

HCM 2010 Signalized Intersection Summary

8: Collins Avenue & 10 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	37	25	25	43	28	18	499	28	27	506	27
Future Volume (veh/h)	19	37	25	25	43	28	18	499	28	27	506	27
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.79		0.69	0.79		0.70	0.96		0.87	0.95		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	20	39	26	26	45	29	19	525	29	28	533	28
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	124	72	81	121	68	646	1149	63	654	1153	61
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	1.00	1.00	1.00	0.99	0.99	0.99
Sat Flow, veh/h	219	677	395	251	664	374	807	1551	86	809	1556	82
Grp Volume(v), veh/h	85	0	0	100	0	0	19	0	554	28	0	561
Grp Sat Flow(s),veh/h/ln	1291	0	0	1288	0	0	807	0	1637	809	0	1638
Q Serve(g_s), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.2
Cycle Q Clear(g_c), s	6.9	0.0	0.0	8.2	0.0	0.0	1.3	0.0	0.0	0.1	0.0	1.2
Prop In Lane	0.24		0.31	0.26		0.29	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	270	0	0	270	0	0	646	0	1212	654	0	1213
V/C Ratio(X)	0.32	0.00	0.00	0.37	0.00	0.00	0.03	0.00	0.46	0.04	0.00	0.46
Avail Cap(c_a), veh/h	282	0	0	282	0	0	646	0	1212	654	0	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.45	0.00	0.45	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	0.0	0.0	46.8	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.6	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.8
LnGrp Delay(d),s/veh	46.6	0.0	0.0	47.1	0.0	0.0	0.0	0.0	0.6	0.4	0.0	1.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	85				100				573			
Approach Delay, s/veh	46.6				47.1				0.5			
Approach LOS	D				D				A			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	101.3		28.7		101.3		28.7					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	95.0		25.0		95.0		25.0					
Max Q Clear Time (g_c+I1), s	3.2		10.2		3.3		8.9					
Green Ext Time (p_c), s	3.0		0.4		3.0		0.4					
Intersection Summary												
HCM 2010 Ctrl Delay	7.3											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

9: Collins Avenue & 9 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	33	37	37	53	46	31	514	42	37	493	25
Future Volume (veh/h)	29	33	37	37	53	46	31	514	42	37	493	25
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.78	0.85		0.80	0.96		0.72	0.97		0.72
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	31	35	39	39	56	49	33	547	45	39	524	27
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	189	177	172	223	168	218	649	53	199	679	35
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.44	0.44	0.44	0.30	0.30	0.30
Sat Flow, veh/h	297	506	474	273	597	449	819	1469	121	799	1537	79
Grp Volume(v), veh/h	105	0	0	144	0	0	33	0	592	39	0	551
Grp Sat Flow(s), veh/h	1277	0	0	1318	0	0	819	0	1590	799	0	1616
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	21.5	3.0	0.0	20.2
Cycle Q Clear(g_c), s	3.3	0.0	0.0	4.5	0.0	0.0	22.6	0.0	21.5	24.6	0.0	20.2
Prop In Lane	0.30		0.37	0.27		0.34	1.00		0.08	1.00		0.05
Lane Grp Cap(c), veh/h	549	0	0	563	0	0	218	0	702	199	0	714
V/C Ratio(X)	0.19	0.00	0.00	0.26	0.00	0.00	0.15	0.00	0.84	0.20	0.00	0.77
Avail Cap(c_a), veh/h	549	0	0	563	0	0	234	0	734	215	0	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.91	0.00	0.91
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.2	0.0	0.0	25.6	0.0	16.2	31.7	0.0	19.9
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.1	0.0	0.0	0.2	0.0	8.3	0.3	0.0	4.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh	0.0	0.0	0.0	2.0	0.0	0.0	0.5	0.0	11.0	0.7	0.0	9.9
LnGrp Delay(d), s/veh	14.5	0.0	0.0	15.3	0.0	0.0	25.8	0.0	24.5	32.1	0.0	24.1
LnGrp LOS	B			B			C		C	C		C
Approach Vol, veh/h	105			144			625		590			
Approach Delay, s/veh	14.5			15.3			24.6		24.6			
Approach LOS	B			B			C		C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.3		34.7		30.3		34.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		23.0		30.0		23.0		30.0				
Max Q Clear Time (g_c+I1), s		5.3		24.6		6.5		26.6				
Green Ext Time (p_c), s		0.6		3.1		0.6		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay				23.0								
HCM 2010 LOS				C								

HCM 2010 Signalized Intersection Summary

1: Washington Avenue & 11 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔			↔	
Traffic Volume (veh/h)	67	76	76	67	63	48	48	692	28	36	653	38
Future Volume (veh/h)	67	76	76	67	63	48	48	692	28	36	653	38
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.92	0.99		0.87	0.96		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86
Adj Sat Flow, veh/h/ln	1700	1667	1700	1700	1667	1700	1176	1667	1700	1700	1667	1700
Adj Flow Rate, veh/h	69	78	78	69	65	49	49	713	29	37	673	39
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	148	125	188	167	109	303	1804	73	93	1501	85
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	1.00	1.00	1.00	0.59	0.59	0.59
Sat Flow, veh/h	288	489	412	438	550	361	514	3080	125	85	2562	146
Grp Volume(v), veh/h	225	0	0	183	0	0	49	366	376	415	0	334
Grp Sat Flow(s),veh/h/ln	1189	0	0	1349	0	0	514	1583	1622	1545	0	1248
Q Serve(g_s), s	11.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	13.6
Cycle Q Clear(g_c), s	11.1	0.0	0.0	9.8	0.0	0.0	16.2	0.0	0.0	12.4	0.0	13.6
Prop In Lane	0.31		0.35	0.38		0.27	1.00		0.08	0.09		0.12
Lane Grp Cap(c), veh/h	0	0	0	464	0	0	303	927	950	949	0	731
V/C Ratio(X)	0.00	0.00	0.00	0.39	0.00	0.00	0.16	0.39	0.40	0.44	0.00	0.46
Avail Cap(c_a), veh/h	0	0	0	505	0	0	303	927	950	949	0	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.92	0.00	0.00	0.95	0.95	0.95	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	25.1	0.0	0.0	2.1	0.0	0.0	10.3	0.0	10.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.0	1.1	1.2	1.2	1.5	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.7	0.0	0.0	0.5	0.3	0.3	6.0	0.0	5.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	25.3	0.0	0.0	3.2	1.2	1.2	11.8	0.0	12.6
LnGrp LOS				C			A	A	A	B		B
Approach Vol, veh/h		225			183			791			749	
Approach Delay, s/veh		0.0			25.3			1.3			12.1	
Approach LOS		A			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.7		32.3		57.7		32.3				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		30.0		50.0		30.0				
Max Q Clear Time (g_c+I1), s		18.2		11.8		15.6		13.1				
Green Ext Time (p_c), s		4.3		1.6		4.3		1.5				
Intersection Summary												
HCM 2010 Ctrl Delay				7.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

