Intersection Turn Movement Counts

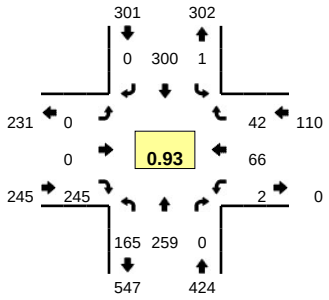
Type of peak hour being reported: Intersection Peak

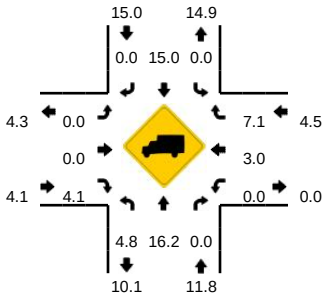
Method for determining peak hour: Total Entering Volume

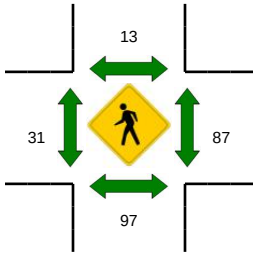
LOCATION: Broadway -- Telegraph Ave/15th St
CITY/STATE: Oakland, CA

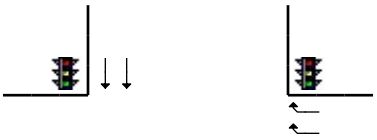
QC JOB #: 10880909
DATE: Thu, Jan 24 2013

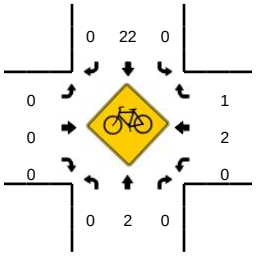
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:20 AM -- 8:35 AM

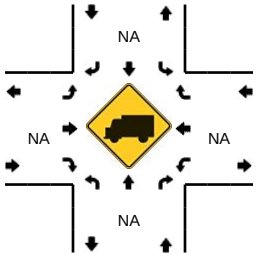


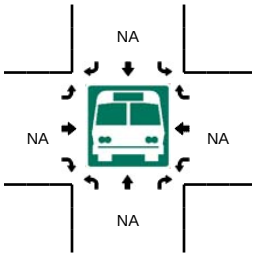












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				Telegraph Ave/15th St (Eastbound)				Telegraph Ave/15th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	16	0	1	0	10	0	0	0	0	8	0	0	0	1	0	39	
7:05 AM	5	15	0	0	0	12	0	0	0	0	6	0	0	1	1	0	40	
7:10 AM	7	15	0	0	0	13	0	0	0	0	7	0	0	4	2	0	48	
7:15 AM	4	12	0	0	0	23	0	0	0	0	4	0	0	3	0	0	46	
7:20 AM	8	12	0	0	0	9	0	0	0	0	7	0	0	2	0	0	38	
7:25 AM	7	23	0	0	0	17	0	0	0	0	11	0	0	2	1	0	61	
7:30 AM	14	18	0	0	0	13	0	0	0	0	13	0	0	8	1	0	67	
7:35 AM	7	10	0	0	0	20	0	0	0	0	11	0	0	2	2	0	52	
7:40 AM	13	18	0	0	0	23	0	0	0	0	16	0	0	2	2	0	74	
7:45 AM	9	18	0	0	0	23	0	0	0	0	12	0	0	2	1	0	65	
7:50 AM	15	17	0	0	0	26	0	0	0	0	15	0	0	3	1	0	77	
7:55 AM	16	23	0	0	0	26	0	0	0	0	18	0	0	3	6	0	92	699
8:00 AM	17	22	0	0	0	19	0	0	0	0	22	0	0	2	5	0	87	747
8:05 AM	10	20	0	0	0	30	0	0	0	0	24	0	0	4	3	0	91	798
8:10 AM	8	21	0	0	0	19	0	0	0	0	18	0	0	3	1	0	70	820
8:15 AM	20	19	0	0	0	16	0	0	0	0	20	0	0	10	4	0	89	863
8:20 AM	20	27	0	0	0	35	0	1	0	0	20	0	0	5	3	0	111	936
8:25 AM	12	18	0	0	0	18	0	0	0	0	18	0	0	12	4	0	82	957
8:30 AM	14	23	0	0	0	29	0	0	0	0	20	0	1	6	3	0	96	986
8:35 AM	14	21	0	0	0	21	0	0	0	0	23	0	0	4	2	0	85	1019
8:40 AM	15	21	0	0	0	25	0	0	0	0	19	0	0	3	8	0	91	1036
8:45 AM	12	22	0	0	0	28	0	0	0	0	20	0	0	5	2	0	89	1060
8:50 AM	12	23	0	0	0	23	0	0	0	0	17	0	1	5	3	0	84	1067
8:55 AM	11	22	0	0	0	37	0	0	0	0	24	0	0	7	4	0	105	1080

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	184	272	0	0	0	328	0	4	0	0	232	0	4	92	40	0	1156
Heavy Trucks	12	64	0		0	44	0		0	0	8		0	0	0		128
Pedestrians		108				0				52				124			284
Bicycles	0	0	0		0	10	0		0	0	0		0	1	0		11
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/5/2013 6:21 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

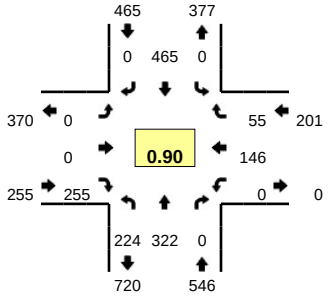
LOCATION: Broadway -- Telegraph Ave/15th St

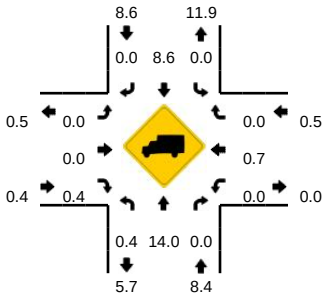
CITY/STATE: Oakland, CA

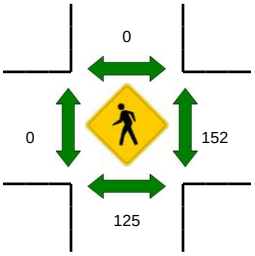
QC JOB #: 10880910

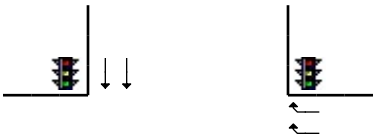
DATE: Thu, Jan 24 2013

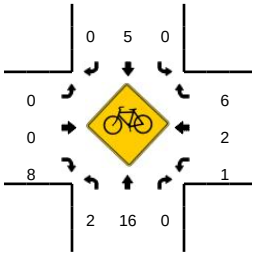
Peak-Hour: 4:50 PM -- 5:50 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

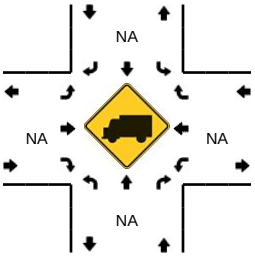


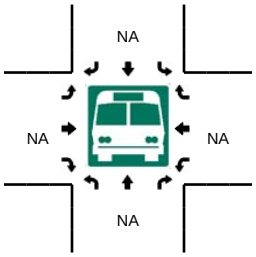












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				Telegraph Ave/15th St (Eastbound)				Telegraph Ave/15th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	13	26	0	0	0	44	0	0	0	0	27	0	0	0	10	0	120	
4:35 PM	17	16	0	0	0	40	0	0	0	0	22	0	0	1	8	0	104	
4:40 PM	21	23	0	0	0	39	0	0	0	0	24	0	0	9	6	0	122	
4:45 PM	14	29	0	0	0	39	0	0	0	0	25	0	0	3	6	0	116	
4:50 PM	17	38	0	0	0	39	0	0	0	0	26	0	0	11	3	0	134	
4:55 PM	18	27	0	0	0	33	0	0	0	0	26	0	0	14	3	0	121	
5:00 PM	21	18	0	0	0	39	0	0	0	0	15	0	0	12	5	0	110	
5:05 PM	16	27	0	0	0	39	0	0	0	0	18	0	0	7	4	0	111	
5:10 PM	20	36	0	0	0	45	0	0	0	0	14	0	0	15	8	0	138	
5:15 PM	19	29	0	0	0	41	0	0	0	0	33	0	0	7	4	0	133	
5:20 PM	23	22	0	0	0	51	0	0	0	0	22	0	0	16	3	0	137	
5:25 PM	22	18	0	0	0	33	0	0	0	0	19	0	0	14	5	0	111	1457
5:30 PM	16	22	0	0	0	41	0	0	0	0	20	0	0	14	3	0	116	1453
5:35 PM	13	20	0	0	0	33	0	0	0	0	22	0	0	16	4	0	108	1457
5:40 PM	23	28	0	0	0	34	0	0	0	0	20	0	0	11	5	0	121	1456
5:45 PM	16	37	0	0	0	37	0	0	0	0	20	0	0	9	8	0	127	1467
5:50 PM	25	29	0	0	0	35	0	0	0	0	19	0	0	5	4	0	117	1450
5:55 PM	14	24	0	0	0	37	0	0	0	0	16	0	0	11	9	0	111	1440
6:00 PM	6	22	0	0	0	43	0	0	0	0	26	0	0	12	6	0	115	1445
6:05 PM	12	23	0	0	0	30	0	0	0	0	21	0	0	6	1	0	93	1427
6:10 PM	11	35	0	0	0	41	0	0	0	0	19	0	0	7	4	0	117	1406
6:15 PM	18	14	0	0	0	37	0	0	0	0	28	0	0	3	8	0	108	1381
6:20 PM	13	31	0	0	0	29	0	0	0	0	14	0	0	5	3	0	95	1339
6:25 PM	16	22	0	0	0	37	0	0	0	0	21	0	0	11	4	0	111	1339

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	248	348	0	0	0	548	0	0	0	0	276	0	0	152	60	0	1632
Heavy Trucks	0	52	0		0	44	0		0	0	4		0	0	0		100
Pedestrians		108				0				0				116			224
Bicycles	1	3	0		0	4	0		0	0	1		1	0	0		10
Railroad																	
Stopped Buses																	

Comments:

Report generated on 2/5/2013 6:21 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

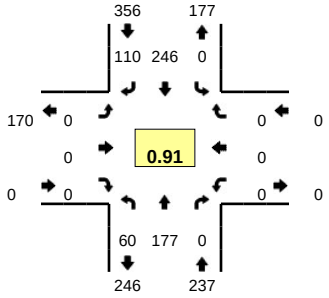
Type of peak hour being reported: Intersection Peak

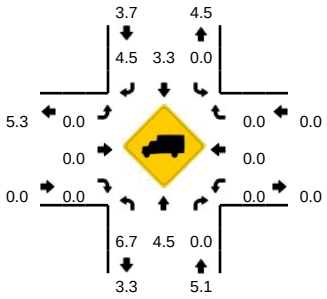
Method for determining peak hour: Total Entering Volume

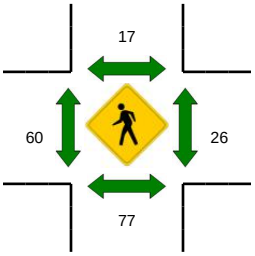
LOCATION: Telegraph Ave -- 16th St
CITY/STATE: Oakland, CA

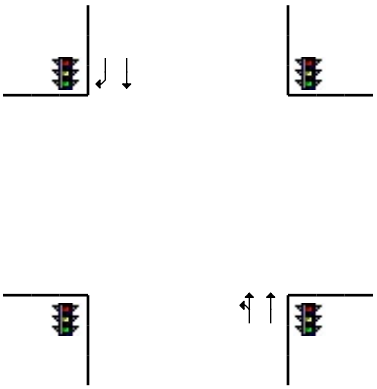
QC JOB #: 10880901
DATE: Thu, Jan 24 2013

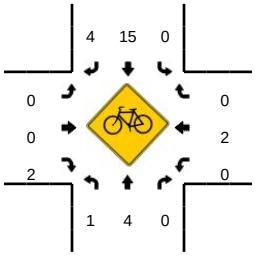
Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

