			1.00		
Incremental Delay, d ₂	0.2			0.3		
Delay (s)	16.4			17.4		
Level of Service	B			B		
Approach Delay (s)	16.4			17.4	0.0	
Approach LOS	B			B	A	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	96.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			
















HCM 2010 Signalized Intersection Summary
1: 7th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑	↑		↑↑				
Volume (veh/h)	0	614	0	0	283	56	49	259	76	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	3	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.81			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00			
Adj Sat Flow veh/h/ln	0.0	181.7	0.0	0.0	175.0	189.0	181.4	180.2	181.4			
Lanes	0	3	0	0	2	1	0	2	0			
Cap, veh/h	0	2771	0	0	1779	808	133	714	216			
Arrive On Green	0.00	0.17	0.00	0.00	0.17	0.17	0.11	0.11	0.11			
Sat Flow, veh/h	0	5452	0	0	3500	1590	389	2091	633			
Grp Volume(v), veh/h	0	640	0	0	311	62	222	0	201			
Grp Sat Flow(s),veh/h/ln	0	1817	0	0	1750	1590	1602	0	1511			
Q Serve(g_s), s	0.0	6.1	0.0	0.0	4.6	2.0	7.7	0.0	7.4			
Cycle Q Clear(g_c), s	0.0	6.1	0.0	0.0	4.6	2.0	7.7	0.0	7.4			
Prop In Lane	0.00		0.00	0.00		1.00	0.24		0.42			
Lane Grp Cap(c), veh/h	0	2771	0	0	1779	808	547	0	516			
V/C Ratio(X)	0.00	0.23	0.00	0.00	0.17	0.08	0.41	0.00	0.39			
Avail Cap(c_a), veh/h	0	2771	0	0	1779	808	547	0	516			
HCM Platoon Ratio	1.00	0.33	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	14.8	0.0	0.0	14.2	13.1	21.0	0.0	20.8			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.2	2.2	0.0	2.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1			
%ile Back of Q (95%), veh/ln	0.0	5.1	0.0	0.0	3.6	1.3	6.6	0.0	6.0			
Lane Grp Delay (d), s/veh	0.0	15.0	0.0	0.0	14.4	13.3	23.3	0.0	23.1			
Lane Grp LOS		B			B	B	C		C			
Approach Vol, veh/h		640			373			423				
Approach Delay, s/veh		15.0			14.2			23.2				
Approach LOS		B			B			C				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		35.0			35.0			25.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		29.0			29.0			19.0				
Max Q Clear Time (g_c+I1), s		8.1			6.6			9.7				
Green Ext Time (p_c), s		6.3			6.4			1.5				
Intersection Summary												
HCM 2010 Ctrl Delay					17.2							
HCM 2010 LOS					B							
Notes												

HCM 2010 Signalized Intersection Summary
 3: 8th St & Market St













7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	591	120	0	369	0	0	0	0	64	500	61
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85	1.00		1.00				1.00		0.83
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	175.6	189.0	0.0	178.3	0.0				181.4	178.0	181.4
Lanes	0	3	0	0	2	0				0	2	0
Cap, veh/h	0	2174	425	0	1872	0				104	839	107
Arrive On Green	0.00	1.00	1.00	0.00	0.17	0.00				0.11	0.11	0.11
Sat Flow, veh/h	0	4142	810	0	3566	0				320	2580	330
Grp Volume(v), veh/h	0	541	231	0	401	0				386	0	293
Grp Sat Flow(s),veh/h/ln	0	1756	1441	0	1783	0				1764	0	1466
Q Serve(g_s), s	0.0	0.0	0.0	0.0	5.8	0.0				12.6	0.0	11.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	5.8	0.0				12.6	0.0	11.5
Prop In Lane	0.00		0.56	0.00		0.00				0.18		0.22
Lane Grp Cap(c), veh/h	0	1843	757	0	1872	0				573	0	476
V/C Ratio(X)	0.00	0.29	0.31	0.00	0.21	0.00				0.67	0.00	0.62
Avail Cap(c_a), veh/h	0	1843	757	0	1872	0				573	0	476
HCM Platoon Ratio	1.00	2.00	2.00	1.00	0.33	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	14.2	0.0				23.7	0.0	23.2
Incr Delay (d2), s/veh	0.0	0.4	1.0	0.0	0.3	0.0				6.2	0.0	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.0	0.2	0.4	0.0	4.8	0.0				11.3	0.0	9.1
Lane Grp Delay (d), s/veh	0.0	0.4	1.0	0.0	14.4	0.0				29.9	0.0	29.1
Lane Grp LOS		A	A		B					C		C
Approach Vol, veh/h		772			401						679	
Approach Delay, s/veh		0.6			14.4						29.5	
Approach LOS		A			B						C	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		36.0			36.0						24.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		30.0			30.0						18.0	
Max Q Clear Time (g_c+I1), s		2.0			7.8						14.6	
Green Ext Time (p_c), s		8.1			7.5						1.2	
Intersection Summary												
HCM 2010 Ctrl Delay			14.2									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary

