2: Washington Avenue & 10 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	52	39	48	64	74	28	637	36	25	749	24
Future Volume (veh/h)	28	52	39	48	64	74	28	637	36	25	749	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.96	0.98		0.92	0.98		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	32	59	44	55	73	84	32	724	41	28	851	27
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	164	104	111	130	125	497	2042	116	542	2105	67
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	239	763	484	283	603	581	618	3031	172	685	3124	99
Grp Volume(v), veh/h	135	0	0	212	0	0	32	378	387	28	431	447
Grp Sat Flow(s), veh/h	1436	0	0	1467	0	0	618	1583	1619	685	1583	1639
Q Serve(g_s), s	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.24		0.33	0.26		0.40	1.00		0.11	1.00		0.06
Lane Grp Cap(c), veh/h	369	0	0	366	0	0	497	1067	1091	542	1067	1105
V/C Ratio(X)	0.37	0.00	0.00	0.58	0.00	0.00	0.06	0.35	0.35	0.05	0.40	0.40
Avail Cap(c_a), veh/h	443	0	0	439	0	0	497	1067	1091	542	1067	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.95	0.95	0.95	0.92	0.92	0.92
Uniform Delay (d), s	30.6	0.0	0.0	32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	0.2	0.9	0.9	0.2	1.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.3	0.3	0.0	0.3	0.3
LnGrp Delay(d), s/veh	30.6	0.0	0.0	32.7	0.0	0.0	0.2	0.9	0.9	0.2	1.0	1.0
LnGrp LOS	C			C			A	A	A	A	A	A
Approach Vol, veh/h	135			212			797			906		
Approach Delay, s/veh	30.6			32.7			0.8			1.0		
Approach LOS	C			C			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	65.6		24.4		65.6		24.4					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	65.0		24.0		66.0		24.0					
Max Q Clear Time (g_c+I1), s	12.0		13.6		2.0		8.8					
Green Ext Time (p_c), s	4.3		0.6		4.3		0.7					
Intersection Summary												
HCM 2010 Ctrl Delay				6.2								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

3: Washington Avenue & 9 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	18	58	43	24	40	46	35	632	59	146	638	44
Future Volume (veh/h)	18	58	43	24	40	46	35	632	59	146	638	44
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.92		0.88	0.92		0.88	0.96		0.83	0.98		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	19	60	45	25	42	48	36	658	61	152	665	46
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	86	229	153	113	173	170	456	1542	143	392	1698	117
Arrive On Green	0.00	0.29	0.29	0.29	0.29	0.29	0.57	0.57	0.57	0.00	1.00	0.14
Sat Flow, veh/h	136	782	523	218	589	578	703	2689	249	718	2961	204
Grp Volume(v), veh/h	124	0	0	115	0	0	36	387	332	152	355	356
Grp Sat Flow(s), veh/h	1411	0	0	1385	0	0	703	1583	1354	718	1583	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.4	12.5	19.1	0.0	3.4
Cycle Q Clear(g_c), s	6.1	0.0	0.0	5.4	0.0	0.0	5.7	12.4	12.5	31.5	0.0	3.4
Prop In Lane	0.15		0.36	0.22		0.42	1.00		0.18	1.00		0.13
Lane Grp Cap(c), veh/h	489	0	0	455	0	0	456	908	776	392	908	907
V/C Ratio(X)	0.26	0.00	0.00	0.25	0.00	0.00	0.08	0.43	0.43	0.39	0.39	0.39
Avail Cap(c_a), veh/h	494	0	0	479	0	0	456	908	776	392	908	907
HCM Platoon Ratio	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	2.00	0.25
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	26.2	0.0	0.0	24.4	0.0	0.0	10.3	10.8	10.9	41.2	0.0	2.3
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.3	1.5	1.7	2.7	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh	0.0	0.0	0.0	2.2	0.0	0.0	0.5	5.7	5.0	0.3	0.3	1.7
LnGrp Delay(d),s/veh	26.3	0.0	0.0	24.5	0.0	0.0	10.6	12.3	12.6	43.9	1.2	3.5
LnGrp LOS	C			C			B	B	B	D	A	A
Approach Vol, veh/h	124			115			755			863		
Approach Delay, s/veh	26.3			24.5			12.3			9.7		
Approach LOS	C			C			B			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.6		32.4		57.6		32.4				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		50.0		28.0		50.0		28.0				
Max Q Clear Time (g_c+I), s		33.5		7.4		14.5		8.1				
Green Ext Time (p_c), s		3.7		0.6		4.1		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				12.8								
HCM 2010 LOS				B								

HCM 2010 TWSC
4: Collins Ct & 9 Street

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	115	102	1	17	107	29	2	0	0	0	0	0
Future Vol, veh/h	115	102	1	17	107	29	2	0	0	0	0	0
Conflicting Peds, #/hr	40	0	96	96	0	40	6	0	14	14	0	6
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	139	123	1	20	129	35	2	0	0	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	164	0	0	138	0	0	602	620	233			
Stage 1	-	-	-	-	-	-	415	415	-			
Stage 2	-	-	-	-	-	-	187	205	-			
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-			
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318			
Pot Cap-1 Maneuver	1414	-	-	1446	-	-	463	404	806			
Stage 1	-	-	-	-	-	-	666	592	-			
Stage 2	-	-	-	-	-	-	845	732	-			
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1301	-	-	1330	-	-	366	0	733			
Mov Cap-2 Maneuver	-	-	-	-	-	-	366	0	-			
Stage 1	-	-	-	-	-	-	583	0	-			
Stage 2	-	-	-	-	-	-	764	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	4.3			0.9			14.9					
HCM LOS							B					
Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR					
Capacity (veh/h)	366	1301	-	-	1330	-	-					
HCM Lane V/C Ratio	0.007	0.106	-	-	0.015	-	-					
HCM Control Delay (s)	14.9	8.1	0	-	7.7	0	-					
HCM Lane LOS	B	A	A	-	A	A	-					
HCM 95th %tile Q(veh)	0	0.4	-	-	0	-	-					

HCM 2010 TWSC
5: Collins Ct & 10 Street

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	11	105	0	0	103	1	75	3	72	0	0	0
Future Vol, veh/h	11	105	0	0	103	1	75	3	72	0	0	0
Conflicting Peds, #/hr	28	0	0	0	0	28	9	0	8	8	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	114	0	0	112	1	82	3	78	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	113	0	0	123	0	0	260	260	151
Stage 1	-	-	-	-	-	-	147	147	-
Stage 2	-	-	-	-	-	-	113	113	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1476	-	-	1464	-	-	729	645	895
Stage 1	-	-	-	-	-	-	880	775	-
Stage 2	-	-	-	-	-	-	912	802	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1442	-	-	1430	-	-	700	0	868
Mov Cap-2 Maneuver	-	-	-	-	-	-	700	0	-
Stage 1	-	-	-	-	-	-	866	0	-
Stage 2	-	-	-	-	-	-	891	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.7	0	10.9
HCM LOS			B

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	773	1442	-	-	1430	-	-
HCM Lane V/C Ratio	0.211	0.008	-	-	-	-	-
HCM Control Delay (s)	10.9	7.5	0	-	0	-	-
HCM Lane LOS	B	A	A	-	A	-	-
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-

