

# 14th Street Safety Project - Attachment D



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## MEMORANDUM

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Date: October 25, 2019 Project #: 22521.001

To: Lily Brown, Oakland DOT  
Planning & Project Development, OakDOT Great Streets Division

CC: Patrick Gilster, Toole Design Group

From: Amy Lopez, RSP; Kevin Yost

Project: 14<sup>th</sup> Street: Safe Routes in the City

Subject: Operations Analysis Memo

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Kittelison & Associates, Inc. (Kittelison) conducted a traffic operations study to analyze the build-out of the 14<sup>th</sup> Street: Safe Routes in the City project (project).

The 14<sup>th</sup> Street: Safe Routes in the City project extends along 14<sup>th</sup> Street between Brush Street and Oak Street-Lakeside Drive. The proposed improvements include reducing the number of vehicle lanes to reallocate right-of-way for bicyclists, pedestrians, and transit vehicles. Namely, the project converts 14<sup>th</sup> Street from a four-lane, two-way undivided street to a two-lane, two-way undivided street. Kittelison performed traffic operations analysis to evaluate the effects of the project to motor vehicles during the weekday AM and PM peak hours.

Kittelison evaluated the intersection delay, volume-to-capacity (v/c) ratios, and queue lengths during weekday AM and PM peak hours to understand how traffic would operate after construction of the project. Kittelison previously conducted a traffic operations study for the 14<sup>th</sup> Street project in 2016, which analyzed the roadway configuration proposed at that time. The results from that analysis were documented in the memo dated June 2, 2016.

### Study Intersections and Methodology

Kittelison analyzed traffic operations for the intersections with the following cross streets:

1. Brush Street
2. Castro Street
3. Clay Street
4. Broadway
5. Franklin Street

6. Webster Street
7. Harrison Street
8. Madison Street
9. Lake Merritt Boulevard & Oak Street-Lakeside Drive

All study intersections are signalized. Signal timing and phasing for each intersection is assumed to have remained the same since 2016. Weekday AM and PM turning movement counts were collected 7:00-9:00 a.m. and 4:00-6:00 p.m. on Wednesday, May 29<sup>th</sup>, 2019. The counts included motor vehicles, bicyclists, and pedestrians at each intersection. *Appendix A* contains the traffic counts for the study intersections.

A traffic operations analysis was conducted for the weekday AM and PM peak hours. Kittelson used Synchro 10 software package to implement the Highway Capacity Manual (HCM) 2000 Edition methodology—consistent with the 2016 analysis—for calculating the following performance measures:

- Average intersection control delay (delay per vehicle)
- Intersection level of service (LOS)
- Intersection volume-to-capacity (v/c) ratio
- 50<sup>th</sup> percentile queues by approach

Assumptions within the analysis:

1. The frequency of on-street parking maneuvers is assumed to be the same in the existing and project conditions.
2. Bus service on 14<sup>th</sup> Street under the project condition will occur at 15-minute headways in the weekday AM and PM peak hours.
3. Buses will stop in the through lane on 14<sup>th</sup> Street for passenger boarding and alighting.
4. Vehicles will not divert to alternative routes (i.e., the turning movement volumes at each intersection will be the same under existing and project conditions).
5. Signal timing for all study intersections would be updated as part of project implementation to optimize operations for motor vehicles and bicyclists traveling along the corridor while balancing time needed for pedestrians to cross 14<sup>th</sup> Street and the cross streets.

## Results

All study intersections will continue to operate below capacity with the reduction in vehicle lanes. Generally, v/c ratios are expected to be 0.70 or lower in the weekday AM and PM peak hours, indicating approximately 30% or more of unused capacity at the study intersections. Exceptions to

this occur during the AM peak hour at Broadway (v/c of 0.82) and at Harrison Street (v/c of 0.89). Furthermore, with the planned vehicle lane reduction, the level of service for all study intersections is expected to be LOS C or better in the weekday AM and PM peak hours.

Table 1 and Table 2 summarize the v/c ratios, average delay, and LOS for the study intersections during the weekday AM and PM peak hours, respectively.

Appendix B contains the Synchro 10 output worksheets containing additional detail on v/c ratios, intersection delay, and level of service.