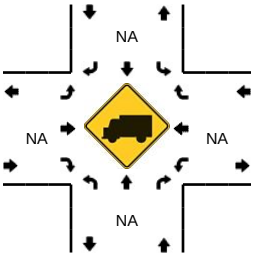


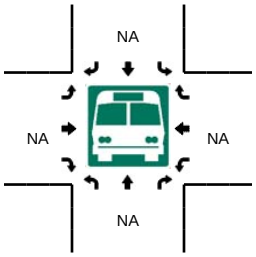












5-Min Count Period Beginning At	Telegraph Ave (Northbound)				Telegraph Ave (Southbound)				16th St (Eastbound)				16th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	4	0	0	0	7	4	0	0	0	0	0	0	0	0	0	15	
7:05 AM	1	7	0	0	0	6	1	0	0	0	0	0	0	0	0	0	15	
7:10 AM	0	8	0	0	0	7	1	0	0	0	0	0	0	0	0	0	16	
7:15 AM	5	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	15	
7:20 AM	2	7	0	0	0	4	5	0	0	0	0	0	0	0	0	0	18	
7:25 AM	1	8	0	0	0	12	4	0	0	0	0	0	0	0	0	0	25	
7:30 AM	4	14	0	0	0	14	7	0	0	0	0	0	0	0	0	0	39	
7:35 AM	7	8	0	0	0	8	4	0	0	0	0	0	0	0	0	0	27	
7:40 AM	1	8	0	0	0	14	6	0	0	0	0	0	0	0	0	0	29	
7:45 AM	4	11	0	0	0	17	4	0	0	0	0	0	0	0	0	0	36	
7:50 AM	3	9	0	0	0	15	3	0	0	0	0	0	0	0	0	0	30	
7:55 AM	4	15	0	0	0	18	6	0	0	0	0	0	0	0	0	0	43	308
8:00 AM	4	19	0	0	0	25	14	0	0	0	0	0	0	0	0	0	62	355
8:05 AM	4	8	0	0	0	21	10	0	0	0	0	0	0	0	0	0	43	383
8:10 AM	4	8	0	0	0	20	11	0	0	0	0	0	0	0	0	0	43	410
8:15 AM	3	19	0	0	0	22	13	0	0	0	0	0	0	0	0	0	57	452
8:20 AM	6	18	0	0	0	15	5	0	0	0	0	0	0	0	0	0	44	478
8:25 AM	6	20	0	0	0	18	8	0	0	0	0	0	0	0	0	0	52	505
8:30 AM	5	25	0	0	0	21	10	0	0	0	0	0	0	0	0	0	61	527
8:35 AM	5	9	0	0	0	23	13	0	0	0	0	0	0	0	0	0	50	550
8:40 AM	5	12	0	0	0	20	6	0	0	0	0	0	0	0	0	0	43	564
8:45 AM	6	14	0	0	0	21	8	0	0	0	0	0	0	0	0	0	49	577
8:50 AM	8	10	0	0	0	22	6	0	0	0	0	0	0	0	0	0	46	593
8:55 AM	2	13	0	0	0	21	4	0	0	0	0	0	0	0	0	0	40	590

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	216	0	0	0	248	124	0	0	0	0	0	0	0	0	0	652
Heavy Trucks	4	12	0		0	0	0		0	0	0		0	0	0		16
Pedestrians		76				24				56				12			168
Bicycles	1	1	0		0	10	1		0	0	1		0	0	0		14
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

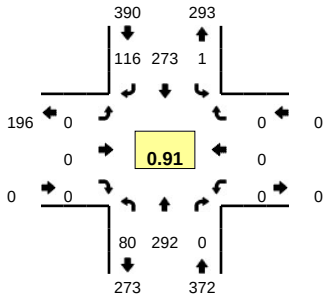
Type of peak hour being reported: Intersection Peak

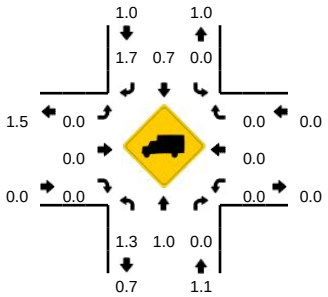
Method for determining peak hour: Total Entering Volume

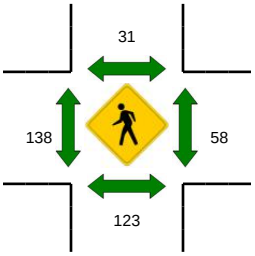
LOCATION: Telegraph Ave -- 16th St
CITY/STATE: Oakland, CA

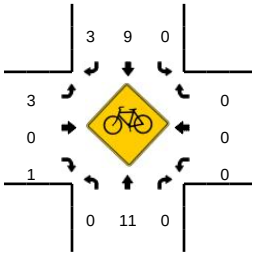
QC JOB #: 10880902
DATE: Thu, Jan 24 2013

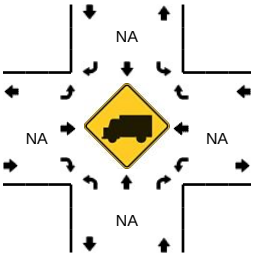
Peak-Hour: 4:40 PM -- 5:40 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

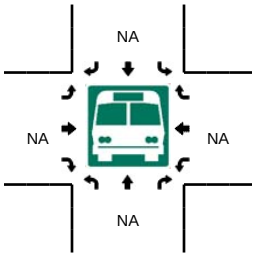












5-Min Count Period Beginning At	Telegraph Ave (Northbound)				Telegraph Ave (Southbound)				16th St (Eastbound)				16th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	4	12	0	0	0	22	3	0	0	0	0	0	0	0	0	0	41	
4:35 PM	5	16	0	0	0	20	3	0	0	0	0	0	0	0	0	0	44	
4:40 PM	5	23	0	0	0	25	8	0	0	0	0	0	0	0	0	0	61	
4:45 PM	2	20	0	0	0	24	5	0	0	0	0	0	0	0	0	0	51	
4:50 PM	5	21	0	0	0	31	11	0	0	0	0	0	0	0	0	0	68	
4:55 PM	7	21	0	0	0	22	12	1	0	0	0	0	0	0	0	0	63	
5:00 PM	8	26	0	0	0	19	7	0	0	0	0	0	0	0	0	0	60	
5:05 PM	6	20	0	0	0	13	11	0	0	0	0	0	0	0	0	0	50	
5:10 PM	7	28	0	0	0	22	7	0	0	0	0	0	0	0	0	0	64	
5:15 PM	9	20	0	0	0	29	12	0	0	0	0	0	0	0	0	0	70	
5:20 PM	10	29	0	0	0	23	11	0	0	0	0	0	0	0	0	0	73	
5:25 PM	5	32	0	0	0	20	10	0	0	0	0	0	0	0	0	0	67	712
5:30 PM	7	28	0	0	0	24	11	0	0	0	0	0	0	0	0	0	70	741
5:35 PM	9	24	0	0	0	21	11	0	0	0	0	0	0	0	0	0	65	762
5:40 PM	4	17	0	1	0	22	13	0	0	0	0	0	0	0	0	0	57	758
5:45 PM	7	19	0	0	0	19	5	0	0	0	0	0	0	0	0	0	50	757
5:50 PM	6	24	0	0	0	20	11	0	0	0	0	0	0	0	0	0	61	750
5:55 PM	8	21	0	0	0	18	11	0	0	0	0	0	0	0	0	0	58	745
6:00 PM	5	16	0	0	0	23	14	0	0	0	0	0	0	0	0	0	58	743
6:05 PM	5	11	0	0	0	25	11	0	0	0	0	0	0	0	0	0	52	745
6:10 PM	3	11	0	0	0	12	7	0	0	0	0	0	0	0	0	0	33	714
6:15 PM	8	17	0	0	0	30	9	0	0	0	0	0	0	0	0	0	64	708
6:20 PM	3	11	0	0	0	18	6	0	0	0	0	0	0	0	0	0	38	673
6:25 PM	4	20	0	0	0	19	6	0	0	0	0	0	0	0	0	0	49	655

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	96	324	0	0	0	288	132	0	0	0	0	0	0	0	0	0	840
Heavy Trucks	4	4	0		0	4	4		0	0	0		0	0	0		16
Pedestrians		124				32				96				60			312
Bicycles	0	3	0		0	0	1		0	0	0		0	0	0		4
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

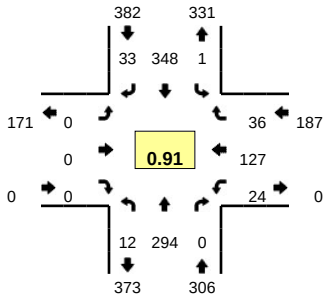
Type of peak hour being reported: Intersection Peak

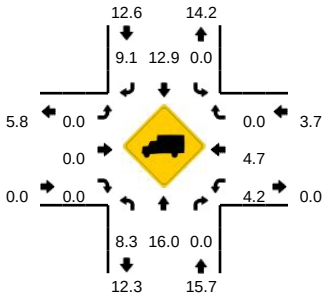
Method for determining peak hour: Total Entering Volume

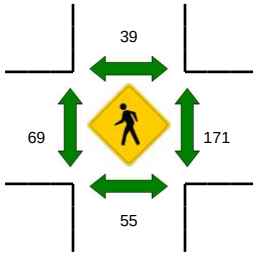
LOCATION: Broadway -- 19th St
CITY/STATE: Oakland, CA

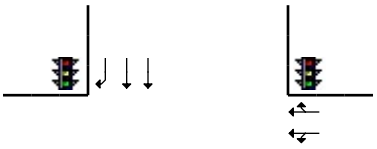
QC JOB #: 10880905
DATE: Thu, Jan 24 2013

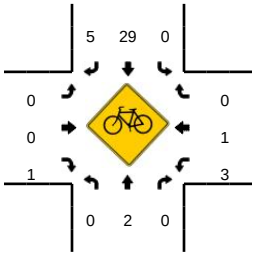
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

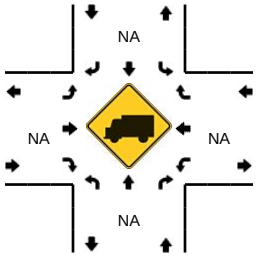


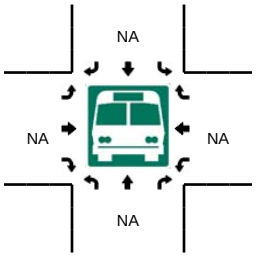












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				19th St (Eastbound)				19th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	0	0	8	1	0	0	0	0	0	1	3	0	0	27	
7:05 AM	0	13	0	0	0	14	1	0	0	0	0	0	1	4	1	0	34	
7:10 AM	0	13	0	0	0	16	1	0	0	0	0	0	0	5	4	0	39	
7:15 AM	1	15	0	0	0	22	2	0	0	0	0	0	1	3	0	0	44	
7:20 AM	0	11	0	0	0	10	1	0	0	0	0	0	2	6	3	0	33	
7:25 AM	1	19	0	0	0	18	4	0	0	0	0	0	1	4	3	0	50	
7:30 AM	1	21	0	0	0	16	1	0	0	0	0	0	2	6	1	0	48	
7:35 AM	3	16	0	0	0	13	4	0	0	0	0	0	1	6	2	0	45	
7:40 AM	2	14	0	0	0	19	0	0	0	0	0	0	2	8	0	0	45	
7:45 AM	1	23	0	0	0	26	3	0	0	0	0	0	2	9	3	0	67	
7:50 AM	0	22	0	0	0	22	2	0	0	0	0	0	3	6	2	0	57	
7:55 AM	1	21	0	1	0	23	1	0	0	0	0	0	3	10	3	0	63	552
8:00 AM	1	27	0	0	0	26	4	0	0	0	0	0	0	13	1	0	72	597
8:05 AM	0	29	0	0	0	27	6	0	0	0	0	0	3	17	4	0	86	649
8:10 AM	1	19	0	0	0	21	2	0	0	0	0	0	3	4	4	0	54	664
8:15 AM	1	27	0	0	0	20	1	0	0	0	0	0	1	14	2	0	66	686
8:20 AM	0	19	0	0	0	44	4	0	0	0	0	0	1	9	3	0	80	733
8:25 AM	0	25	0	0	0	29	2	0	0	0	0	0	3	11	1	0	71	754
8:30 AM	1	26	0	0	0	29	1	0	0	0	0	0	2	14	1	0	74	780
8:35 AM	2	22	0	0	0	20	2	0	0	0	0	0	1	11	4	0	62	797
8:40 AM	1	22	0	0	0	31	2	0	0	0	0	0	2	9	3	0	70	822
8:45 AM	1	24	0	0	0	29	1	1	0	0	0	0	2	8	5	0	71	826
8:50 AM	1	30	0	0	0	32	5	0	0	0	0	0	4	9	4	0	85	854
8:55 AM	2	24	0	1	0	40	3	0	0	0	0	0	2	8	4	0	84	875