HCM 2010 Signalized Intersection Summary

6: Collins Avenue & 11 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	40	45	16	30	31	84	568	16	22	552	29
Future Volume (veh/h)	22	40	45	16	30	31	84	568	16	22	552	29
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.62		0.44	0.69		0.44	1.00		0.87	0.95		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	24	43	48	17	32	33	90	611	17	24	594	31
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	65	60	55	72	63	545	1223	34	632	1185	62
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	1.00	1.00	1.00	0.76	0.76	0.76
Sat Flow, veh/h	135	442	413	148	492	431	797	1606	45	758	1557	81
Grp Volume(v), veh/h	115	0	0	82	0	0	90	0	628	24	0	625
Grp Sat Flow(s),veh/h/ln	990	0	0	1070	0	0	797	0	1651	758	0	1638
Q Serve(g_s), s	4.7	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	1.0	0.0	19.1
Cycle Q Clear(g_c), s	13.9	0.0	0.0	9.2	0.0	0.0	22.5	0.0	0.0	1.0	0.0	19.1
Prop In Lane	0.21		0.42	0.21		0.40	1.00		0.03	1.00		0.05
Lane Grp Cap(c), veh/h	178	0	0	190	0	0	545	0	1257	632	0	1247
V/C Ratio(X)	0.65	0.00	0.00	0.43	0.00	0.00	0.17	0.00	0.50	0.04	0.00	0.50
Avail Cap(c_a), veh/h	212	0	0	225	0	0	545	0	1257	632	0	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.47	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.3	0.0	0.0	51.5	0.0	0.0	2.2	0.0	0.0	3.8	0.0	6.0
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.6	0.0	0.0	0.7	0.0	1.4	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0	2.8	0.0	0.0	0.8	0.0	0.5	0.2	0.0	9.0
LnGrp Delay(d),s/veh	54.6	0.0	0.0	52.1	0.0	0.0	2.8	0.0	1.4	3.9	0.0	7.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		115			82			718			649	
Approach Delay, s/veh		54.6			52.1			1.6			7.3	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		105.0		25.0		105.0		25.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		94.0		24.0		94.0		24.0				
Max Q Clear Time (g_c+I1), s		21.1		11.2		24.5		15.9				
Green Ext Time (p_c), s		3.7		0.7		3.7		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			10.5									
HCM 2010 LOS			B									

HCM 2010 TWSC
7: Collins Avenue & Parking Garage

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	0	74	592	55	16	578
Future Vol, veh/h	0	74	592	55	16	578
Conflicting Peds, #/hr	0	0	0	263	263	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	77	617	57	17	602
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1280	908	0	0	674	0
Stage 1	645	-	-	-	-	-
Stage 2	635	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	183	334	-	-	917	-
Stage 1	522	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	138	261	-	-	716	-
Mov Cap-2 Maneuver	138	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	24.5	0		0.3		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	261	716	-	
HCM Lane V/C Ratio	-	-	0.295	0.023	-	
HCM Control Delay (s)	-	-	24.5	10.1	0	
HCM Lane LOS	-	-	C	B	A	
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-	

HCM 2010 Signalized Intersection Summary

8: Collins Avenue & 10 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↵	↵		↵	↵	
Traffic Volume (veh/h)	37	37	27	73	43	28	18	499	28	27	553	27
Future Volume (veh/h)	37	37	27	73	43	28	18	499	28	27	553	27
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.83		0.69	0.82		0.70	0.96		0.87	0.95		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	39	39	28	77	45	29	19	525	29	28	582	28
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	106	96	59	140	75	41	619	1147	63	653	1157	56
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	1.00	1.00	1.00	0.98	0.98	0.98
Sat Flow, veh/h	373	521	321	537	409	225	775	1551	86	809	1565	75
Grp Volume(v), veh/h	106	0	0	151	0	0	19	0	554	28	0	610
Grp Sat Flow(s),veh/h/ln	1215	0	0	1171	0	0	775	0	1637	809	0	1640
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	1.6
Cycle Q Clear(g_c), s	9.8	0.0	0.0	15.9	0.0	0.0	1.6	0.0	0.0	0.1	0.0	1.6
Prop In Lane	0.37		0.26	0.51		0.19	1.00		0.05	1.00		0.05
Lane Grp Cap(c), veh/h	261	0	0	257	0	0	619	0	1210	653	0	1213
V/C Ratio(X)	0.41	0.00	0.00	0.59	0.00	0.00	0.03	0.00	0.46	0.04	0.00	0.50
Avail Cap(c_a), veh/h	271	0	0	267	0	0	619	0	1210	653	0	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.45	0.00	0.45	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.1	0.0	0.0	49.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.9
LnGrp Delay(d),s/veh	47.5	0.0	0.0	51.7	0.0	0.0	0.1	0.0	0.6	0.4	0.0	1.8
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		106			151			573			638	
Approach Delay, s/veh		47.5			51.7			0.6			1.7	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		101.1		28.9		101.1		28.9				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		95.0		25.0		95.0		25.0				
Max Q Clear Time (g_c+I1), s		3.6		17.9		3.6		11.8				
Green Ext Time (p_c), s		3.1		0.4		3.1		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				9.7								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

9: Collins Avenue & 9 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	33	37	37	53	46	37	514	42	37	495	44
Future Volume (veh/h)	29	33	37	37	53	46	37	514	42	37	495	44
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.87		0.78	0.85		0.79	0.97		0.72	0.97		0.72
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	31	35	39	39	56	49	39	547	45	39	527	47
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	188	176	172	222	167	198	652	54	201	645	58
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.44	0.44	0.44	0.30	0.30	0.30
Sat Flow, veh/h	296	506	474	272	597	448	814	1469	121	798	1455	130
Grp Volume(v), veh/h	105	0	0	144	0	0	39	0	592	39	0	574
Grp Sat Flow(s), veh/h	1276	0	0	1317	0	0	814	0	1590	798	0	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	21.5	3.0	0.0	21.9
Cycle Q Clear(g_c), s	3.3	0.0	0.0	4.6	0.0	0.0	24.8	0.0	21.5	24.5	0.0	21.9
Prop In Lane	0.30		0.37	0.27		0.34	1.00		0.08	1.00		0.08
Lane Grp Cap(c), veh/h	546	0	0	560	0	0	198	0	705	201	0	703
V/C Ratio(X)	0.19	0.00	0.00	0.26	0.00	0.00	0.20	0.00	0.84	0.19	0.00	0.82
Avail Cap(c_a), veh/h	546	0	0	560	0	0	213	0	734	216	0	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.86	0.00	0.86
Uniform Delay (d), s/veh	12.9	0.0	0.0	14.3	0.0	0.0	27.2	0.0	16.0	31.6	0.0	20.4
Incr Delay (d2), s/veh	0.8	0.0	0.0	1.1	0.0	0.0	0.4	0.0	8.1	0.3	0.0	5.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh	0.0	0.0	0.0	2.0	0.0	0.0	0.7	0.0	11.0	0.7	0.0	10.6
LnGrp Delay(d), s/veh	14.6	0.0	0.0	15.4	0.0	0.0	27.6	0.0	24.1	31.9	0.0	26.2
LnGrp LOS	B			B			C		C	C		C
Approach Vol, veh/h	105			144			631			613		
Approach Delay, s/veh	14.6			15.4			24.3			26.6		
Approach LOS	B			B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.2		34.8		30.2		34.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		23.0		30.0		23.0		30.0				
Max Q Clear Time (g_c+I1), s		5.3		26.8		6.6		26.5				
Green Ext Time (p_c), s		0.6		2.1		0.6		2.2				
Intersection Summary												
HCM 2010 Ctrl Delay				23.7								
HCM 2010 LOS				C								

Timings

1: Washington Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	62	71	18	58	28	602	33	523
Future Volume (vph)	62	71	18	58	28	602	33	523
Turn Type	D.Pm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		2		6
Permitted Phases	4		4		2		6	
Detector Phase	4	8	4	4	2	2	6	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	35.0	35.0	35.0	35.0	28.0	28.0	28.0	28.0
Total Split (s)	35.0	35.0	35.0	35.0	55.0	55.0	55.0	55.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	61.1%	61.1%	61.1%	61.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		16.4		16.4	63.6	63.6		63.6
Actuated g/C Ratio		0.18		0.18	0.71	0.71		0.71
v/c Ratio		0.77		0.43	0.10	0.33		0.32
Control Delay		49.3		26.3	4.2	3.9		6.3
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		49.3		26.3	4.2	3.9		6.3
LOS		D		C	A	A		A
Approach Delay		49.3		26.3		3.9		6.3
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Washington Avenue & 11 Street