5: 9th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑↑				
Volume (veh/h)	0	597	0	0	349	45	43	243	100	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	5	0	0	4	0	0	4	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.75			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	0.0	183.5	0.0	0.0	178.5	189.0	181.4	179.8	181.4			
Lanes	0	3	0	0	2	0	0	2	0			
Cap, veh/h	0	2890	0	0	1616	207	108	608	250			
Arrive On Green	0.00	1.00	0.00	0.00	1.00	1.00	0.11	0.11	0.11			
Sat Flow, veh/h	0	5505	0	0	3078	394	332	1870	768			
Grp Volume(v), veh/h	0	635	0	0	214	205	247	0	164			
Grp Sat Flow(s),veh/h/ln	0	1835	0	0	1785	1687	1782	0	1188			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	7.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	7.7			
Prop In Lane	0.00		0.00	0.00		0.23	0.19		0.65			
Lane Grp Cap(c), veh/h	0	2890	0	0	937	886	579	0	386			
V/C Ratio(X)	0.00	0.22	0.00	0.00	0.23	0.23	0.43	0.00	0.42			
Avail Cap(c_a), veh/h	0	2890	0	0	937	886	579	0	386			
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	21.6	0.0	21.5			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.6	0.6	2.3	0.0	3.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3			
%ile Back of Q (95%), veh/ln	0.0	0.1	0.0	0.0	0.3	0.3	7.4	0.0	5.1			
Lane Grp Delay (d), s/veh	0.0	0.2	0.0	0.0	0.6	0.7	24.0	0.0	25.3			
Lane Grp LOS		A			A	A	C		C			
Approach Vol, veh/h		635			419			411				
Approach Delay, s/veh		0.2			0.6			24.5				
Approach LOS		A			A			C				
Timer												
Assigned Phs		2			6			8				
Phs Duration (G+Y+Rc), s		36.0			36.0			24.0				
Change Period (Y+Rc), s		6.0			6.0			6.0				
Max Green Setting (Gmax), s		30.0			30.0			18.0				
Max Q Clear Time (g_c+I1), s		2.0			2.0			9.8				
Green Ext Time (p_c), s		6.9			6.9			1.4				
Intersection Summary												
HCM 2010 Ctrl Delay					7.1							
HCM 2010 LOS					A							
Notes												

