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	312	0	4	0	404	36	4	0	0	0	0	32	100	52	0	960
Heavy Trucks	4	40	0		0	52	0		0	0	0		4	8	0		108
Pedestrians		56				76				92				200			424
Bicycles	0	0	0		0	5	3		0	0	1		1	0	0		10
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

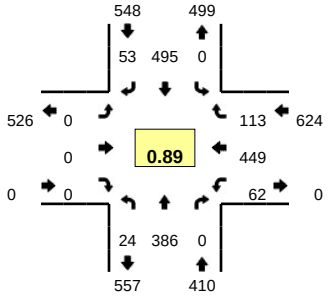
Type of peak hour being reported: Intersection Peak

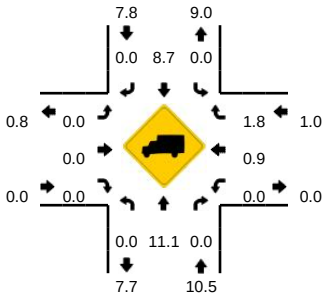
Method for determining peak hour: Total Entering Volume

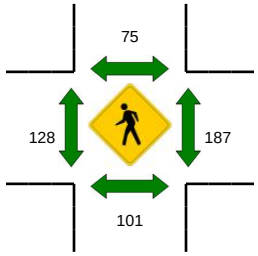
LOCATION: Broadway -- 19th St
CITY/STATE: Oakland, CA

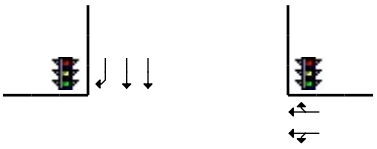
QC JOB #: 10880906
DATE: Thu, Jan 24 2013

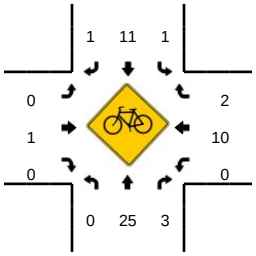
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

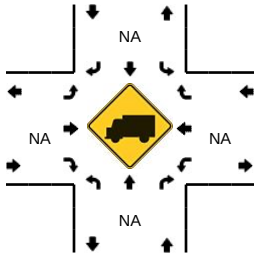


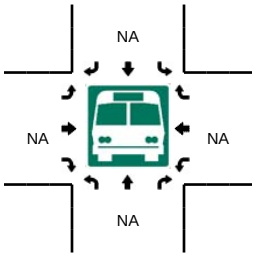












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				19th St (Eastbound)				19th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	2	27	0	0	0	45	4	0	0	0	0	0	5	40	5	0	128	
4:35 PM	0	25	0	0	0	38	4	0	0	0	0	0	2	38	10	0	117	
4:40 PM	0	25	0	0	0	42	2	0	0	0	0	0	4	33	8	0	114	
4:45 PM	4	32	0	0	0	47	5	0	0	0	0	0	2	30	10	0	130	
4:50 PM	4	37	0	0	0	41	3	0	0	0	0	0	5	29	7	0	126	
4:55 PM	2	29	0	0	0	35	4	0	0	0	0	0	4	46	8	0	128	
5:00 PM	2	25	0	0	0	36	5	0	0	0	0	0	7	36	10	0	121	
5:05 PM	4	32	0	0	0	41	0	0	0	0	0	0	7	42	11	0	137	
5:10 PM	1	40	0	0	0	42	6	0	0	0	0	0	7	42	14	0	152	
5:15 PM	2	40	0	0	0	41	8	0	0	0	0	0	6	41	9	0	147	
5:20 PM	0	35	0	0	0	45	7	0	0	0	0	0	10	39	9	0	145	
5:25 PM	3	39	0	0	0	42	5	0	0	0	0	0	3	33	12	0	137	1582
5:30 PM	0	35	0	0	0	26	4	0	0	0	0	0	4	25	7	0	101	1555
5:35 PM	4	29	0	0	0	38	9	0	0	0	0	0	3	29	7	0	119	1557
5:40 PM	4	28	0	0	0	30	6	0	0	0	0	0	5	26	10	0	109	1552
5:45 PM	2	39	0	0	0	40	8	0	0	0	0	0	6	26	13	0	134	1556
5:50 PM	4	38	0	0	0	35	10	0	0	0	0	0	6	29	7	0	129	1559
5:55 PM	3	34	0	0	0	44	5	0	0	0	0	0	2	15	6	0	109	1540
6:00 PM	0	39	0	0	0	40	5	0	0	0	0	0	3	12	3	0	102	1521
6:05 PM	2	23	0	0	0	38	2	0	0	0	0	0	3	21	2	0	91	1475
6:10 PM	1	29	0	0	0	38	5	0	0	0	0	0	7	26	5	0	111	1434
6:15 PM	3	30	0	0	0	38	5	0	0	0	0	0	2	20	6	0	104	1391
6:20 PM	3	25	0	0	0	28	7	0	0	0	0	0	1	10	6	0	80	1326
6:25 PM	4	30	0	0	0	36	4	0	0	0	0	0	2	22	1	0	99	1288

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	460	0	0	0	512	84	0	0	0	0	0	92	488	128	0	1776
Heavy Trucks	0	60	0		0	40	0		0	0	0		0	8	0		108
Pedestrians		80				68				112				220			480
Bicycles	0	7	0		0	4	0		0	1	0		0	0	0		12
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

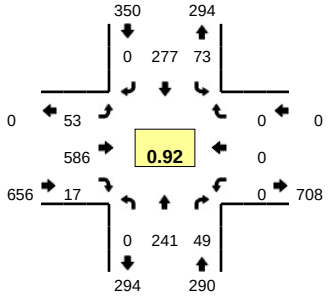
Type of peak hour being reported: Intersection Peak

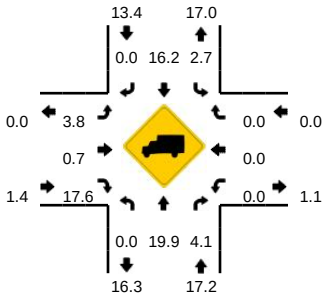
Method for determining peak hour: Total Entering Volume

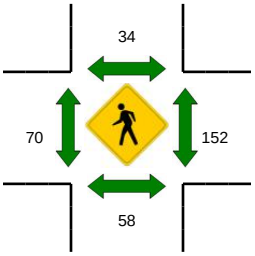
LOCATION: Broadway -- 17th St
CITY/STATE: Oakland, CA

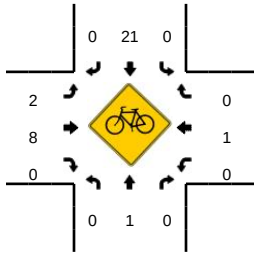
QC JOB #: 10880903
DATE: Thu, Jan 24 2013

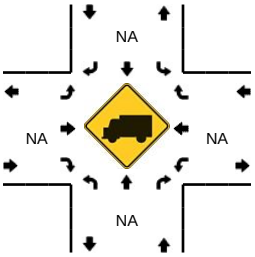
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:25 AM -- 8:40 AM

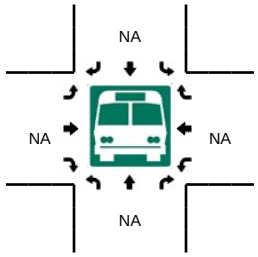












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				17th St (Eastbound)				17th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	8	4	0	0	6	0	0	1	17	0	0	0	0	0	0	36	
7:05 AM	0	16	1	0	2	8	0	0	1	22	3	0	0	0	0	0	53	
7:10 AM	0	13	2	0	3	14	0	0	0	12	0	0	0	0	0	0	44	
7:15 AM	0	13	2	0	3	13	0	0	0	21	1	0	0	0	0	0	53	
7:20 AM	0	12	4	0	3	20	0	0	1	16	1	0	0	0	0	0	57	
7:25 AM	0	10	1	0	2	10	0	0	1	15	0	0	0	0	0	0	39	
7:30 AM	0	21	2	0	1	16	0	0	2	38	0	0	0	0	0	0	80	
7:35 AM	0	13	5	0	2	17	0	0	3	32	0	0	1	0	0	0	73	
7:40 AM	0	12	1	0	0	17	0	0	7	27	2	0	0	0	0	0	66	
7:45 AM	0	16	2	0	4	28	0	0	5	40	1	0	0	0	0	0	96	
7:50 AM	0	19	4	0	3	19	0	0	4	35	4	0	0	0	0	0	88	
7:55 AM	0	18	2	0	3	26	0	0	4	39	3	0	0	0	0	0	95	780
8:00 AM	0	25	5	0	4	17	0	0	4	29	1	0	0	0	0	0	85	829
8:05 AM	0	20	2	0	6	29	0	0	4	40	0	0	0	0	0	0	101	877
8:10 AM	0	19	3	0	3	21	0	0	3	50	0	0	0	0	0	0	99	932
8:15 AM	0	18	3	0	7	21	0	0	3	53	2	0	0	0	0	0	107	986
8:20 AM	0	20	1	0	7	21	0	0	2	51	1	0	0	0	0	0	103	1032
8:25 AM	0	24	6	0	8	26	0	0	3	43	4	0	0	0	0	0	114	1107
8:30 AM	0	12	10	0	6	24	0	0	9	56	0	0	0	0	0	0	117	1144
8:35 AM	0	22	3	0	7	24	0	0	4	56	4	0	0	0	0	0	120	1191
8:40 AM	0	21	3	0	4	22	0	0	3	56	0	0	0	0	0	0	109	1234
8:45 AM	0	22	5	0	4	25	0	0	4	43	3	0	0	0	0	0	106	1244
8:50 AM	0	19	5	0	8	26	0	0	4	54	1	0	0	0	0	0	117	1273
8:55 AM	0	19	3	0	9	21	0	0	10	55	1	0	0	0	0	0	118	1296

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	232	76	0	84	296	0	0	64	620	32	0	0	0	0	0	1404
Heavy Trucks	0	64	0		0	32	0		0	8	8		0	0	0		112
Pedestrians		72				20				64				164			320
Bicycles	0	1	0		0	10	0		1	2	0		0	1	0		15
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

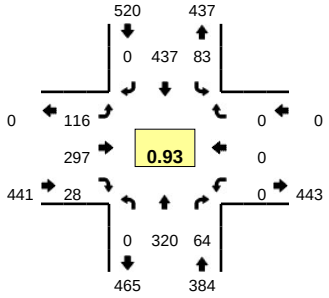
Type of peak hour being reported: Intersection Peak

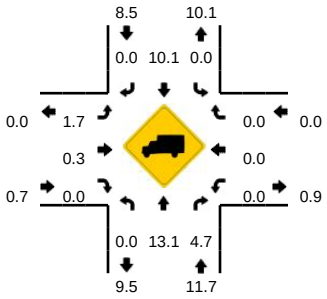
Method for determining peak hour: Total Entering Volume

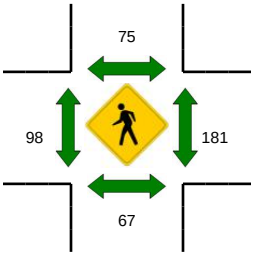
LOCATION: Broadway -- 17th St
CITY/STATE: Oakland, CA

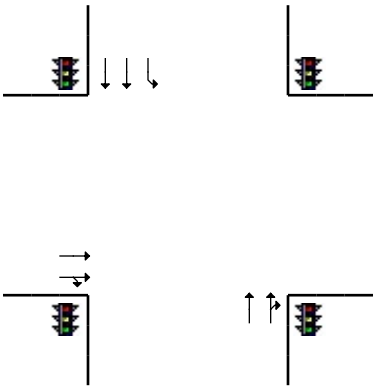
QC JOB #: 10880904
DATE: Thu, Jan 24 2013

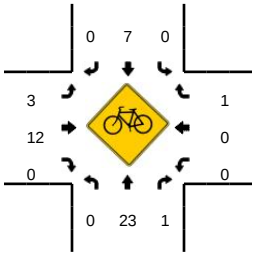
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