 2 (R)	 4
55 s	35 s
 6 (R)	 8
55 s	35 s

Phasings

1: Washington Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		2		6
Permitted Phases	4		4		2		6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	35.0	35.0	35.0	35.0	28.0	28.0	28.0	28.0
Total Split (s)	35.0	35.0	35.0	35.0	55.0	55.0	55.0	55.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	61.1%	61.1%	61.1%	61.1%
Maximum Green (s)	30.0	30.0	30.0	30.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	24.1	24.1	24.1	24.1	55.9	55.9	55.9	55.9
90th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
70th %ile Green (s)	19.6	19.6	19.6	19.6	60.4	60.4	60.4	60.4
70th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
50th %ile Green (s)	16.5	16.5	16.5	16.5	63.5	63.5	63.5	63.5
50th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
30th %ile Green (s)	13.3	13.3	13.3	13.3	66.7	66.7	66.7	66.7
30th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
10th %ile Green (s)	8.7	8.7	8.7	8.7	71.3	71.3	71.3	71.3
10th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 63 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

1: Washington Avenue & 11 Street

	→	←	↙	↑	↓
Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	192	125	29	648	609
v/c Ratio	0.77	0.43	0.10	0.33	0.32
Control Delay	49.3	26.3	4.2	3.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	49.3	26.3	4.2	3.9	6.3
Queue Length 50th (ft)	92	45	3	36	57
Queue Length 95th (ft)	151	88	7	42	111
Internal Link Dist (ft)	195	287		370	360
Turn Bay Length (ft)			150		
Base Capacity (vph)	438	501	303	1967	1885
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	0.44	0.25	0.10	0.33	0.32
Intersection Summary					

Timings

2: Washington Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	48	29	48	26	568	23	550
Future Volume (vph)	26	48	29	48	26	568	23	550
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		10.6		10.6	69.4	69.4	69.4	69.4
Actuated g/C Ratio		0.12		0.12	0.77	0.77	0.77	0.77
v/c Ratio		0.66		0.71	0.06	0.28	0.05	0.27
Control Delay		49.7		50.9	2.8	2.7	2.7	2.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		49.7		50.9	2.8	2.7	2.7	2.5
LOS		D		D	A	A	A	A
Approach Delay		49.7		50.9		2.7		2.5
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 70 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Washington Avenue & 10 Street

 ø2 (R)	 ø4
61 s	29 s
 ø6 (R)	 ø8
61 s	29 s

Phasings

2: Washington Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Maximum Green (s)	24.0	24.0	24.0	24.0	56.0	56.0	56.0	56.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	17.0	17.0	17.0	17.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	16.0	16.0	16.0	16.0	64.0	64.0	64.0	64.0
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	12.5	12.5	12.5	12.5	67.5	67.5	67.5	67.5
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	10.1	10.1	10.1	10.1	69.9	69.9	69.9	69.9
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.6	7.6	7.6	7.6	72.4	72.4	72.4	72.4
30th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	73.0	73.0	73.0	73.0
10th %ile Term Code	Hold	Hold	Min	Min	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 70 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

2: Washington Avenue & 10 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	128	30	683	26	650
v/c Ratio	0.66	0.71	0.06	0.28	0.05	0.27
Control Delay	49.7	50.9	2.8	2.7	2.7	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	50.9	2.8	2.7	2.7	2.5
Queue Length 50th (ft)	52	57	3	30	2	25
Queue Length 95th (ft)	97	106	8	49	m7	46
Internal Link Dist (ft)	183	99		400		370
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	360	377	493	2401	474	2413
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.34	0.06	0.28	0.05	0.27
Intersection Summary						
m	Volume for 95th percentile queue is metered by upstream signal.					

Timings

3: Washington Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	17	41	22	37	32	563	43	529
Future Volume (vph)	17	41	22	37	32	563	43	529
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (s)	34.0	34.0	34.0	34.0	56.0	56.0	56.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	37.8%	62.2%	62.2%	62.2%	62.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.3		9.3	72.5	72.5	72.5	72.5
Actuated g/C Ratio		0.10		0.10	0.81	0.81	0.81	0.81
v/c Ratio		0.61		0.63	0.07	0.29	0.10	0.24
Control Delay		39.4		40.9	3.7	3.5	2.4	1.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		39.4		40.9	3.7	3.5	2.4	1.9
LOS		D		D	A	A	A	A
Approach Delay		39.4		40.9		3.5		1.9
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 63.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Washington Avenue & 9 Street

 Ø2 (R)	 Ø4
56 s	34 s
 Ø6 (R)	 Ø8
56 s	34 s

Existing 2016

Phasings

3: Washington Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (s)	34.0	34.0	34.0	34.0	56.0	56.0	56.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	37.8%	62.2%	62.2%	62.2%	62.2%
Maximum Green (s)	28.0	28.0	28.0	28.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	14.0	14.0	14.0	14.0	64.0	64.0	64.0	64.0
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	10.4	10.4	10.4	10.4	67.6	67.6	67.6	67.6
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	8.0	8.0	8.0	8.0	70.0	70.0	70.0	70.0
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.0	7.0	7.0	7.0	71.0	71.0	71.0	71.0
30th %ile Term Code	Min	Min	Min	Min	Coord	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	0.0	0.0	84.0	84.0	84.0	84.0
10th %ile Term Code	Skip	Skip	Skip	Skip	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 65 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

3: Washington Avenue & 9 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	107	33	637	45	581
v/c Ratio	0.61	0.63	0.07	0.29	0.10	0.24
Control Delay	39.4	40.9	3.7	3.5	2.4	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	40.9	3.7	3.5	2.4	1.9
Queue Length 50th (ft)	35	36	3	41	3	20
Queue Length 95th (ft)	82	85	14	81	9	32
Internal Link Dist (ft)	540	104		230		400
Turn Bay Length (ft)			130		150	
Base Capacity (vph)	433	427	501	2211	452	2413
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.25	0.07	0.29	0.10	0.24
Intersection Summary						

Timings

6: Collins Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	37	15	28	33	414	21	425
Future Volume (vph)	21	37	15	28	33	414	21	425
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	27.0	27.0	33.0	33.0	25.0	25.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		12.1		12.1	105.9	105.9	105.9	105.9
Actuated g/C Ratio		0.09		0.09	0.81	0.81	0.81	0.81
v/c Ratio		0.74		0.66	0.07	0.35	0.05	0.37
Control Delay		83.0		64.6	1.8	2.2	3.3	4.5
Queue Delay		0.0		0.0	0.0	0.3	0.0	0.0
Total Delay		83.0		64.6	1.8	2.5	3.3	4.5
LOS		F		E	A	A	A	A
Approach Delay		83.0		64.6		2.4		4.5
Approach LOS		F		E		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 85 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 56.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Collins Avenue & 11 Street