HCM 2010 Signalized Intersection Summary
 12: 5th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	222	417	0	0	236	53	0	385	55	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.97		1.00	1.00		0.94	1.00		0.81			
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	181.7	183.5	0.0	0.0	184.5	189.0	189.0	187.4	189.0			
Lanes	1	2	0	0	2	0	0	2	0			
Cap, veh/h	598	1988	0	0	940	207	0	959	135			
Arrive On Green	0.14	0.54	0.00	0.00	0.32	0.34	0.00	0.10	0.10			
Sat Flow, veh/h	1731	3670	0	0	2891	636	0	3111	439			
Grp Volume(v), veh/h	241	453	0	0	162	153	0	249	229			
Grp Sat Flow(s),veh/h/ln	1731	1835	0	0	1845	1681	0	1874	1676			
Q Serve(g_s), s	4.9	3.9	0.0	0.0	3.9	4.0	0.0	7.5	7.7			
Cycle Q Clear(g_c), s	4.9	3.9	0.0	0.0	3.9	4.0	0.0	7.5	7.7			
Prop In Lane	1.00		0.00	0.00		0.38	0.00		0.26			
Lane Grp Cap(c), veh/h	598	1988	0	0	600	546	0	578	517			
V/C Ratio(X)	0.40	0.23	0.00	0.00	0.27	0.28	0.00	0.43	0.44			
Avail Cap(c_a), veh/h	598	1988	0	0	600	546	0	578	517			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00			
Uniform Delay (d), s/veh	9.1	7.2	0.0	0.0	15.0	14.9	0.0	22.0	22.1			
Incr Delay (d2), s/veh	2.0	0.3	0.0	0.0	1.1	1.3	0.0	2.3	2.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	3.7	2.7	0.0	0.0	3.3	3.2	0.0	7.4	6.9			
Lane Grp Delay (d), s/veh	11.1	7.5	0.0	0.0	16.1	16.2	0.0	24.3	24.9			
Lane Grp LOS	B	A			B	B		C	C			
Approach Vol, veh/h		694			315			478				
Approach Delay, s/veh		8.7			16.1			24.6				
Approach LOS		A			B			C				
Timer												
Assigned Phs	5	2			6			8				
Phs Duration (G+Y+Rc), s	13.0	37.0			24.0			23.0				
Change Period (Y+Rc), s	5.0	5.0			5.0			5.0				
Max Green Setting (Gmax), s	8.0	32.0			19.0			18.0				
Max Q Clear Time (g_c+I1), s	6.9	5.9			6.0			9.7				
Green Ext Time (p_c), s	0.1	4.6			3.6			1.6				
Intersection Summary												
HCM 2010 Ctrl Delay			15.4									
HCM 2010 LOS			B									
Notes												



















HCM 2010 Signalized Intersection Summary
 21: 10th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	372	63	0	328	0	0	0	0	68	202	83
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	7	0	0	4	0				0	6	6
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		1.00				1.00		0.68
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	184.3	189.0	0.0	180.0	0.0				189.0	184.8	187.1
Lanes	0	3	0	0	2	0				0	2	1
Cap, veh/h	0	2407	390	0	1890	0				284	903	354
Arrive On Green	0.00	0.52	0.52	0.00	1.00	0.00				0.32	0.32	0.32
Sat Flow, veh/h	0	4585	742	0	3600	0				874	2779	1088
Grp Volume(v), veh/h	0	341	159	0	377	0				161	149	95
Grp Sat Flow(s),veh/h/ln	0	1843	1642	0	1800	0				1804	1848	1088
Q Serve(g_s), s	0.0	2.9	3.1	0.0	0.0	0.0				4.0	3.5	3.9
Cycle Q Clear(g_c), s	0.0	2.9	3.1	0.0	0.0	0.0				4.0	3.5	3.9
Prop In Lane	0.00		0.45	0.00		0.00				0.48		1.00
Lane Grp Cap(c), veh/h	0	1935	862	0	1890	0				586	601	354
V/C Ratio(X)	0.00	0.18	0.18	0.00	0.20	0.00				0.27	0.25	0.27
Avail Cap(c_a), veh/h	0	1935	862	0	1890	0				586	601	354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.5	7.5	0.0	0.0	0.0				15.0	14.9	15.0
Incr Delay (d2), s/veh	0.0	0.2	0.5	0.0	0.2	0.0				1.2	1.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.1	0.1	0.0	0.0	0.0				0.3	0.2	2.8
%ile Back of Q (95%), veh/ln	0.0	2.2	2.1	0.0	0.1	0.0				3.4	3.0	2.4
Lane Grp Delay (d), s/veh	0.0	7.7	8.0	0.0	0.3	0.0				16.4	16.1	19.7
Lane Grp LOS		A	A		A					B	B	B
Approach Vol, veh/h		500			377						405	
Approach Delay, s/veh		7.8			0.3						17.1	
Approach LOS		A			A						B	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		36.0			36.0						24.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		30.0			30.0						18.0	
Max Q Clear Time (g_c+I1), s		5.1			2.0						6.0	
Green Ext Time (p_c), s		5.3			5.5						1.7	
Intersection Summary												
HCM 2010 Ctrl Delay			8.5									
HCM 2010 LOS			A									
Notes												