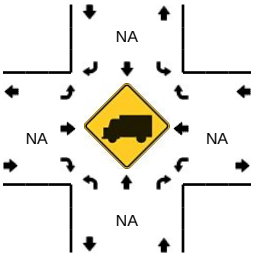


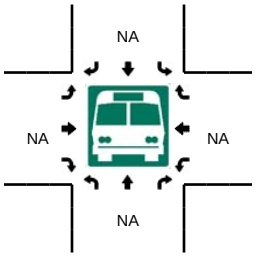












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				17th St (Eastbound)				17th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	21	8	0	7	42	0	0	5	18	3	0	0	0	0	0	104	
4:35 PM	0	27	6	0	7	38	0	0	5	24	2	0	0	0	0	0	109	
4:40 PM	0	17	5	0	6	39	0	0	5	23	1	0	0	0	0	0	96	
4:45 PM	0	21	6	0	5	36	0	0	7	26	1	0	0	0	0	0	102	
4:50 PM	0	29	6	0	12	38	0	1	6	18	3	0	0	0	0	0	113	
4:55 PM	0	31	8	0	6	35	0	0	2	28	1	0	0	0	0	0	111	
5:00 PM	0	30	5	0	4	43	0	0	5	23	3	0	0	0	0	0	113	
5:05 PM	0	17	9	0	11	29	0	0	10	21	3	0	0	0	0	0	100	
5:10 PM	0	21	10	0	7	45	0	0	6	35	2	0	0	0	0	0	126	
5:15 PM	0	34	5	0	4	40	0	0	8	22	5	0	0	0	0	0	118	
5:20 PM	0	30	2	0	9	34	0	0	10	27	0	0	0	0	0	0	112	
5:25 PM	0	25	4	0	9	43	0	0	16	32	1	0	0	0	0	0	130	1334
5:30 PM	0	23	4	0	9	35	0	0	9	21	0	0	0	0	0	0	101	1331
5:35 PM	0	24	1	0	5	31	0	1	10	22	3	0	0	0	0	0	97	1319
5:40 PM	0	27	3	0	4	34	0	0	8	28	6	0	0	0	0	0	110	1333
5:45 PM	0	25	9	0	2	28	0	0	12	22	3	0	0	0	0	0	101	1332
5:50 PM	0	39	5	0	9	35	0	0	10	22	1	0	0	0	0	0	121	1340
5:55 PM	0	25	7	0	9	40	0	0	12	22	1	0	0	0	0	0	116	1345
6:00 PM	0	30	5	0	8	36	0	0	8	13	2	0	0	0	0	0	102	1334
6:05 PM	0	25	2	0	7	40	0	0	8	23	5	0	0	0	0	0	110	1344
6:10 PM	0	20	3	0	4	31	0	0	0	20	2	0	0	0	0	0	80	1298
6:15 PM	0	38	5	0	3	34	0	0	7	36	1	0	0	0	0	0	124	1304
6:20 PM	0	18	6	0	4	44	0	0	4	28	1	0	0	0	0	0	105	1297
6:25 PM	0	27	7	0	6	24	0	0	4	24	2	0	0	0	0	0	94	1261

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	356	44	0	88	468	0	0	136	324	24	0	0	0	0	0	1440
Heavy Trucks	0	48	4		0	36	0		0	0	0		0	0	0		88
Pedestrians		56				80				136				156			428
Bicycles	0	4	0		0	2	0		0	0	0		0	0	1		7
Railroad																	
Stopped Buses																	

Comments:

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

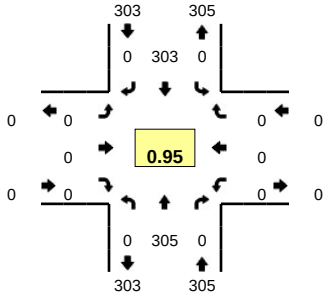
Type of peak hour being reported: Intersection Peak

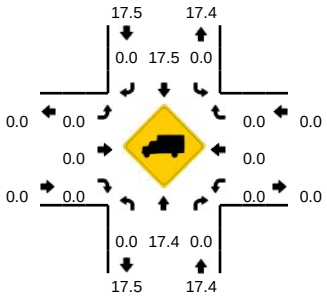
Method for determining peak hour: Total Entering Volume

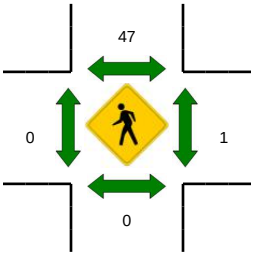
LOCATION: Broadway -- 16th St
CITY/STATE: Oakland, CA

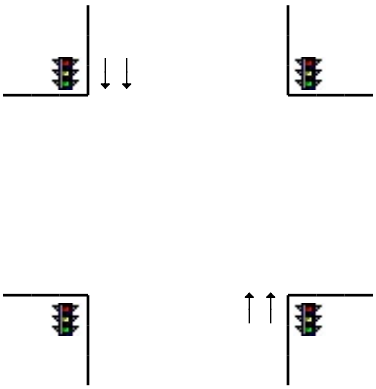
QC JOB #: 10880907
DATE: Thu, Jan 24 2013

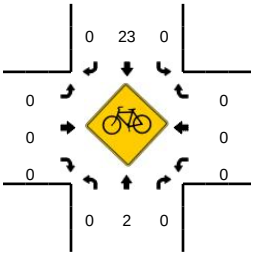
Peak-Hour: 7:55 AM -- 8:55 AM
Peak 15-Min: 8:40 AM -- 8:55 AM

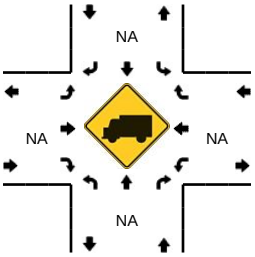


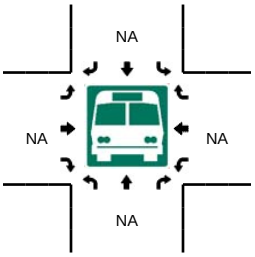












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				16th St (Eastbound)				16th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	14	0	1	0	8	0	0	0	0	0	0	0	0	0	0	23	
7:05 AM	0	14	0	0	0	10	0	0	0	0	0	0	0	0	0	0	24	
7:10 AM	0	17	0	0	0	15	0	0	0	0	0	0	0	0	0	0	32	
7:15 AM	0	13	0	0	0	19	0	0	0	0	0	0	0	0	0	0	32	
7:20 AM	0	17	0	0	0	14	0	0	0	0	0	0	0	0	0	0	31	
7:25 AM	0	18	0	0	0	12	0	0	0	0	0	0	0	0	0	0	30	
7:30 AM	0	21	0	0	0	15	0	0	0	0	0	0	0	0	0	0	36	
7:35 AM	0	16	0	0	0	21	0	0	0	0	0	0	0	0	0	0	37	
7:40 AM	0	14	0	0	0	20	0	0	0	0	0	0	0	0	0	0	34	
7:45 AM	0	22	0	0	0	27	0	0	0	0	0	0	0	0	0	0	49	
7:50 AM	0	17	0	0	0	21	0	0	0	0	0	0	0	0	0	0	38	
7:55 AM	0	28	0	0	0	30	0	0	0	0	0	0	0	0	0	0	58	424
8:00 AM	0	27	0	0	0	18	0	0	0	0	0	0	0	0	0	0	45	446
8:05 AM	0	26	0	0	0	29	0	0	0	0	0	0	0	0	0	0	55	477
8:10 AM	0	20	0	0	0	24	0	0	0	0	0	0	0	0	0	0	44	489
8:15 AM	0	25	0	0	0	18	0	0	0	0	0	0	0	0	0	0	43	500
8:20 AM	0	20	0	0	0	29	0	0	0	0	0	0	0	0	0	0	49	518
8:25 AM	0	28	0	0	0	29	0	0	0	0	0	0	0	0	0	0	57	545
8:30 AM	0	24	0	0	0	23	0	0	0	0	0	0	0	0	0	0	47	556
8:35 AM	0	28	0	0	0	22	0	0	0	0	0	0	0	0	0	0	50	569
8:40 AM	0	23	0	0	0	26	0	0	0	0	0	0	0	0	0	0	49	584
8:45 AM	0	25	0	0	0	26	0	0	0	0	0	0	0	0	0	0	51	586
8:50 AM	0	31	0	0	0	29	0	0	0	0	0	0	0	0	0	0	60	608
8:55 AM	0	22	0	0	0	26	0	0	0	0	0	0	0	0	0	0	48	598

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	316	0	0	0	324	0	0	0	0	0	0	0	0	0	0	640
Heavy Trucks	0	40	0		0	56	0		0	0	0		0	0	0		96
Pedestrians		0				48				0				0			48
Bicycles	0	1	0		0	6	0		0	0	0		0	0	0		7
Railroad																	
Stopped Buses																	

Comments: Ped Signal Crossing

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

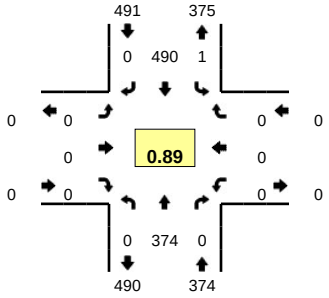
Type of peak hour being reported: Intersection Peak

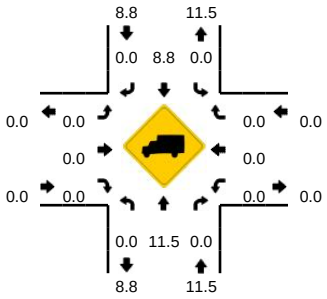
Method for determining peak hour: Total Entering Volume

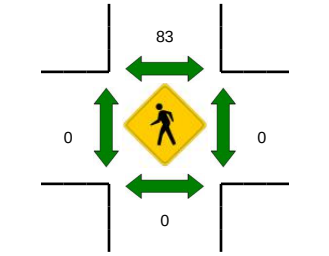
LOCATION: Broadway -- 16th St
CITY/STATE: Oakland, CA

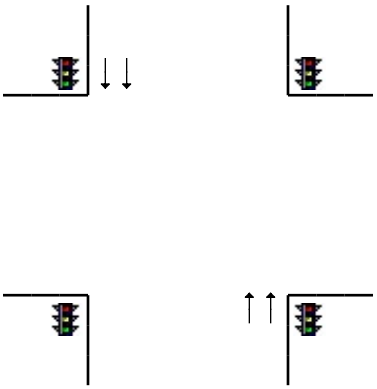
QC JOB #: 10880908
DATE: Thu, Jan 24 2013

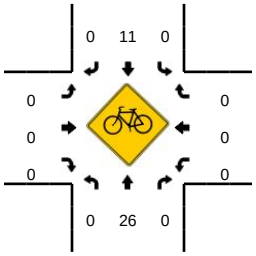
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