 Ø2 (R)	 Ø4
100 s	30 s
 Ø6 (R)	 Ø8
100 s	30 s

Existing 2016

Phasings

6: Collins Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	27.0	27.0	33.0	33.0	25.0	25.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Maximum Green (s)	24.0	24.0	24.0	24.0	94.0	94.0	94.0	94.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	18.7	18.7	18.7	18.7	99.3	99.3	99.3	99.3
90th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
70th %ile Green (s)	14.5	14.5	14.5	14.5	103.5	103.5	103.5	103.5
70th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
50th %ile Green (s)	11.7	11.7	11.7	11.7	106.3	106.3	106.3	106.3
50th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
30th %ile Green (s)	8.8	8.8	8.8	8.8	109.2	109.2	109.2	109.2
30th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	111.0	111.0	111.0	111.0
10th %ile Term Code	Min	Min	Hold	Hold	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 130								
Actuated Cycle Length: 130								
Offset: 85 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

6: Collins Avenue & 11 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	77	35	461	23	486
v/c Ratio	0.74	0.66	0.07	0.35	0.05	0.37
Control Delay	83.0	64.6	1.8	2.2	3.3	4.5
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	83.0	64.6	1.8	2.5	3.3	4.5
Queue Length 50th (ft)	61	44	2	24	3	85
Queue Length 95th (ft)	115	96	8	78	11	167
Internal Link Dist (ft)	287	162		90		368
Turn Bay Length (ft)			190		170	
Base Capacity (vph)	215	210	490	1324	494	1298
Starvation Cap Reductn	0	0	0	383	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.37	0.07	0.49	0.05	0.37
Intersection Summary						

Timings

8: Collins Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	34	23	40	17	367	25	400
Future Volume (vph)	18	34	23	40	17	367	25	400
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	29.0	29.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		12.1		12.1	107.9	107.9	107.9	107.9
Actuated g/C Ratio		0.09		0.09	0.83	0.83	0.83	0.83
v/c Ratio		0.64		0.76	0.04	0.31	0.05	0.34
Control Delay		68.0		82.4	0.8	1.4	1.6	1.9
Queue Delay		0.0		0.0	0.0	0.6	0.0	0.2
Total Delay		68.0		82.4	0.8	2.0	1.6	2.2
LOS		E		F	A	A	A	A
Approach Delay		68.0		82.4		2.0		2.1
Approach LOS		E		F		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 95 (73%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 53.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 8: Collins Avenue & 10 Street

 ø2 (R)	 ø4
100 s	30 s
 ø6 (R)	 ø8
100 s	30 s

Phasings

8: Collins Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	29.0	29.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Maximum Green (s)	25.0	25.0	25.0	25.0	95.0	95.0	95.0	95.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	10.0	10.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	18.5	18.5	18.5	18.5	101.5	101.5	101.5	101.5
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	14.5	14.5	14.5	14.5	105.5	105.5	105.5	105.5
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	11.7	11.7	11.7	11.7	108.3	108.3	108.3	108.3
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	8.9	8.9	8.9	8.9	111.1	111.1	111.1	111.1
30th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	113.0	113.0	113.0	113.0
10th %ile Term Code	Hold	Hold	Min	Min	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 130								
Actuated Cycle Length: 130								
Offset: 95 (73%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

8: Collins Avenue & 10 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	93	18	413	26	447
v/c Ratio	0.64	0.76	0.04	0.31	0.05	0.34
Control Delay	68.0	82.4	0.8	1.4	1.6	1.9
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.2
Total Delay	68.0	82.4	0.8	2.0	1.6	2.2
Queue Length 50th (ft)	53	66	0	8	2	35
Queue Length 95th (ft)	103	121	m1	65	6	54
Internal Link Dist (ft)	106	50		400		200
Turn Bay Length (ft)			200		160	
Base Capacity (vph)	238	239	509	1319	518	1325
Starvation Cap Reductn	0	0	0	530	0	321
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.39	0.04	0.52	0.05	0.45
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Timings

9: Collins Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	30	34	49	29	381	34	388
Future Volume (vph)	27	30	34	49	29	381	34	388
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	24.3	24.3	24.3	24.3	30.0	30.0	30.0	30.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)		30.0		30.0	23.0	23.0	23.0	23.0
Actuated g/C Ratio		0.46		0.46	0.35	0.35	0.35	0.35
v/c Ratio		0.17		0.22	0.18	0.78	0.21	0.76
Control Delay		10.0		10.3	14.7	27.3	18.9	30.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		10.0		10.3	14.7	27.3	18.9	30.5
LOS		A		B	B	C	B	C
Approach Delay		10.0		10.3		26.5		29.6
Approach LOS		A		B		C		C

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 36 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 54.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Collins Avenue & 9 Street

 02 (R)	 04
29 s	36 s
 06 (R)	 08
29 s	36 s

Phasings

9: Collins Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	24.3	24.3	24.3	24.3	30.0	30.0	30.0	30.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Maximum Green (s)	23.0	23.0	23.0	23.0	30.0	30.0	30.0	30.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	2.5	2.5	2.5	2.5
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	22.4	22.4	22.4	22.4	30.6	30.6	30.6	30.6
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	26.1	26.1	26.1	26.1	26.9	26.9	26.9	26.9
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	29.9	29.9	29.9	29.9	23.1	23.1	23.1	23.1
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	33.3	33.3	33.3	33.3	19.7	19.7	19.7	19.7
30th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
10th %ile Green (s)	38.4	38.4	38.4	38.4	14.6	14.6	14.6	14.6
10th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
Intersection Summary								
Cycle Length: 65								
Actuated Cycle Length: 65								
Offset: 36 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

9: Collins Avenue & 9 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	134	31	445	36	437
v/c Ratio	0.17	0.22	0.18	0.78	0.21	0.76
Control Delay	10.0	10.3	14.7	27.3	18.9	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	10.3	14.7	27.3	18.9	30.5
Queue Length 50th (ft)	13	19	8	150	13	191
Queue Length 95th (ft)	47	62	22	202	33	283
Internal Link Dist (ft)	111	366		230		400
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	578	609	222	749	226	754
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.22	0.14	0.59	0.16	0.58
Intersection Summary						

Timings

1: Washington Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	67	76	19	63	30	674	36	634
Future Volume (vph)	67	76	19	63	30	674	36	634
Turn Type	D.Pm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		2		6
Permitted Phases	4		4		2		6	
Detector Phase	4	8	4	4	2	2	6	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	35.0	35.0	35.0	35.0	28.0	28.0	28.0	28.0
Total Split (s)	35.0	35.0	35.0	35.0	55.0	55.0	55.0	55.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	61.1%	61.1%	61.1%	61.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0		5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		17.5		17.5	62.5	62.5		62.5
Actuated g/C Ratio		0.19		0.19	0.69	0.69		0.69
v/c Ratio		0.79		0.44	0.12	0.37		0.39
Control Delay		50.1		26.2	4.6	4.3		7.3
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		50.1		26.2	4.6	4.3		7.3
LOS		D		C	A	A		A
Approach Delay		50.1		26.2		4.3		7.3
Approach LOS		D		C		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 63 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Washington Avenue & 11 Street

 2 (R)	 4
55 s	35 s
 6 (R)	 8
55 s	35 s

Phasings

1: Washington Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		2		6
Permitted Phases	4		4		2		6	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	35.0	35.0	35.0	35.0	28.0	28.0	28.0	28.0
Total Split (s)	35.0	35.0	35.0	35.0	55.0	55.0	55.0	55.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	61.1%	61.1%	61.1%	61.1%
Maximum Green (s)	30.0	30.0	30.0	30.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	2.5	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	23.0	23.0	23.0	23.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	25.4	25.4	25.4	25.4	54.6	54.6	54.6	54.6
90th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
70th %ile Green (s)	20.9	20.9	20.9	20.9	59.1	59.1	59.1	59.1
70th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
50th %ile Green (s)	17.5	17.5	17.5	17.5	62.5	62.5	62.5	62.5
50th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
30th %ile Green (s)	14.2	14.2	14.2	14.2	65.8	65.8	65.8	65.8
30th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
10th %ile Green (s)	9.4	9.4	9.4	9.4	70.6	70.6	70.6	70.6
10th %ile Term Code	Hold	Gap	Hold	Hold	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 63 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