HCM 2010 Signalized Intersection Summary
 41: 6th Street/6th St & Market St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	569	95	45	252	0	0	0	0	88	361	43
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		1.00				1.00		0.90
Parking Bus Adj	1.00	1.00	0.98	1.00	1.00	1.00				0.90	1.00	0.90
Adj Sat Flow veh/h/ln	0.0	181.7	183.5	189.0	183.5	0.0				189.0	186.0	158.8
Lanes	0	2	1	1	2	0				0	2	1
Cap, veh/h	0	1545	631	297	1560	0				278	1210	467
Arrive On Green	0.00	0.14	0.14	0.43	0.43	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	3635	1486	659	3670	0				653	2848	1098
Grp Volume(v), veh/h	0	625	104	49	277	0				244	250	47
Grp Sat Flow(s),veh/h/ln	0	1817	1486	659	1835	0				1641	1860	1098
Q Serve(g_s), s	0.0	9.4	3.7	3.5	2.8	0.0				8.1	7.3	2.2
Cycle Q Clear(g_c), s	0.0	9.4	3.7	12.9	2.8	0.0				8.1	7.3	2.2
Prop In Lane	0.00		1.00	1.00		0.00				0.40		1.00
Lane Grp Cap(c), veh/h	0	1545	631	297	1560	0				698	791	467
V/C Ratio(X)	0.00	0.40	0.16	0.17	0.18	0.00				0.35	0.32	0.10
Avail Cap(c_a), veh/h	0	1545	631	297	1560	0				698	791	467
HCM Platoon Ratio	1.00	0.33	0.33	1.00	1.00	1.00				0.33	0.33	0.33
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.9	16.4	17.4	10.7	0.0				18.3	18.0	15.8
Incr Delay (d2), s/veh	0.0	0.8	0.6	1.2	0.2	0.0				1.4	1.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.0	8.3	2.6	1.1	2.2	0.0				6.8	6.9	1.1
Lane Grp Delay (d), s/veh	0.0	19.7	17.0	18.5	11.0	0.0				19.7	19.0	16.2
Lane Grp LOS		B	B	B	B					B	B	B
Approach Vol, veh/h		729			326						541	
Approach Delay, s/veh		19.3			12.1						19.1	
Approach LOS		B			B						B	
Timer												
Assigned Phs		2			6						4	
Phs Duration (G+Y+Rc), s		30.0			30.0						30.0	
Change Period (Y+Rc), s		6.0			6.0						6.0	
Max Green Setting (Gmax), s		24.0			24.0						24.0	
Max Q Clear Time (g_c+I1), s		11.4			14.9						10.1	
Green Ext Time (p_c), s		5.1			4.1						2.4	
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												
















HCM 2010 Signalized Intersection Summary
43: 5th St & Walnut St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	0	320	63	38	377	0	0	0	0
Number				1	6	16	3	8	18			
Initial Q (Qb), veh				0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)				1.00		0.96	1.00		1.00			
Parking Bus Adj				1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow veh/h/ln				0.0	185.3	189.0	189.0	187.6	0.0			
Lanes				0	2	0	0	2	0			
Cap, veh/h				0	1271	247	101	754	0			
Arrive On Green				0.00	0.43	0.43	0.43	0.43	0.00			
Sat Flow, veh/h				0	2990	582	0	1774	0			
Grp Volume(v), veh/h				0	237	225	67	433	0			
Grp Sat Flow(s),veh/h/ln				0	1853	1719	66	1707	0			
Q Serve(g_s), s				0.0	5.1	5.2	0.0	11.7	0.0			
Cycle Q Clear(g_c), s				0.0	5.1	5.2	25.5	11.7	0.0			
Prop In Lane				0.00		0.34	0.69		0.00			
Lane Grp Cap(c), veh/h				0	788	731	130	726	0			
V/C Ratio(X)				0.00	0.30	0.31	0.51	0.60	0.00			
Avail Cap(c_a), veh/h				0	788	731	130	726	0			
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)				0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh				0.0	11.4	11.4	19.4	13.3	0.0			
Incr Delay (d2), s/veh				0.0	1.0	1.1	13.9	3.6	0.0			
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln				0.0	4.2	4.0	2.6	8.9	0.0			
Lane Grp Delay (d), s/veh				0.0	12.4	12.5	33.3	16.9	0.0			
Lane Grp LOS					B	B	C	B				
Approach Vol, veh/h					462			500				
Approach Delay, s/veh					12.4			19.1				
Approach LOS					B			B				
Timer												
Assigned Phs					6			8				
Phs Duration (G+Y+Rc), s					30.0			30.0				
Change Period (Y+Rc), s					6.0			6.0				
Max Green Setting (Gmax), s					24.0			24.0				
Max Q Clear Time (g_c+I1), s					7.2			27.5				
Green Ext Time (p_c), s					2.2			0.0				
Intersection Summary												
HCM 2010 Ctrl Delay					15.9							
HCM 2010 LOS					B							
Notes												
