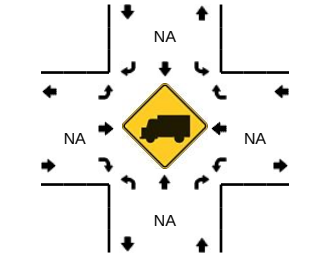


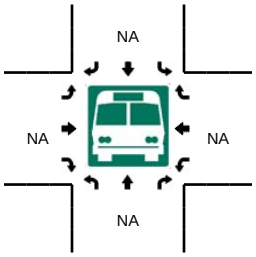












5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				16th St (Eastbound)				16th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	26	0	0	0	38	0	0	0	0	0	0	0	0	0	0	64	
4:35 PM	0	28	0	0	0	42	0	0	0	0	0	0	0	0	0	0	70	
4:40 PM	0	27	0	0	0	41	0	0	0	0	0	0	0	0	0	0	68	
4:45 PM	0	35	0	0	0	46	0	0	0	0	0	0	0	0	0	0	81	
4:50 PM	0	28	0	0	0	33	0	0	0	0	0	0	0	0	0	0	61	
4:55 PM	0	41	0	0	0	42	0	0	0	0	0	0	0	0	0	0	83	
5:00 PM	0	32	0	0	0	34	0	0	0	0	0	0	0	0	0	0	66	
5:05 PM	0	27	0	0	0	40	0	0	0	0	0	0	0	0	0	0	67	
5:10 PM	0	40	0	0	0	44	0	1	0	0	0	0	0	0	0	0	85	
5:15 PM	0	37	0	0	0	43	0	0	0	0	0	0	0	0	0	0	80	
5:20 PM	0	27	0	0	0	50	0	0	0	0	0	0	0	0	0	0	77	
5:25 PM	0	26	0	0	0	37	0	0	0	0	0	0	0	0	0	0	63	865
5:30 PM	0	21	0	0	0	30	0	0	0	0	0	0	0	0	0	0	51	852
5:35 PM	0	26	0	0	0	39	0	0	0	0	0	0	0	0	0	0	65	847
5:40 PM	0	30	0	0	0	41	0	0	0	0	0	0	0	0	0	0	71	850
5:45 PM	0	33	0	0	0	29	0	1	0	0	0	0	0	0	0	0	63	832
5:50 PM	0	40	0	0	0	38	0	0	0	0	0	0	0	0	0	0	78	849
5:55 PM	0	31	0	0	0	36	0	0	0	0	0	0	0	0	0	0	67	833
6:00 PM	0	34	0	0	0	46	0	0	0	0	0	0	0	0	0	0	80	847
6:05 PM	0	23	0	0	0	35	0	0	0	0	0	0	0	0	0	0	58	838
6:10 PM	0	26	0	0	0	37	0	1	0	0	0	0	0	0	0	0	64	817
6:15 PM	0	35	0	0	0	42	0	0	0	0	0	0	0	0	0	0	77	814
6:20 PM	0	33	0	0	0	35	0	0	0	0	0	0	0	0	0	0	68	805
6:25 PM	0	30	0	0	0	26	0	0	0	0	0	0	0	0	0	0	56	798

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	416	0	0	0	548	0	4	0	0	0	0	0	0	0	0	968
Heavy Trucks	0	60	0		0	36	0		0	0	0		0	0	0		96
Pedestrians		0				68				0				0			68
Bicycles	0	5	0		0	5	0		0	0	0		0	0	0		10
Railroad																	
Stopped Buses																	

Comments: Ped Signal Crossing

Report generated on 1/31/2013 10:09 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Existing Synchro Outputs

HCM Signalized Intersection Capacity Analysis
1: Broadway & 15th Street

2/7/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	110	424	0	0	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.0			6.0
Lane Util. Factor		0.88	0.95			0.95
Frt		0.85	1.00			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		2733	3223			3282
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		2733	3223			3282
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	118	456	0	0	587
RTOR Reduction (vph)	0	71	0	0	0	0
Lane Group Flow (vph)	0	47	456	0	0	587
Heavy Vehicles (%)	0%	4%	12%	2%	2%	10%
Turn Type		custom	NA			NA
Protected Phases		4	2			6
Permitted Phases						
Actuated Green, G (s)		24.0	26.0			26.0
Effective Green, g (s)		24.0	26.0			26.0
Actuated g/C Ratio		0.40	0.43			0.43
Clearance Time (s)		4.0	6.0			6.0
Vehicle Extension (s)		2.0	2.0			2.0
Lane Grp Cap (vph)		1093	1396			1422
v/s Ratio Prot		c0.02	0.14			c0.18
v/s Ratio Perm						
v/c Ratio		0.04	0.33			0.41
Uniform Delay, d1		11.0	11.2			11.7
Progression Factor		1.00	1.00			1.95
Incremental Delay, d2		0.0	0.6			0.9
Delay (s)		11.0	11.8			23.7
Level of Service		B	B			C
Approach Delay (s)	11.0		11.8			23.7
Approach LOS	B		B			C

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	60	177	246	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	3.5
Lane Util. Factor				0.95	1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.80
Flpb, ped/bikes				0.97	1.00	1.00
Frt				1.00	1.00	0.85
Flt Protected				0.99	1.00	1.00
Satd. Flow (prot)				3308	1845	1244
Flt Permitted				0.84	1.00	1.00
Satd. Flow (perm)				2816	1845	1244
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	66	195	270	121
RTOR Reduction (vph)	0	0	0	0	0	55
Lane Group Flow (vph)	0	0	0	261	270	66
Confl. Peds. (#/hr)			60			60
Confl. Bikes (#/hr)						19
Heavy Vehicles (%)	2%	2%	7%	4%	3%	4%
Turn Type			Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases			1			1
Actuated Green, G (s)				32.5	32.5	32.5
Effective Green, g (s)				32.5	32.5	32.5
Actuated g/C Ratio				0.54	0.54	0.54
Clearance Time (s)				3.5	3.5	3.5
Lane Grp Cap (vph)				1525	999	673
v/s Ratio Prot					c0.15	
v/s Ratio Perm				0.09		0.05
v/c Ratio				0.17	0.27	0.10
Uniform Delay, d1				6.9	7.4	6.7
Progression Factor				1.63	0.58	0.40
Incremental Delay, d2				0.2	0.6	0.3
Delay (s)				11.6	4.9	2.9
Level of Service				B	A	A
Approach Delay (s)	0.0			11.6	4.3	
Approach LOS	A			B	A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	540	98	0	0	0	0	179	2	60	272	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5						4.5			4.5	
Lane Util. Factor		0.91						0.95			0.95	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			0.98	
Frt		0.98						1.00			1.00	
Flt Protected		1.00						1.00			0.99	
Satd. Flow (prot)		4891						3529			3448	
Flt Permitted		1.00						1.00			0.87	
Satd. Flow (perm)		4891						3529			3015	
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)	77	587	107	0	0	0	0	195	2	65	296	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	734	0	0	0	0	0	196	0	0	361	0
Confl. Peds. (#/hr)	75		67						152	152		
Confl. Bikes (#/hr)			8			1			1			21
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		2						1			1	
Permitted Phases	2									1		
Actuated Green, G (s)		28.0						22.0			22.0	
Effective Green, g (s)		28.0						22.0			22.0	
Actuated g/C Ratio		0.47						0.37			0.37	
Clearance Time (s)		5.5						4.5			4.5	
Lane Grp Cap (vph)		2282						1293			1105	
v/s Ratio Prot								0.06				
v/s Ratio Perm		0.15									c0.12	
v/c Ratio		0.32						0.15			0.33	
Uniform Delay, d1		10.0						12.7			13.7	
Progression Factor		1.00						0.35			1.03	
Incremental Delay, d2		0.4						0.2			0.8	
Delay (s)		10.4						4.7			14.8	
Level of Service		B						A			B	
Approach Delay (s)		10.4			0.0			4.7			14.8	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.8	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)	10.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	145	81	0	251	250	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5			3.0	3.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.98			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.95			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1679			3539	3539	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1679			3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	88	0	273	272	0
RTOR Reduction (vph)	34	0	0	0	0	0
Lane Group Flow (vph)	212	0	0	273	272	0
Confl. Peds. (#/hr)		55				
Confl. Bikes (#/hr)		1				
Turn Type	NA			NA	NA	
Protected Phases	2			1	1	
Permitted Phases						
Actuated Green, G (s)	19.5			34.0	34.0	
Effective Green, g (s)	19.5			34.0	34.0	
Actuated g/C Ratio	0.32			0.57	0.57	
Clearance Time (s)	3.5			3.0	3.0	
Lane Grp Cap (vph)	545			2005	2005	
v/s Ratio Prot	c0.13			c0.08	0.08	
v/s Ratio Perm						
v/c Ratio	0.39			0.14	0.14	
Uniform Delay, d1	15.6			6.1	6.1	
Progression Factor	1.00			1.41	1.00	
Incremental Delay, d2	2.1			0.1	0.1	
Delay (s)	17.7			8.8	6.2	
Level of Service	B			A	A	
Approach Delay (s)	17.7			8.8	6.2	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	21	85	50	132	263	0	0	229	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			6.0			6.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					1.00			1.00			0.98	
Flpb, ped/bikes					0.99			0.98			1.00	
Frt					0.95			1.00			0.97	
Flt Protected					0.99			0.98			1.00	
Satd. Flow (prot)					3315			3424			3365	
Flt Permitted					0.99			0.75			1.00	
Satd. Flow (perm)					3315			2601			3365	
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	23	92	54	143	286	0	0	249	61
RTOR Reduction (vph)	0	0	0	0	42	0	0	0	0	0	26	0
Lane Group Flow (vph)	0	0	0	0	127	0	0	429	0	0	284	0
Confl. Peds. (#/hr)				55			69					69
Confl. Bikes (#/hr)						1						34
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					4			2			2	
Permitted Phases				4			2					
Actuated Green, G (s)					10.0			16.5			16.5	
Effective Green, g (s)					10.0			16.5			16.5	
Actuated g/C Ratio					0.23			0.38			0.38	
Clearance Time (s)					4.5			6.0			6.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					756			979			1267	
v/s Ratio Prot											0.08	
v/s Ratio Perm					0.04			c0.16				
v/c Ratio					0.17			0.44			0.22	
Uniform Delay, d1					13.6			10.2			9.3	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.0			0.1			0.0	
Delay (s)					13.6			10.3			9.3	
Level of Service					B			B			A	
Approach Delay (s)		0.0			13.6			10.3			9.3	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	43.8	Sum of lost time (s)	12.5
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	127	36	12	294	0	0	348	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			5.0			5.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.99	
Flpb, ped/bikes					1.00			1.00			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					3309			3109			3136	
Flt Permitted					0.99			0.94			1.00	
Satd. Flow (perm)					3309			2915			3136	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	26	140	40	13	323	0	0	382	36
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	183	0	0	336	0	0	406	0
Confl. Peds. (#/hr)	39		55	55		39	69		171	171		69
Confl. Bikes (#/hr)			1			1			2			34
Heavy Vehicles (%)	2%	2%	2%	4%	5%	0%	8%	16%	2%	2%	13%	9%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			2	
Permitted Phases				8			2					
Actuated Green, G (s)					25.0			26.0			26.0	
Effective Green, g (s)					25.0			26.0			26.0	
Actuated g/C Ratio					0.42			0.43			0.43	
Clearance Time (s)					4.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1378			1263			1358	
v/s Ratio Prot											c0.13	
v/s Ratio Perm					0.06			0.12				
v/c Ratio					0.13			0.27			0.30	
Uniform Delay, d1					10.8			10.9			11.1	
Progression Factor					1.00			0.31			1.00	
Incremental Delay, d2					0.2			0.5			0.6	
Delay (s)					11.0			3.9			11.6	
Level of Service					B			A			B	
Approach Delay (s)		0.0			11.0			3.9			11.6	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	586	17	0	0	0	0	241	49	73	277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						5.0			5.0	
Lane Util. Factor	1.00	0.95						0.95			0.95	
Frpb, ped/bikes	1.00	1.00						0.97			1.00	
Flpb, ped/bikes	0.98	1.00						1.00			0.98	
Frt	1.00	1.00						0.97			1.00	
Flt Protected	0.95	1.00						1.00			0.99	
Satd. Flow (prot)	1693	3538						2903			3076	
Flt Permitted	0.95	1.00						1.00			0.82	
Satd. Flow (perm)	1693	3538						2903			2554	
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)	58	637	18	0	0	0	0	262	53	79	301	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	28	0	0	0	0
Lane Group Flow (vph)	58	652	0	0	0	0	0	287	0	0	380	0
Confl. Peds. (#/hr)	34		58	58		34	70		152	152		70
Confl. Bikes (#/hr)			8			1			1			21
Heavy Vehicles (%)	4%	1%	18%	2%	2%	2%	2%	20%	4%	3%	16%	2%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	25.0	25.0						26.0			26.0	
Effective Green, g (s)	25.0	25.0						26.0			26.0	
Actuated g/C Ratio	0.42	0.42						0.43			0.43	
Clearance Time (s)	4.0	4.0						5.0			5.0	
Vehicle Extension (s)	2.0	2.0						2.0			2.0	
Lane Grp Cap (vph)	705	1474						1257			1106	
v/s Ratio Prot		c0.18						0.10				
v/s Ratio Perm	0.03										c0.15	
v/c Ratio	0.08	0.44						0.23			0.34	
Uniform Delay, d1	10.6	12.5						10.7			11.3	
Progression Factor	1.01	1.09						2.47			0.51	
Incremental Delay, d2	0.2	0.9						0.4			0.8	
Delay (s)	10.9	14.6						26.8			6.6	
Level of Service	B	B						C			A	
Approach Delay (s)		14.3			0.0			26.8			6.6	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	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	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑			↑↑
Volume (vph)	0	0	305	0	0	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0			5.0
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3085			3059
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3085			3059
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	321	0	0	319
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	321	0	0	319
Heavy Vehicles (%)	2%	2%	17%	2%	2%	18%
Turn Type			NA			NA
Protected Phases			2			2
Permitted Phases						
Actuated Green, G (s)			30.0			30.0
Effective Green, g (s)			30.0			30.0
Actuated g/C Ratio			0.50			0.50
Clearance Time (s)			5.0			5.0
Vehicle Extension (s)			2.0			2.0
Lane Grp Cap (vph)			1542			1529
v/s Ratio Prot			0.10			c0.10
v/s Ratio Perm						
v/c Ratio			0.21			0.21
Uniform Delay, d1			8.4			8.4
Progression Factor			1.27			1.61
Incremental Delay, d2			0.3			0.3
Delay (s)			11.0			13.8
Level of Service			B			B
Approach Delay (s)	0.0		11.0			13.8
Approach LOS	A		B			B