1: Washington Avenue & 11 Street

	→	←	↙	↑	↓
Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	206	134	31	724	730
v/c Ratio	0.79	0.44	0.12	0.37	0.39
Control Delay	50.1	26.2	4.6	4.3	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	26.2	4.6	4.3	7.3
Queue Length 50th (ft)	99	49	3	39	77
Queue Length 95th (ft)	160	92	8	98	146
Internal Link Dist (ft)	195	287		370	360
Turn Bay Length (ft)			150		
Base Capacity (vph)	433	501	261	1936	1850
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	0.48	0.27	0.12	0.37	0.39
Intersection Summary					

Timings

2: Washington Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	28	52	31	52	28	637	25	663
Future Volume (vph)	28	52	31	52	28	637	25	663
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		11.2		11.2	68.8	68.8	68.8	68.8
Actuated g/C Ratio		0.12		0.12	0.76	0.76	0.76	0.76
v/c Ratio		0.68		0.73	0.07	0.32	0.06	0.33
Control Delay		50.8		52.7	3.0	2.9	3.0	2.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		50.8		52.7	3.0	2.9	3.0	2.8
LOS		D		D	A	A	A	A
Approach Delay		50.8		52.7		2.9		2.8
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 70 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 9.6

Intersection LOS: A

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Washington Avenue & 10 Street

 ø2 (R)	 ø4
61 s	29 s
 ø6 (R)	 ø8
61 s	29 s

Phasings

2: Washington Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0
Total Split (s)	29.0	29.0	29.0	29.0	61.0	61.0	61.0	61.0
Total Split (%)	32.2%	32.2%	32.2%	32.2%	67.8%	67.8%	67.8%	67.8%
Maximum Green (s)	24.0	24.0	24.0	24.0	56.0	56.0	56.0	56.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	17.0	17.0	17.0	17.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	16.8	16.8	16.8	16.8	63.2	63.2	63.2	63.2
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	13.2	13.2	13.2	13.2	66.8	66.8	66.8	66.8
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	10.7	10.7	10.7	10.7	69.3	69.3	69.3	69.3
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	8.1	8.1	8.1	8.1	71.9	71.9	71.9	71.9
30th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	73.0	73.0	73.0	73.0
10th %ile Term Code	Min	Min	Min	Min	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 70 (78%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

2: Washington Avenue & 10 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	137	32	765	28	780
v/c Ratio	0.68	0.73	0.07	0.32	0.06	0.33
Control Delay	50.8	52.7	3.0	2.9	3.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	52.7	3.0	2.9	3.0	2.8
Queue Length 50th (ft)	56	62	3	32	2	33
Queue Length 95th (ft)	103	113	8	55	m7	57
Internal Link Dist (ft)	183	99		400		370
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	357	373	428	2383	432	2398
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.37	0.07	0.32	0.06	0.33
Intersection Summary						
m	Volume for 95th percentile queue is metered by upstream signal.					

Timings

3: Washington Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	18	44	24	40	35	632	46	641
Future Volume (vph)	18	44	24	40	35	632	46	641
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (s)	34.0	34.0	34.0	34.0	56.0	56.0	56.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	37.8%	62.2%	62.2%	62.2%	62.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		9.7		9.7	72.1	72.1	72.1	72.1
Actuated g/C Ratio		0.11		0.11	0.80	0.80	0.80	0.80
v/c Ratio		0.63		0.66	0.08	0.32	0.11	0.29
Control Delay		40.8		43.1	4.0	3.9	2.6	2.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		40.8		43.1	4.0	3.9	2.6	2.0
LOS		D		D	A	A	A	A
Approach Delay		40.8		43.1		3.9		2.1
Approach LOS		D		D		A		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 65 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 8.1

Intersection LOS: A

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Washington Avenue & 9 Street

 Ø2 (R)	 Ø4
56 s	34 s
 Ø6 (R)	 Ø8
56 s	34 s

Phasings

3: Washington Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	42.0	42.0
Total Split (s)	34.0	34.0	34.0	34.0	56.0	56.0	56.0	56.0
Total Split (%)	37.8%	37.8%	37.8%	37.8%	62.2%	62.2%	62.2%	62.2%
Maximum Green (s)	28.0	28.0	28.0	28.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	14.8	14.8	14.8	14.8	63.2	63.2	63.2	63.2
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	11.2	11.2	11.2	11.2	66.8	66.8	66.8	66.8
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	8.6	8.6	8.6	8.6	69.4	69.4	69.4	69.4
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	7.0	7.0	7.0	7.0	71.0	71.0	71.0	71.0
30th %ile Term Code	Min	Min	Min	Min	Coord	Coord	Coord	Coord
10th %ile Green (s)	0.0	0.0	0.0	0.0	84.0	84.0	84.0	84.0
10th %ile Term Code	Skip	Skip	Skip	Skip	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 65 (72%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

3: Washington Avenue & 9 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	115	36	713	48	700
v/c Ratio	0.63	0.66	0.08	0.32	0.11	0.29
Control Delay	40.8	43.1	4.0	3.9	2.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	43.1	4.0	3.9	2.6	2.0
Queue Length 50th (ft)	39	41	4	50	3	25
Queue Length 95th (ft)	87	91	15	98	9	38
Internal Link Dist (ft)	540	104		230		400
Turn Bay Length (ft)			130		150	
Base Capacity (vph)	428	421	454	2201	427	2405
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.27	0.08	0.32	0.11	0.29
Intersection Summary						

Timings

6: Collins Avenue & 11 Street

	↖	→	↗	←	↖	↑	↗	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕	↖	↗	↖	↗
Traffic Volume (vph)	22	40	16	30	36	550	22	533
Future Volume (vph)	22	40	16	30	36	550	22	533
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	27.0	27.0	33.0	33.0	25.0	25.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		12.6		12.6	105.4	105.4	105.4	105.4
Actuated g/C Ratio		0.10		0.10	0.81	0.81	0.81	0.81
v/c Ratio		0.76		0.68	0.08	0.46	0.05	0.46
Control Delay		84.9		66.8	1.8	2.5	3.5	5.5
Queue Delay		0.0		0.0	0.0	0.2	0.0	0.0
Total Delay		84.9		66.8	1.8	2.7	3.5	5.5
LOS		F		E	A	A	A	A
Approach Delay		84.9		66.8		2.7		5.5
Approach LOS		F		E		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 85 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 59.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 6: Collins Avenue & 11 Street

↓ ø2 (R)	↖ ø4
100 s	30 s
↖ ø6 (R)	↗ ø8
100 s	30 s

Phasings

6: Collins Avenue & 11 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	27.0	27.0	33.0	33.0	25.0	25.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Maximum Green (s)	24.0	24.0	24.0	24.0	94.0	94.0	94.0	94.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	19.4	19.4	19.4	19.4	98.6	98.6	98.6	98.6
90th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
70th %ile Green (s)	15.1	15.1	15.1	15.1	102.9	102.9	102.9	102.9
70th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
50th %ile Green (s)	12.2	12.2	12.2	12.2	105.8	105.8	105.8	105.8
50th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
30th %ile Green (s)	9.3	9.3	9.3	9.3	108.7	108.7	108.7	108.7
30th %ile Term Code	Gap	Gap	Hold	Hold	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	111.0	111.0	111.0	111.0
10th %ile Term Code	Min	Min	Min	Min	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 130								
Actuated Cycle Length: 130								
Offset: 85 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