HCM 2010 Signalized Intersection Summary
 48: 7th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	531	0	0	0	0	0	380	94	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	2	0				0	1	1			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow veh/h/ln	189.0	183.9	0.0				0.0	187.1	189.0			
Lanes	0	5	0				0	2	1			
Cap, veh/h	120	2845	0				0	1591	671			
Arrive On Green	0.43	0.43	0.00				0.00	0.14	0.14			
Sat Flow, veh/h	0	6695	0				0	3743	1578			
Grp Volume(v), veh/h	52	584	0				0	418	103			
Grp Sat Flow(s),veh/h/ln	0	1674	0				0	1871	1578			
Q Serve(g_s), s	0.0	3.3	0.0				0.0	6.0	3.4			
Cycle Q Clear(g_c), s	25.5	3.3	0.0				0.0	6.0	3.4			
Prop In Lane	1.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	120	2845	0				0	1591	671			
V/C Ratio(X)	0.43	0.21	0.00				0.00	0.26	0.15			
Avail Cap(c_a), veh/h	120	2845	0				0	1591	671			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	30.0	10.9	0.0				0.0	17.4	16.3			
Incr Delay (d2), s/veh	11.0	0.2	0.0				0.0	0.4	0.5			
Initial Q Delay(d3),s/veh	0.1	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	2.0	2.2	0.0				0.0	5.3	2.5			
Lane Grp Delay (d), s/veh	41.1	11.0	0.0				0.0	17.8	16.8			
Lane Grp LOS	D	B						B	B			
Approach Vol, veh/h		636						521				
Approach Delay, s/veh		13.5						17.6				
Approach LOS		B						B				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						8.0				
Green Ext Time (p_c), s		0.0						2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			15.3									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
 52: 5th St & Race St

7/22/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	373	0	0	0	0	0	338	47	0	0	0
Number	5	2	12				3	8	18			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.98			
Parking Bus Adj	1.00	1.00	1.00				1.00	1.00	0.90			
Adj Sat Flow veh/h/ln	189.0	187.1	0.0				0.0	187.1	185.3			
Lanes	0	2	0				0	2	1			
Cap, veh/h	60	1376	0				0	1591	592			
Arrive On Green	0.43	0.43	0.00				0.00	0.43	0.43			
Sat Flow, veh/h	0	3237	0				0	3743	1392			
Grp Volume(v), veh/h	224	249	0				0	428	59			
Grp Sat Flow(s),veh/h/ln	1534	1703	0				0	1871	1392			
Q Serve(g_s), s	0.0	5.9	0.0				0.0	4.5	1.5			
Cycle Q Clear(g_c), s	25.5	5.9	0.0				0.0	4.5	1.5			
Prop In Lane	0.00		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	712	724	0				0	1591	592			
V/C Ratio(X)	0.31	0.34	0.00				0.00	0.27	0.10			
Avail Cap(c_a), veh/h	712	724	0				0	1591	592			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	11.4	11.6	0.0				0.0	11.2	10.4			
Incr Delay (d2), s/veh	1.2	1.3	0.0				0.0	0.4	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile Back of Q (95%), veh/ln	3.9	4.5	0.0				0.0	3.5	1.0			
Lane Grp Delay (d), s/veh	12.6	12.9	0.0				0.0	11.6	10.7			
Lane Grp LOS	B	B						B	B			
Approach Vol, veh/h		473						487				
Approach Delay, s/veh		12.8						11.5				
Approach LOS		B						B				
Timer												
Assigned Phs		2						8				
Phs Duration (G+Y+Rc), s		30.0						30.0				
Change Period (Y+Rc), s		6.0						6.0				
Max Green Setting (Gmax), s		24.0						24.0				
Max Q Clear Time (g_c+I1), s		27.5						6.5				
Green Ext Time (p_c), s		0.0						2.6				
Intersection Summary												
HCM 2010 Ctrl Delay			12.1									
HCM 2010 LOS			B									
Notes												