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	12.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Broadway & 15th Street

2/7/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	201	546	0	0	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.0			6.0
Lane Util. Factor		0.88	0.95			0.95
Frt		0.85	1.00			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		2842	3343			3312
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		2842	3343			3312
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	223	607	0	0	800
RTOR Reduction (vph)	0	134	0	0	0	0
Lane Group Flow (vph)	0	89	607	0	0	800
Heavy Vehicles (%)	2%	0%	8%	2%	2%	9%
Turn Type		custom	NA			NA
Protected Phases		4	2			6
Permitted Phases						
Actuated Green, G (s)		24.0	26.0			26.0
Effective Green, g (s)		24.0	26.0			26.0
Actuated g/C Ratio		0.40	0.43			0.43
Clearance Time (s)		4.0	6.0			6.0
Vehicle Extension (s)		2.0	2.0			2.0
Lane Grp Cap (vph)		1136	1448			1435
v/s Ratio Prot		c0.03	0.18			c0.24
v/s Ratio Perm						
v/c Ratio		0.08	0.42			0.56
Uniform Delay, d1		11.2	11.8			12.7
Progression Factor		1.00	1.00			1.15
Incremental Delay, d2		0.0	0.9			1.5
Delay (s)		11.2	12.7			16.1
Level of Service		B	B			B
Approach Delay (s)	11.2		12.7			16.1
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay	14.1	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)	10.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	0	80	292	273	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	3.5
Lane Util. Factor				0.95	1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.59
Flpb, ped/bikes				0.95	1.00	1.00
Frt				1.00	1.00	0.85
Flt Protected				0.99	1.00	1.00
Satd. Flow (prot)				3357	1863	941
Flt Permitted				0.83	1.00	1.00
Satd. Flow (perm)				2829	1863	941
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	88	321	300	127
RTOR Reduction (vph)	0	0	0	0	0	58
Lane Group Flow (vph)	0	0	0	409	300	69
Confl. Peds. (#/hr)			138			138
Confl. Bikes (#/hr)						12
Heavy Vehicles (%)	2%	2%	1%	1%	2%	1%
Turn Type			Perm	NA	NA	Perm
Protected Phases				1	1	
Permitted Phases			1			1
Actuated Green, G (s)				32.5	32.5	32.5
Effective Green, g (s)				32.5	32.5	32.5
Actuated g/C Ratio				0.54	0.54	0.54
Clearance Time (s)				3.5	3.5	3.5
Lane Grp Cap (vph)				1532	1009	509
v/s Ratio Prot					c0.16	
v/s Ratio Perm				0.14		0.07
v/c Ratio				0.27	0.30	0.14
Uniform Delay, d1				7.4	7.5	6.8
Progression Factor				0.82	1.22	2.86
Incremental Delay, d2				0.4	0.7	0.5
Delay (s)				6.5	9.9	20.0
Level of Service				A	A	B
Approach Delay (s)	0.0			6.5	12.9	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	31.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	346	78	0	0	0	0	263	4	73	252	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5						4.5			4.5	
Lane Util. Factor		0.91						0.95			0.95	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		0.99						1.00			0.98	
Frt		0.98						1.00			1.00	
Flt Protected		0.99						1.00			0.99	
Satd. Flow (prot)		4832						3524			3423	
Flt Permitted		0.99						1.00			0.83	
Satd. Flow (perm)		4832						3524			2856	
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)	82	376	85	0	0	0	0	286	4	79	274	0
RTOR Reduction (vph)	0	45	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	498	0	0	0	0	0	288	0	0	353	0
Confl. Peds. (#/hr)	75		67						181	181		
Confl. Bikes (#/hr)			12			1			24			7
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		2						1			1	
Permitted Phases	2									1		
Actuated Green, G (s)		23.0						27.0			27.0	
Effective Green, g (s)		23.0						27.0			27.0	
Actuated g/C Ratio		0.38						0.45			0.45	
Clearance Time (s)		5.5						4.5			4.5	
Lane Grp Cap (vph)		1852						1585			1285	
v/s Ratio Prot								0.08				
v/s Ratio Perm		0.10									c0.12	
v/c Ratio		0.27						0.18			0.27	
Uniform Delay, d1		12.7						9.9			10.4	
Progression Factor		1.00						1.78			0.76	
Incremental Delay, d2		0.4						0.2			0.5	
Delay (s)		13.1						17.8			8.4	
Level of Service		B						B			A	
Approach Delay (s)		13.1			0.0			17.8			8.4	
Approach LOS		B			A			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	77	30	0	349	309	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5			3.0	3.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.97			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1679			3539	3539	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1679			3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	33	0	379	336	0
RTOR Reduction (vph)	22	0	0	0	0	0
Lane Group Flow (vph)	95	0	0	379	336	0
Confl. Peds. (#/hr)		101				
Confl. Bikes (#/hr)		1				
Turn Type	NA			NA	NA	
Protected Phases	2			1	1	
Permitted Phases						
Actuated Green, G (s)	19.5			34.0	34.0	
Effective Green, g (s)	19.5			34.0	34.0	
Actuated g/C Ratio	0.32			0.57	0.57	
Clearance Time (s)	3.5			3.0	3.0	
Lane Grp Cap (vph)	545			2005	2005	
v/s Ratio Prot	c0.06			c0.11	0.09	
v/s Ratio Perm						
v/c Ratio	0.17			0.19	0.17	
Uniform Delay, d1	14.5			6.3	6.2	
Progression Factor	1.00			0.19	1.00	
Incremental Delay, d2	0.7			0.2	0.2	
Delay (s)	15.2			1.4	6.4	
Level of Service	B			A	A	
Approach Delay (s)	15.2			1.4	6.4	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	20	341	134	90	332	0	0	288	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			6.0			6.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.97	
Flpb, ped/bikes					1.00			0.98			1.00	
Frt					0.96			1.00			0.98	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					3358			3422			3375	
Flt Permitted					1.00			0.78			1.00	
Satd. Flow (perm)					3358			2708			3375	
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	22	371	146	98	361	0	0	313	50
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	499	0	0	459	0	0	346	0
Confl. Peds. (#/hr)				101			128					128
Confl. Bikes (#/hr)						10						12
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					4			2			2	
Permitted Phases				4			2					
Actuated Green, G (s)					16.7			16.9			16.9	
Effective Green, g (s)					16.7			16.9			16.9	
Actuated g/C Ratio					0.30			0.31			0.31	
Clearance Time (s)					4.5			6.0			6.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1017			830			1035	
v/s Ratio Prot											0.10	
v/s Ratio Perm					0.15			c0.17				
v/c Ratio					0.49			0.55			0.33	
Uniform Delay, d1					15.7			15.9			14.8	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.1			0.5			0.1	
Delay (s)					15.9			16.4			14.8	
Level of Service					B			B			B	
Approach Delay (s)		0.0			15.9			16.4			14.8	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	12.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	62	449	113	24	386	0	0	495	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			5.0			5.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.99	
Flpb, ped/bikes					0.99			1.00			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					1.00			1.00			1.00	
Satd. Flow (prot)					3381			3248			3269	
Flt Permitted					1.00			0.90			1.00	
Satd. Flow (perm)					3381			2940			3269	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	70	504	127	27	434	0	0	556	60
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	0	670	0	0	461	0	0	602	0
Confl. Peds. (#/hr)	75		101	101		75	128		187	187		128
Confl. Bikes (#/hr)			1			12			28			12
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	11%	2%	0%	8%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			2	
Permitted Phases				8			2					
Actuated Green, G (s)					25.0			26.0			26.0	
Effective Green, g (s)					25.0			26.0			26.0	
Actuated g/C Ratio					0.42			0.43			0.43	
Clearance Time (s)					4.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1408			1274			1416	
v/s Ratio Prot											c0.18	
v/s Ratio Perm					0.20			0.16				
v/c Ratio					0.48			0.36			0.43	
Uniform Delay, d1					12.7			11.4			11.8	
Progression Factor					1.00			0.29			1.00	
Incremental Delay, d2					1.2			0.8			0.9	
Delay (s)					13.9			4.1			12.7	
Level of Service					B			A			B	
Approach Delay (s)		0.0			13.9			4.1			12.7	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.0	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	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	297	28	0	0	0	0	320	64	83	437	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						5.0			5.0	
Lane Util. Factor	1.00	0.95						0.95			0.95	
Frpb, ped/bikes	1.00	0.99						0.96			1.00	
Flpb, ped/bikes	0.95	1.00						1.00			0.98	
Frt	1.00	0.99						0.97			1.00	
Flt Protected	0.95	1.00						1.00			0.99	
Satd. Flow (prot)	1674	3537						3029			3230	
Flt Permitted	0.95	1.00						1.00			0.82	
Satd. Flow (perm)	1674	3537						3029			2663	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	125	319	30	0	0	0	0	344	69	89	470	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	28	0	0	0	0
Lane Group Flow (vph)	125	337	0	0	0	0	0	385	0	0	559	0
Confl. Peds. (#/hr)	75		67	67		75	98		181	181		98
Confl. Bikes (#/hr)			12			1			24			7
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	2%	13%	5%	2%	10%	2%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	25.0	25.0						26.0			26.0	
Effective Green, g (s)	25.0	25.0						26.0			26.0	
Actuated g/C Ratio	0.42	0.42						0.43			0.43	
Clearance Time (s)	4.0	4.0						5.0			5.0	
Vehicle Extension (s)	2.0	2.0						2.0			2.0	
Lane Grp Cap (vph)	697	1473						1312			1153	
v/s Ratio Prot		c0.10						0.13				
v/s Ratio Perm	0.07										c0.21	
v/c Ratio	0.18	0.23						0.29			0.48	
Uniform Delay, d1	11.0	11.3						11.0			12.2	
Progression Factor	1.21	1.22						2.59			0.40	
Incremental Delay, d2	0.6	0.4						0.6			1.3	
Delay (s)	13.9	14.2						29.2			6.2	
Level of Service	B	B						C			A	
Approach Delay (s)		14.1			0.0			29.2			6.2	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	15.3	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	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑			↑↑
Volume (vph)	0	0	374	0	0	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0			5.0
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3223			3312
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3223			3312
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	420	0	0	552
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	420	0	0	552
Heavy Vehicles (%)	2%	2%	12%	2%	2%	9%
Turn Type			NA			NA
Protected Phases			2			2
Permitted Phases						
Actuated Green, G (s)			30.0			30.0
Effective Green, g (s)			30.0			30.0
Actuated g/C Ratio			0.50			0.50
Clearance Time (s)			5.0			5.0
Vehicle Extension (s)			2.0			2.0
Lane Grp Cap (vph)			1611			1656
v/s Ratio Prot			0.13			c0.17
v/s Ratio Perm						
v/c Ratio			0.26			0.33
Uniform Delay, d1			8.6			9.0
Progression Factor			0.65			1.37
Incremental Delay, d2			0.4			0.5
Delay (s)			6.0			12.9
Level of Service			A			B
Approach Delay (s)	0.0		6.0			12.9
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Reconfiguration 1 Synchro Outputs

(Close Telegraph between Broadway and 16th Street)