6: Collins Avenue & 11 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	82	39	608	24	604
v/c Ratio	0.76	0.68	0.08	0.46	0.05	0.46
Control Delay	84.9	66.8	1.8	2.5	3.5	5.5
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	84.9	66.8	1.8	2.7	3.5	5.5
Queue Length 50th (ft)	65	49	2	35	3	121
Queue Length 95th (ft)	120	101	8	86	12	238
Internal Link Dist (ft)	287	162		90		368
Turn Bay Length (ft)			190		170	
Base Capacity (vph)	214	209	460	1324	459	1301
Starvation Cap Reductn	0	0	0	192	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.39	0.08	0.54	0.05	0.46
Intersection Summary						

Timings

8: Collins Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	19	37	25	43	18	499	27	506
Future Volume (vph)	19	37	25	43	18	499	27	506
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Detector Phase	8	8	4	4	6	6	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	29.0	29.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.0		5.0	5.0	5.0	5.0	5.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Act Effct Green (s)		12.8		12.8	107.2	107.2	107.2	107.2
Actuated g/C Ratio		0.10		0.10	0.82	0.82	0.82	0.82
v/c Ratio		0.66		0.78	0.04	0.42	0.06	0.42
Control Delay		68.9		85.3	1.3	2.7	1.7	2.3
Queue Delay		0.0		0.0	0.0	0.8	0.0	0.1
Total Delay		68.9		85.3	1.3	3.4	1.7	2.4
LOS		E		F	A	A	A	A
Approach Delay		68.9		85.3		3.4		2.4
Approach LOS		E		F		A		A

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 95 (73%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 13.1

Intersection LOS: B

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Collins Avenue & 10 Street

 ø2 (R)	 ø4
100 s	30 s
 ø6 (R)	 ø8
100 s	30 s

Phasings

8: Collins Avenue & 10 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		8		4		6		2
Permitted Phases	8		4		6		2	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	29.0	29.0	23.0	23.0	23.0	23.0
Total Split (s)	30.0	30.0	30.0	30.0	100.0	100.0	100.0	100.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	76.9%	76.9%	76.9%	76.9%
Maximum Green (s)	25.0	25.0	25.0	25.0	95.0	95.0	95.0	95.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	None	None	None	None	C-Min	C-Min	C-Min	C-Min
Walk Time (s)	7.0	7.0	10.0	10.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	19.5	19.5	19.5	19.5	100.5	100.5	100.5	100.5
90th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
70th %ile Green (s)	15.4	15.4	15.4	15.4	104.6	104.6	104.6	104.6
70th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
50th %ile Green (s)	12.5	12.5	12.5	12.5	107.5	107.5	107.5	107.5
50th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
30th %ile Green (s)	9.5	9.5	9.5	9.5	110.5	110.5	110.5	110.5
30th %ile Term Code	Hold	Hold	Gap	Gap	Coord	Coord	Coord	Coord
10th %ile Green (s)	7.0	7.0	7.0	7.0	113.0	113.0	113.0	113.0
10th %ile Term Code	Min	Min	Min	Min	Coord	Coord	Coord	Coord
Intersection Summary								
Cycle Length: 130								
Actuated Cycle Length: 130								
Offset: 95 (73%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

8: Collins Avenue & 10 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	100	19	554	28	561
v/c Ratio	0.66	0.78	0.04	0.42	0.06	0.42
Control Delay	68.9	85.3	1.3	2.7	1.7	2.3
Queue Delay	0.0	0.0	0.0	0.8	0.0	0.1
Total Delay	68.9	85.3	1.3	3.4	1.7	2.4
Queue Length 50th (ft)	58	72	0	8	2	42
Queue Length 95th (ft)	111	130	m4	263	m5	66
Internal Link Dist (ft)	106	50		400		200
Turn Bay Length (ft)			200		160	
Base Capacity (vph)	238	237	483	1324	488	1326
Starvation Cap Reductn	0	0	0	451	0	163
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.42	0.04	0.63	0.06	0.48
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

Timings

9: Collins Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	29	33	37	53	31	514	37	493
Future Volume (vph)	29	33	37	53	31	514	37	493
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	24.3	24.3	24.3	24.3	30.0	30.0	30.0	30.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Act Effct Green (s)		24.3		24.3	28.7	28.7	28.7	28.7
Actuated g/C Ratio		0.37		0.37	0.44	0.44	0.44	0.44
v/c Ratio		0.22		0.29	0.17	0.83	0.22	0.76
Control Delay		13.2		14.3	11.1	25.6	15.6	25.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		13.2		14.3	11.1	25.6	15.6	25.9
LOS		B		B	B	C	B	C
Approach Delay		13.2		14.3		24.9		25.3
Approach LOS		B		B		C		C

Intersection Summary

Cycle Length: 65

Actuated Cycle Length: 65

Offset: 36 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 57.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: Collins Avenue & 9 Street

 02 (R)	 04
29 s	36 s
 06 (R)	 08
29 s	36 s

Phasings

9: Collins Avenue & 9 Street

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	24.3	24.3	24.3	24.3	30.0	30.0	30.0	30.0
Total Split (s)	29.0	29.0	29.0	29.0	36.0	36.0	36.0	36.0
Total Split (%)	44.6%	44.6%	44.6%	44.6%	55.4%	55.4%	55.4%	55.4%
Maximum Green (s)	23.0	23.0	23.0	23.0	30.0	30.0	30.0	30.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	1.0	1.0	1.0	1.0	2.5	2.5	2.5	2.5
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None
Walk Time (s)	7.0	7.0	7.0	7.0	10.0	10.0	10.0	10.0
Flash Dont Walk (s)	9.0	9.0	9.0	9.0	14.0	14.0	14.0	14.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0
90th %ile Green (s)	16.5	16.5	16.5	16.5	36.5	36.5	36.5	36.5
90th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
70th %ile Green (s)	21.4	21.4	21.4	21.4	31.6	31.6	31.6	31.6
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
50th %ile Green (s)	23.6	23.6	23.6	23.6	29.4	29.4	29.4	29.4
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
30th %ile Green (s)	27.3	27.3	27.3	27.3	25.7	25.7	25.7	25.7
30th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
10th %ile Green (s)	32.7	32.7	32.7	32.7	20.3	20.3	20.3	20.3
10th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Hold
Intersection Summary								
Cycle Length: 65								
Actuated Cycle Length: 65								
Offset: 36 (55%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow								
Control Type: Actuated-Coordinated								

Queues

9: Collins Avenue & 9 Street

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	105	144	33	592	39	551
v/c Ratio	0.22	0.29	0.17	0.83	0.22	0.76
Control Delay	13.2	14.3	11.1	25.6	15.6	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	14.3	11.1	25.6	15.6	25.9
Queue Length 50th (ft)	17	27	7	189	13	246
Queue Length 95th (ft)	58	79	19	246	36	372
Internal Link Dist (ft)	111	366		230		400
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	500	524	211	789	192	793
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.27	0.16	0.75	0.20	0.69
Intersection Summary						

HCM 2010 Signalized Intersection Summary

1: Washington Avenue & 11 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔			↔	
Traffic Volume (veh/h)	67	76	87	94	63	48	54	698	28	36	664	38
Future Volume (veh/h)	67	76	87	94	63	48	54	698	28	36	664	38
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.92	0.99		0.86	0.96		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86
Adj Sat Flow, veh/h/ln	1700	1667	1700	1700	1667	1700	1176	1667	1700	1700	1667	1700
Adj Flow Rate, veh/h	69	78	90	97	65	49	56	720	29	37	685	39
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	0	2	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	154	150	218	139	90	297	1791	72	92	1493	84
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	1.00	1.00	1.00	0.58	0.58	0.58
Sat Flow, veh/h	298	500	489	520	450	293	509	3081	124	83	2569	144
Grp Volume(v), veh/h	237	0	0	211	0	0	56	370	379	422	0	339
Grp Sat Flow(s),veh/h/ln	1287	0	0	1264	0	0	509	1583	1622	1547	0	1248
Q Serve(g_s), s	11.8	0.0	0.0	1.4	0.0	0.0	3.3	0.0	0.0	0.0	0.0	14.0
Cycle Q Clear(g_c), s	11.8	0.0	0.0	13.2	0.0	0.0	17.3	0.0	0.0	12.8	0.0	14.0
Prop In Lane	0.29		0.38	0.46		0.23	1.00		0.08	0.09		0.12
Lane Grp Cap(c), veh/h	0	0	0	447	0	0	297	920	943	943	0	726
V/C Ratio(X)	0.00	0.00	0.00	0.47	0.00	0.00	0.19	0.40	0.40	0.45	0.00	0.47
Avail Cap(c_a), veh/h	0	0	0	481	0	0	297	920	943	943	0	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.90	0.00	0.00	0.94	0.94	0.94	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	25.9	0.0	0.0	2.3	0.0	0.0	10.6	0.0	10.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	1.3	1.2	1.2	1.5	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.4	0.0	0.0	0.5	0.3	0.3	6.3	0.0	5.2
LnGrp Delay(d),s/veh	0.0	0.0	0.0	26.2	0.0	0.0	3.7	1.2	1.2	12.1	0.0	13.0
LnGrp LOS				C			A	A	A	B		B
Approach Vol, veh/h		237			211			805			761	
Approach Delay, s/veh		0.0			26.2			1.4			12.5	
Approach LOS		A			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.3		32.7		57.3		32.7				
Change Period (Y+Rc), s		5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s		50.0		30.0		50.0		30.0				
Max Q Clear Time (g_c+I1), s		19.3		15.2		16.0		13.8				
Green Ext Time (p_c), s		4.4		1.6		4.4		1.7				
Intersection Summary												
HCM 2010 Ctrl Delay				8.0								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary

2: Washington Avenue & 10 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	52	48	55	71	86	28	637	36	25	798	24
Future Volume (veh/h)	28	52	48	55	71	86	28	637	36	25	798	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.97		0.96	0.98		0.92	0.98		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	32	59	55	62	81	98	32	724	41	28	907	27
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	157	124	115	131	134	470	2014	114	535	2080	62
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	212	701	552	290	582	598	587	3031	172	685	3131	93
Grp Volume(v), veh/h	146	0	0	241	0	0	32	378	387	28	459	475
Grp Sat Flow(s), veh/h	1464	0	0	1470	0	0	587	1583	1619	685	1583	1641
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.4	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.22		0.38	0.26		0.41	1.00		0.11	1.00		0.06
Lane Grp Cap(c), veh/h	378	0	0	380	0	0	470	1052	1076	535	1052	1090
V/C Ratio(X)	0.39	0.00	0.00	0.63	0.00	0.00	0.07	0.36	0.36	0.05	0.44	0.44
Avail Cap(c_a), veh/h	437	0	0	440	0	0	470	1052	1076	535	1052	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.94	0.94	0.94	0.91	0.91	0.91
Uniform Delay (d), s/veh	20.9	0.0	0.0	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	1.4	0.0	0.0	0.3	0.9	0.9	0.2	1.2	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.3	0.3	0.0	0.4	0.4
LnGrp Delay(d), s/veh	20.1	0.0	0.0	33.5	0.0	0.0	0.3	0.9	0.9	0.2	1.2	1.2
LnGrp LOS	C			C			A	A	A	A	A	A
Approach Vol, veh/h	146			241			797			962		
Approach Delay, s/veh	30.1			33.5			0.9			1.1		
Approach LOS	C			C			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	64.8		25.2		64.8		25.2					
Change Period (Y+Rc), s	5.0		5.0		5.0		5.0					
Max Green Setting (Gmax), s	56.0		24.0		56.0		24.0					
Max Q Clear Time (g_c+I), s	12.9		15.4		2.0		9.4					
Green Ext Time (p_c), s	4.5		0.7		4.5		0.8					
Intersection Summary												
HCM 2010 Ctrl Delay	6.6											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

3: Washington Avenue & 9 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	66	43	24	40	46	35	632	61	204	634	49
Future Volume (veh/h)	18	66	43	24	40	46	35	632	61	204	634	49
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.92		0.88	0.93		0.88	0.96		0.83	0.98		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	1.00	1.00
Adj Sat Flow, veh/h	1700	1667	1700	1700	1667	1700	1667	1667	1700	1667	1667	1700
Adj Flow Rate, veh/h	19	69	45	25	42	48	36	658	64	212	660	51
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	247	145	113	173	170	454	1532	149	390	1679	129
Arrive On Green	0.00	0.29	0.29	0.29	0.29	0.29	0.57	0.57	0.57	0.00	1.00	0.14
Sat Flow, veh/h	123	840	493	218	589	578	704	2674	259	716	2931	226
Grp Volume(v), veh/h	133	0	0	115	0	0	36	389	333	212	356	355
Grp Sat Flow(s), veh/h	1456	0	0	1384	0	0	704	1583	1350	716	1583	1574
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.5	12.6	26.6	0.0	3.8
Cycle Q Clear(g_c), s	6.5	0.0	0.0	5.4	0.0	0.0	6.1	12.5	12.6	39.2	0.0	3.8
Prop In Lane	0.14		0.34	0.22		0.42	1.00		0.19	1.00		0.14
Lane Grp Cap(c), veh/h	173	0	0	455	0	0	454	907	773	390	907	902
V/C Ratio(X)	0.28	0.00	0.00	0.25	0.00	0.00	0.08	0.43	0.43	0.54	0.39	0.39
Avail Cap(c_a), veh/h	198	0	0	479	0	0	454	907	773	390	907	902
HCM Platoon Ratio	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	2.00	0.25
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	26.2	0.0	0.0	24.4	0.0	0.0	10.5	10.9	10.9	45.1	0.0	2.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.3	1.5	1.7	4.9	1.2	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.0	0.0	0.0	2.2	0.0	0.0	0.5	5.8	5.0	0.5	0.3	1.8
LnGrp Delay(d), s/veh	26.3	0.0	0.0	24.5	0.0	0.0	10.8	12.4	12.6	50.0	1.2	3.8
LnGrp LOS	C			C			B	B	B	D	A	A
Approach Vol, veh/h	133			115			758			923		
Approach Delay, s/veh	26.3			24.5			12.4			13.4		
Approach LOS	C			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.6		32.4		57.6		32.4				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		50.0		28.0		50.0		28.0				
Max Q Clear Time (g_c+I), s		11.2		7.4		14.6		8.5				
Green Ext Time (p_c), s		3.2		0.6		4.4		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				14.6								
HCM 2010 LOS				B								