HCM Signalized Intersection Capacity Analysis
1: Broadway & 15th Street

2/7/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	110	424	0	0	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.0			6.0
Lane Util. Factor		0.88	0.95			0.95
Frt		0.85	1.00			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		2733	3223			3282
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		2733	3223			3282
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	118	456	0	0	587
RTOR Reduction (vph)	0	71	0	0	0	0
Lane Group Flow (vph)	0	47	456	0	0	587
Heavy Vehicles (%)	0%	4%	12%	2%	2%	10%
Turn Type		custom	NA			NA
Protected Phases		4	2			6
Permitted Phases						
Actuated Green, G (s)		24.0	26.0			26.0
Effective Green, g (s)		24.0	26.0			26.0
Actuated g/C Ratio		0.40	0.43			0.43
Clearance Time (s)		4.0	6.0			6.0
Vehicle Extension (s)		2.0	2.0			2.0
Lane Grp Cap (vph)		1093	1396			1422
v/s Ratio Prot		c0.02	0.14			c0.18
v/s Ratio Perm						
v/c Ratio		0.04	0.33			0.41
Uniform Delay, d1		11.0	11.2			11.7
Progression Factor		1.00	1.00			2.30
Incremental Delay, d2		0.0	0.6			0.8
Delay (s)		11.0	11.8			27.8
Level of Service		B	B			C
Approach Delay (s)	11.0		11.8			27.8
Approach LOS	B		B			C

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	540	98	0	0	0	0	20	0	305	87	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		0.95	0.95	
Frpb, ped/bikes		0.99						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.88	0.93	
Frt		0.98						1.00		1.00	1.00	
Flt Protected		1.00						1.00		0.95	0.97	
Satd. Flow (prot)		4869						1863		1478	1604	
Flt Permitted		1.00						1.00		0.74	0.82	
Satd. Flow (perm)		4869						1863		1156	1357	
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)	77	587	107	0	0	0	0	22	0	332	95	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	734	0	0	0	0	0	22	0	209	218	0
Confl. Peds. (#/hr)	75		67						152	152		
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		2						1			1	
Permitted Phases	2									1		
Actuated Green, G (s)		28.0						22.0		22.0	22.0	
Effective Green, g (s)		28.0						22.0		22.0	22.0	
Actuated g/C Ratio		0.47						0.37		0.37	0.37	
Clearance Time (s)		5.5						4.5		4.5	4.5	
Lane Grp Cap (vph)		2272						683		423	497	
v/s Ratio Prot								0.01				
v/s Ratio Perm		0.15								c0.18	0.16	
v/c Ratio		0.32						0.03		0.49	0.44	
Uniform Delay, d1		10.0						12.2		14.7	14.3	
Progression Factor		1.00						1.00		1.04	1.04	
Incremental Delay, d2		0.4						0.1		4.0	2.8	
Delay (s)		10.4						12.3		19.3	17.6	
Level of Service		B						B		B	B	
Approach Delay (s)		10.4			0.0			12.3			18.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.3	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)	10.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	145	81	0	71	310	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5			3.0	3.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.98			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.95			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1679			3539	3539	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1679			3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	88	0	77	337	0
RTOR Reduction (vph)	34	0	0	0	0	0
Lane Group Flow (vph)	212	0	0	77	337	0
Confl. Peds. (#/hr)		55				
Confl. Bikes (#/hr)		1				
Turn Type	NA			NA	NA	
Protected Phases	2			1	1	
Permitted Phases						
Actuated Green, G (s)	19.5			34.0	34.0	
Effective Green, g (s)	19.5			34.0	34.0	
Actuated g/C Ratio	0.32			0.57	0.57	
Clearance Time (s)	3.5			3.0	3.0	
Lane Grp Cap (vph)	545			2005	2005	
v/s Ratio Prot	c0.13			0.02	c0.10	
v/s Ratio Perm						
v/c Ratio	0.39			0.04	0.17	
Uniform Delay, d1	15.6			5.8	6.2	
Progression Factor	1.00			0.33	1.00	
Incremental Delay, d2	2.1			0.0	0.2	
Delay (s)	17.7			2.0	6.4	
Level of Service	B			A	A	
Approach Delay (s)	17.7			2.0	6.4	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	81	85	223	72	144	0	0	229	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			6.0			6.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.98	
Flpb, ped/bikes					0.99			0.98			1.00	
Frt					0.91			1.00			0.97	
Flt Protected					0.99			0.98			1.00	
Satd. Flow (prot)					3154			3429			3363	
Flt Permitted					0.99			0.76			1.00	
Satd. Flow (perm)					3154			2646			3363	
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	88	92	242	78	157	0	0	249	61
RTOR Reduction (vph)	0	0	0	0	167	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	0	0	0	255	0	0	235	0	0	279	0
Confl. Peds. (#/hr)				55			69					69
Confl. Bikes (#/hr)						1						34
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					4			2			2	
Permitted Phases				4			2					
Actuated Green, G (s)					12.5			10.4			10.4	
Effective Green, g (s)					12.5			10.4			10.4	
Actuated g/C Ratio					0.31			0.26			0.26	
Clearance Time (s)					4.5			6.0			6.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					975			681			865	
v/s Ratio Prot											0.08	
v/s Ratio Perm					0.08			c0.09				
v/c Ratio					0.26			0.35			0.32	
Uniform Delay, d1					10.5			12.2			12.1	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.1			0.1			0.1	
Delay (s)					10.5			12.3			12.2	
Level of Service					B			B			B	
Approach Delay (s)		0.0			10.5			12.3			12.2	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	40.4	Sum of lost time (s)	12.5
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	127	36	245	294	0	0	348	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			5.0			5.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.99	
Flpb, ped/bikes					1.00			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.99			0.98			1.00	
Satd. Flow (prot)					3309			3083			3136	
Flt Permitted					0.99			0.67			1.00	
Satd. Flow (perm)					3309			2098			3136	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	26	140	40	269	323	0	0	382	36
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	183	0	0	592	0	0	406	0
Confl. Peds. (#/hr)	39		55	55		39	69		171	171		69
Confl. Bikes (#/hr)			1			1			2			34
Heavy Vehicles (%)	2%	2%	2%	4%	5%	0%	8%	16%	2%	2%	13%	9%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			2	
Permitted Phases				8			2					
Actuated Green, G (s)					25.0			26.0			26.0	
Effective Green, g (s)					25.0			26.0			26.0	
Actuated g/C Ratio					0.42			0.43			0.43	
Clearance Time (s)					4.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1378			909			1358	
v/s Ratio Prot											0.13	
v/s Ratio Perm					0.06			c0.28				
v/c Ratio					0.13			0.65			0.30	
Uniform Delay, d1					10.8			13.4			11.1	
Progression Factor					1.00			0.42			1.00	
Incremental Delay, d2					0.2			3.4			0.6	
Delay (s)					11.0			9.0			11.6	
Level of Service					B			A			B	
Approach Delay (s)		0.0			11.0			9.0			11.6	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.2	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	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	586	262	0	0	0	0	474	49	73	277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						5.0			5.0	
Lane Util. Factor	1.00	0.95						0.95			0.95	
Frpb, ped/bikes	1.00	0.98						0.98			1.00	
Flpb, ped/bikes	0.98	1.00						1.00			0.98	
Frt	1.00	0.95						0.99			1.00	
Flt Protected	0.95	1.00						1.00			0.99	
Satd. Flow (prot)	1693	3183						2950			3102	
Flt Permitted	0.95	1.00						1.00			0.76	
Satd. Flow (perm)	1693	3183						2950			2397	
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)	58	637	285	0	0	0	0	515	53	79	301	0
RTOR Reduction (vph)	0	86	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	58	836	0	0	0	0	0	555	0	0	380	0
Confl. Peds. (#/hr)	34		58	58		34	70		152	152		70
Confl. Bikes (#/hr)			8			1			1			21
Heavy Vehicles (%)	4%	1%	18%	2%	2%	2%	2%	20%	4%	3%	16%	2%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	25.0	25.0						26.0			26.0	
Effective Green, g (s)	25.0	25.0						26.0			26.0	
Actuated g/C Ratio	0.42	0.42						0.43			0.43	
Clearance Time (s)	4.0	4.0						5.0			5.0	
Vehicle Extension (s)	2.0	2.0						2.0			2.0	
Lane Grp Cap (vph)	705	1326						1278			1038	
v/s Ratio Prot		c0.26						c0.19				
v/s Ratio Perm	0.03										0.16	
v/c Ratio	0.08	0.63						0.43			0.37	
Uniform Delay, d1	10.6	13.8						11.9			11.4	
Progression Factor	1.02	0.97						2.06			0.52	
Incremental Delay, d2	0.2	2.2						1.0			1.0	
Delay (s)	11.0	15.6						25.4			6.9	
Level of Service	B	B						C			A	
Approach Delay (s)		15.3			0.0			25.4			6.9	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.6	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	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑			↑↑
Volume (vph)	0	0	538	0	0	548
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0			5.0
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3085			3059
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3085			3059
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	566	0	0	577
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	566	0	0	577
Heavy Vehicles (%)	2%	2%	17%	2%	2%	18%
Turn Type			NA			NA
Protected Phases			2			2
Permitted Phases						
Actuated Green, G (s)			30.0			30.0
Effective Green, g (s)			30.0			30.0
Actuated g/C Ratio			0.50			0.50
Clearance Time (s)			5.0			5.0
Vehicle Extension (s)			2.0			2.0
Lane Grp Cap (vph)			1542			1529
v/s Ratio Prot			0.18			c0.19
v/s Ratio Perm						
v/c Ratio			0.37			0.38
Uniform Delay, d1			9.2			9.2
Progression Factor			1.37			0.97
Incremental Delay, d2			0.7			0.6
Delay (s)			13.2			9.6
Level of Service			B			A
Approach Delay (s)	0.0		13.2			9.6
Approach LOS	A		B			A

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	19.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: Broadway & 15th Street

2/7/2013

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	0	201	546	0	0	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	6.0			6.0
Lane Util. Factor		0.88	0.95			0.95
Frt		0.85	1.00			1.00
Flt Protected		1.00	1.00			1.00
Satd. Flow (prot)		2842	3343			3312
Flt Permitted		1.00	1.00			1.00
Satd. Flow (perm)		2842	3343			3312
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	223	607	0	0	800
RTOR Reduction (vph)	0	134	0	0	0	0
Lane Group Flow (vph)	0	89	607	0	0	800
Heavy Vehicles (%)	2%	0%	8%	2%	2%	9%
Turn Type		custom	NA			NA
Protected Phases		4	2			6
Permitted Phases						
Actuated Green, G (s)		24.0	26.0			26.0
Effective Green, g (s)		24.0	26.0			26.0
Actuated g/C Ratio		0.40	0.43			0.43
Clearance Time (s)		4.0	6.0			6.0
Vehicle Extension (s)		2.0	2.0			2.0
Lane Grp Cap (vph)		1136	1448			1435
v/s Ratio Prot		c0.03	0.18			c0.24
v/s Ratio Perm						
v/c Ratio		0.08	0.42			0.56
Uniform Delay, d1		11.2	11.8			12.7
Progression Factor		1.00	1.00			1.55
Incremental Delay, d2		0.0	0.9			1.4
Delay (s)		11.2	12.7			21.1
Level of Service		B	B			C
Approach Delay (s)	11.2		12.7			21.1
Approach LOS	B		B			C

Intersection Summary			
HCM 2000 Control Delay	16.6	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)	10.0
Intersection Capacity Utilization	30.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	346	78	0	0	0	0	20	0	328	77	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5						4.5		4.5	4.5	
Lane Util. Factor		0.91						1.00		0.95	0.95	
Frpb, ped/bikes		0.98						1.00		1.00	1.00	
Flpb, ped/bikes		0.99						1.00		0.86	0.91	
Frt		0.98						1.00		1.00	1.00	
Flt Protected		0.99						1.00		0.95	0.97	
Satd. Flow (prot)		4796						1863		1440	1562	
Flt Permitted		0.99						1.00		0.74	0.81	
Satd. Flow (perm)		4796						1863		1126	1306	
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)	82	376	85	0	0	0	0	22	0	357	84	0
RTOR Reduction (vph)	0	45	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	498	0	0	0	0	0	22	0	218	223	0
Confl. Peds. (#/hr)	75		67						181	181		
Confl. Bikes (#/hr)			12			1			24			7
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		2						1			1	
Permitted Phases	2									1		
Actuated Green, G (s)		23.0						27.0		27.0	27.0	
Effective Green, g (s)		23.0						27.0		27.0	27.0	
Actuated g/C Ratio		0.38						0.45		0.45	0.45	
Clearance Time (s)		5.5						4.5		4.5	4.5	
Lane Grp Cap (vph)		1838						838		506	587	
v/s Ratio Prot								0.01				
v/s Ratio Perm		0.10								c0.19	0.17	
v/c Ratio		0.27						0.03		0.43	0.38	
Uniform Delay, d1		12.7						9.2		11.3	10.9	
Progression Factor		1.00						1.00		0.79	0.77	
Incremental Delay, d2		0.4						0.1		2.6	1.8	
Delay (s)		13.1						9.2		11.5	10.3	
Level of Service		B						A		B	B	
Approach Delay (s)		13.1			0.0			9.2			10.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	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)	10.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	77	30	0	75	389	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5			3.0	3.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.97			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.96			1.00	1.00	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1679			3539	3539	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1679			3539	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	33	0	82	423	0
RTOR Reduction (vph)	22	0	0	0	0	0
Lane Group Flow (vph)	95	0	0	82	423	0
Confl. Peds. (#/hr)		101				
Confl. Bikes (#/hr)		1				
Turn Type	NA			NA	NA	
Protected Phases	2			1	1	
Permitted Phases						
Actuated Green, G (s)	19.5			34.0	34.0	
Effective Green, g (s)	19.5			34.0	34.0	
Actuated g/C Ratio	0.32			0.57	0.57	
Clearance Time (s)	3.5			3.0	3.0	
Lane Grp Cap (vph)	545			2005	2005	
v/s Ratio Prot	c0.06			0.02	c0.12	
v/s Ratio Perm						
v/c Ratio	0.17			0.04	0.21	
Uniform Delay, d1	14.5			5.8	6.4	
Progression Factor	1.00			0.61	1.00	
Incremental Delay, d2	0.7			0.0	0.2	
Delay (s)	15.2			3.6	6.6	
Level of Service	B			A	A	
Approach Delay (s)	15.2			3.6	6.6	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	100	341	424	32	120	0	0	288	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5			6.0			6.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.97	
Flpb, ped/bikes					0.99			0.98			1.00	
Frt					0.93			1.00			0.98	
Flt Protected					0.99			0.99			1.00	
Satd. Flow (prot)					3197			3423			3374	
Flt Permitted					0.99			0.80			1.00	
Satd. Flow (perm)					3197			2784			3374	
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	109	371	461	35	130	0	0	313	50
RTOR Reduction (vph)	0	0	0	0	161	0	0	0	0	0	20	0
Lane Group Flow (vph)	0	0	0	0	780	0	0	165	0	0	343	0
Confl. Peds. (#/hr)				101			128					128
Confl. Bikes (#/hr)						10						12
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					4			2			2	
Permitted Phases				4			2					
Actuated Green, G (s)					21.0			11.9			11.9	
Effective Green, g (s)					21.0			11.9			11.9	
Actuated g/C Ratio					0.38			0.22			0.22	
Clearance Time (s)					4.5			6.0			6.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1220			602			730	
v/s Ratio Prot											c0.10	
v/s Ratio Perm					0.24			0.06				
v/c Ratio					0.64			0.27			0.47	
Uniform Delay, d1					13.9			18.0			18.8	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.8			0.1			0.2	
Delay (s)					14.7			18.0			19.0	
Level of Service					B			B			B	
Approach Delay (s)		0.0			14.7			18.0			19.0	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	62	449	113	394	386	0	0	495	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			5.0			5.0	
Lane Util. Factor					0.95			0.95			0.95	
Frpb, ped/bikes					0.99			1.00			0.99	
Flpb, ped/bikes					0.99			0.97			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					1.00			0.98			1.00	
Satd. Flow (prot)					3381			3218			3269	
Flt Permitted					1.00			0.58			1.00	
Satd. Flow (perm)					3381			1927			3269	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	0	70	504	127	443	434	0	0	556	60
RTOR Reduction (vph)	0	0	0	0	32	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	0	670	0	0	877	0	0	602	0
Confl. Peds. (#/hr)	75		101	101		75	128		187	187		128
Confl. Bikes (#/hr)			1			12			28			12
Heavy Vehicles (%)	2%	2%	2%	2%	1%	2%	2%	11%	2%	0%	8%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			2	
Permitted Phases				8			2					
Actuated Green, G (s)					25.0			26.0			26.0	
Effective Green, g (s)					25.0			26.0			26.0	
Actuated g/C Ratio					0.42			0.43			0.43	
Clearance Time (s)					4.0			5.0			5.0	
Vehicle Extension (s)					2.0			2.0			2.0	
Lane Grp Cap (vph)					1408			835			1416	
v/s Ratio Prot											0.18	
v/s Ratio Perm					0.20			c0.46				
v/c Ratio					0.48			1.49dl			0.43	
Uniform Delay, d1					12.7			17.0			11.8	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.2			43.0			0.9	
Delay (s)					13.9			60.0			12.7	
Level of Service					B			E			B	
Approach Delay (s)		0.0			13.9			60.0			12.7	
Approach LOS		A			B			E			B	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	297	283	0	0	0	0	690	64	83	437	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0						5.0			5.0	
Lane Util. Factor	1.00	0.95						0.95			0.95	
Frpb, ped/bikes	1.00	0.97						0.98			1.00	
Flpb, ped/bikes	0.95	1.00						1.00			0.99	
Frt	1.00	0.93						0.99			1.00	
Flt Protected	0.95	1.00						1.00			0.99	
Satd. Flow (prot)	1674	3208						3110			3264	
Flt Permitted	0.95	1.00						1.00			0.71	
Satd. Flow (perm)	1674	3208						3110			2325	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	125	319	304	0	0	0	0	742	69	89	470	0
RTOR Reduction (vph)	0	84	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	125	539	0	0	0	0	0	800	0	0	559	0
Confl. Peds. (#/hr)	75		67	67		75	98		181	181		98
Confl. Bikes (#/hr)			12			1			24			7
Heavy Vehicles (%)	2%	0%	2%	2%	2%	2%	2%	13%	5%	2%	10%	2%
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)	25.0	25.0						26.0			26.0	
Effective Green, g (s)	25.0	25.0						26.0			26.0	
Actuated g/C Ratio	0.42	0.42						0.43			0.43	
Clearance Time (s)	4.0	4.0						5.0			5.0	
Vehicle Extension (s)	2.0	2.0						2.0			2.0	
Lane Grp Cap (vph)	697	1336						1347			1007	
v/s Ratio Prot		c0.17						c0.26				
v/s Ratio Perm	0.07										0.24	
v/c Ratio	0.18	0.40						0.59			0.56	
Uniform Delay, d1	11.0	12.3						13.0			12.7	
Progression Factor	0.87	0.81						2.14			0.41	
Incremental Delay, d2	0.5	0.9						1.7			2.0	
Delay (s)	10.1	10.8						29.4			7.2	
Level of Service	B	B						C			A	
Approach Delay (s)		10.7			0.0			29.4			7.2	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	16.9	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	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑			↑↑
Volume (vph)	0	0	744	0	0	745
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0			5.0
Lane Util. Factor			0.95			0.95
Frt			1.00			1.00
Flt Protected			1.00			1.00
Satd. Flow (prot)			3223			3312
Flt Permitted			1.00			1.00
Satd. Flow (perm)			3223			3312
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	836	0	0	837
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	836	0	0	837
Heavy Vehicles (%)	2%	2%	12%	2%	2%	9%
Turn Type			NA			NA
Protected Phases			2			2
Permitted Phases						
Actuated Green, G (s)			30.0			30.0
Effective Green, g (s)			30.0			30.0
Actuated g/C Ratio			0.50			0.50
Clearance Time (s)			5.0			5.0
Vehicle Extension (s)			2.0			2.0
Lane Grp Cap (vph)			1611			1656
v/s Ratio Prot			c0.26			0.25
v/s Ratio Perm						
v/c Ratio			0.52			0.51
Uniform Delay, d1			10.1			10.0
Progression Factor			0.80			1.02
Incremental Delay, d2			1.1			1.0
Delay (s)			9.2			11.2
Level of Service			A			B
Approach Delay (s)	0.0		9.2			11.2
Approach LOS	A		A			B

Intersection Summary			
HCM 2000 Control Delay	10.2	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)	8.5
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Reconfiguration 2 Synchro Outputs

(Proposed Offset Signal at Broadway, Telegraph, and 15th)

HCM Signalized Intersection Capacity Analysis
1: BROADWAY & TELEGRAPH/15TH

2/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	247	0	68	42	165	259	0	0	301	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	8.0	8.0			8.0	
Lane Util. Factor			0.88		0.95	0.95	1.00	0.95			0.95	
Frpb, ped/bikes			1.00		1.00	1.00	1.00	1.00			1.00	
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00			1.00	
Frt			0.85		0.99	0.85	1.00	1.00			1.00	
Flt Protected			1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)			2460		1555	1290	1547	2801			2810	
Flt Permitted			1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)			2460		1555	1290	1547	2801			2810	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	266	0	73	45	177	278	0	0	324	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	266	0	78	40	177	278	0	0	335	0
Confl. Peds. (#/hr)	13		97	97		13	31		87	87		31
Confl. Bikes (#/hr)						3			2			22
Heavy Vehicles (%)	0%	0%	4%	0%	3%	7%	5%	16%	0%	0%	15%	0%
Turn Type			custom		NA	Prot	Prot	NA			NA	
Protected Phases			4		3	3	1	6			2	
Permitted Phases												
Actuated Green, G (s)			18.0		25.0	25.0	18.5	61.0			34.5	
Effective Green, g (s)			18.0		25.0	25.0	18.5	61.0			34.5	
Actuated g/C Ratio			0.15		0.21	0.21	0.15	0.51			0.29	
Clearance Time (s)			4.0		4.0	4.0	8.0	8.0			8.0	
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)			369		323	268	238	1423			807	
v/s Ratio Prot			c0.11		c0.05	0.03	c0.11	0.10			c0.12	
v/s Ratio Perm												
v/c Ratio			0.72		0.24	0.15	0.74	0.20			0.42	
Uniform Delay, d1			48.6		39.6	38.8	48.5	16.1			34.6	
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2			6.8		0.4	0.3	11.9	0.3			1.6	
Delay (s)			55.4		40.0	39.1	60.3	16.4			36.2	
Level of Service			E		D	D	E	B			D	
Approach Delay (s)		55.4			39.7			33.5			36.2	
Approach LOS		E			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	39.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: BROADWAY & TELEGRAPH/15TH

2/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	255	0	146	55	224	322	0	0	465	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0		4.0	4.0	8.0	8.0			8.0	
Lane Util. Factor			0.88		0.95	0.95	1.00	0.95			0.95	
Frpb, ped/bikes			1.00		1.00	1.00	1.00	1.00			1.00	
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00			1.00	
Frt			0.85		0.99	0.85	1.00	1.00			1.00	
Flt Protected			1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)			2558		1599	1381	1624	2850			2975	
Flt Permitted			1.00		1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)			2558		1599	1381	1624	2850			2975	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	283	0	162	61	249	358	0	0	517	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	283	0	168	55	249	358	0	0	528	0
Confl. Peds. (#/hr)			125	125					152	152		
Confl. Bikes (#/hr)			8			8			16			5
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	14%	0%	0%	9%	0%
Turn Type			custom		NA	Prot	Prot	NA			NA	
Protected Phases			4		3	3	1	6			2	
Permitted Phases												
Actuated Green, G (s)			17.1		25.0	25.0	21.8	61.9			32.1	
Effective Green, g (s)			17.1		25.0	25.0	21.8	61.9			32.1	
Actuated g/C Ratio			0.14		0.21	0.21	0.18	0.52			0.27	
Clearance Time (s)			4.0		4.0	4.0	8.0	8.0			8.0	
Vehicle Extension (s)			3.0		3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)			364		333	287	295	1470			795	
v/s Ratio Prot			c0.11		c0.11	0.04	c0.15	0.13			c0.18	
v/s Ratio Perm												
v/c Ratio			0.78		0.50	0.19	0.84	0.24			0.66	
Uniform Delay, d1			49.6		42.0	39.2	47.5	16.1			39.1	
Progression Factor			1.00		1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2			10.0		1.2	0.3	19.3	0.4			4.4	
Delay (s)			59.6		43.2	39.5	66.7	16.5			43.5	
Level of Service			E		D	D	E	B			D	
Approach Delay (s)		59.6			42.3			37.1			43.5	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group