**Table 1: AM Peak Hour Results - Summary of V/C Ratios, Delay and Level of Service**

Intersection	Intersection V/C Ratio		Delay (seconds)		Level of Service	
	Existing Conditions	Project <sup>1</sup>	Existing Conditions	Project	Existing Conditions	Project
Brush St/14 <sup>th</sup> St	0.51	0.69	15.9	18.7	B	B
Castro St/14 <sup>th</sup> St	0.50	0.47	8.2	10.3	A	B
Clay St/14 <sup>th</sup> St	0.34	0.63	8.5	14.1	A	B
Broadway/14 <sup>th</sup> St	0.54	0.82	23.8	25.2	C	C
Franklin St/14 <sup>th</sup> St	0.35	0.70	7.0	23.5	A	C
Webster St/14 <sup>th</sup> St	0.24	0.40	8.0	9.1	A	A
Harrison St/14 <sup>th</sup> St	0.59	0.89	13.6	21.3	B	C
Madison St/14 <sup>th</sup> St	0.35	0.62	11.2	14.4	B	B
Oak St-Lakeside Dr/14 <sup>th</sup> St	0.42	0.63	19.1	20.7	B	C

Source: Kittelson & Associates, Inc., 2019

<sup>1</sup> Project assumes signal phasing optimization.

**Table 2: PM Peak Hour Results – Summary of V/C Ratios, Delay and Level of Service**

Intersection	Intersection V/C Ratio		Delay (seconds/veh)		Level of Service	
	Existing Conditions	Project <sup>1</sup>	Existing Conditions	Project	Existing Conditions	Project
Brush St/14 <sup>th</sup> St	0.32	0.50	11.0	11.9	B	B
Castro St/14 <sup>th</sup> St	0.48	0.42	9.9	9.4	A	A
Clay St/14 <sup>th</sup> St	0.34	0.63	12.2	17.7	B	B
Broadway/14 <sup>th</sup> St	0.56	0.67	17.5	19.7	B	B
Franklin St/14 <sup>th</sup> St	0.32	0.59	5.5	12.2	A	B
Webster St/14 <sup>th</sup> St	0.36	0.50	11.2	14.3	B	B
Harrison St/14 <sup>th</sup> St	0.46	0.68	15.8	20.2	B	C
Madison St/14 <sup>th</sup> St	0.33	0.54	17.9	19.4	B	B
Oak St-Lakeside Dr/14 <sup>th</sup> St	0.41	0.66	20.2	28.0	C	C

Source: Kittelson & Associates, Inc., 2019

<sup>1</sup> Project assumes signal phasing optimization.

## Queueing

The analysis conducted in 2016 included an evaluation of queue lengths by intersection approach to inform where turn lanes are appropriate. Kittelson updated the queue analysis to confirm where exclusive turn lanes should be provided based on current turning movement volumes and pedestrian crossing volumes. The project now includes exclusive turn lanes at the following locations:

### Eastbound left-turn lanes

- Castro Street

### Eastbound right-turn lanes

- Brush Street
- Broadway
- Webster Street

### Westbound left-turn lanes

- Brush Street

### Westbound right-turn lanes

- Castro Street
- Oak Street-Lakeside Drive

Figures 1 through 4 illustrate the 50<sup>th</sup> percentile queue lengths. A 50<sup>th</sup> percentile queue represents the average queue length expected for an approach during a peak hour. Along 14<sup>th</sup> Street, the queue storage capacity for each intersection is considered the distance between the stop bar of a given approach and the near side of the nearest crosswalk at the upstream intersection.

**AM Peak Hour.** In the AM peak hour, Synchro software analysis of existing traffic volumes estimates 50<sup>th</sup> percentile queues will be less than the queue storage capacity for all intersections under existing conditions with the exception of Broadway and Madison Street. The 50<sup>th</sup> percentile queues at these intersections for westbound vehicles are expected to slightly exceed the length of the blocks. Depending on driver behavior, a person could partially block the intersection at Franklin Street or at Oak Street-Lakeside Drive for a few seconds until traffic starts moving. However, it is more likely that a driver would wait at the previous intersection for the next green signal so that the queue along the block can begin to clear. Average queues along 14<sup>th</sup> Street in the morning peak hour generally are expected to be accommodated within the length of a block without spilling back to an upstream intersection.

**PM Peak Hour.** In the PM peak hour, Synchro software analysis of existing traffic volumes estimates 50<sup>th</sup> percentile queues are less than the queue storage capacity for all intersections under existing conditions. On average, queues along 14<sup>th</sup> Street during the evening peak hour are expected to be accommodated within the length of a block without spilling back to an upstream intersection.

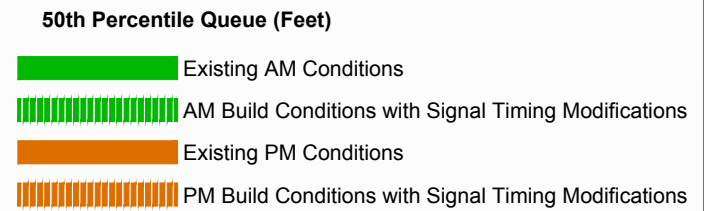
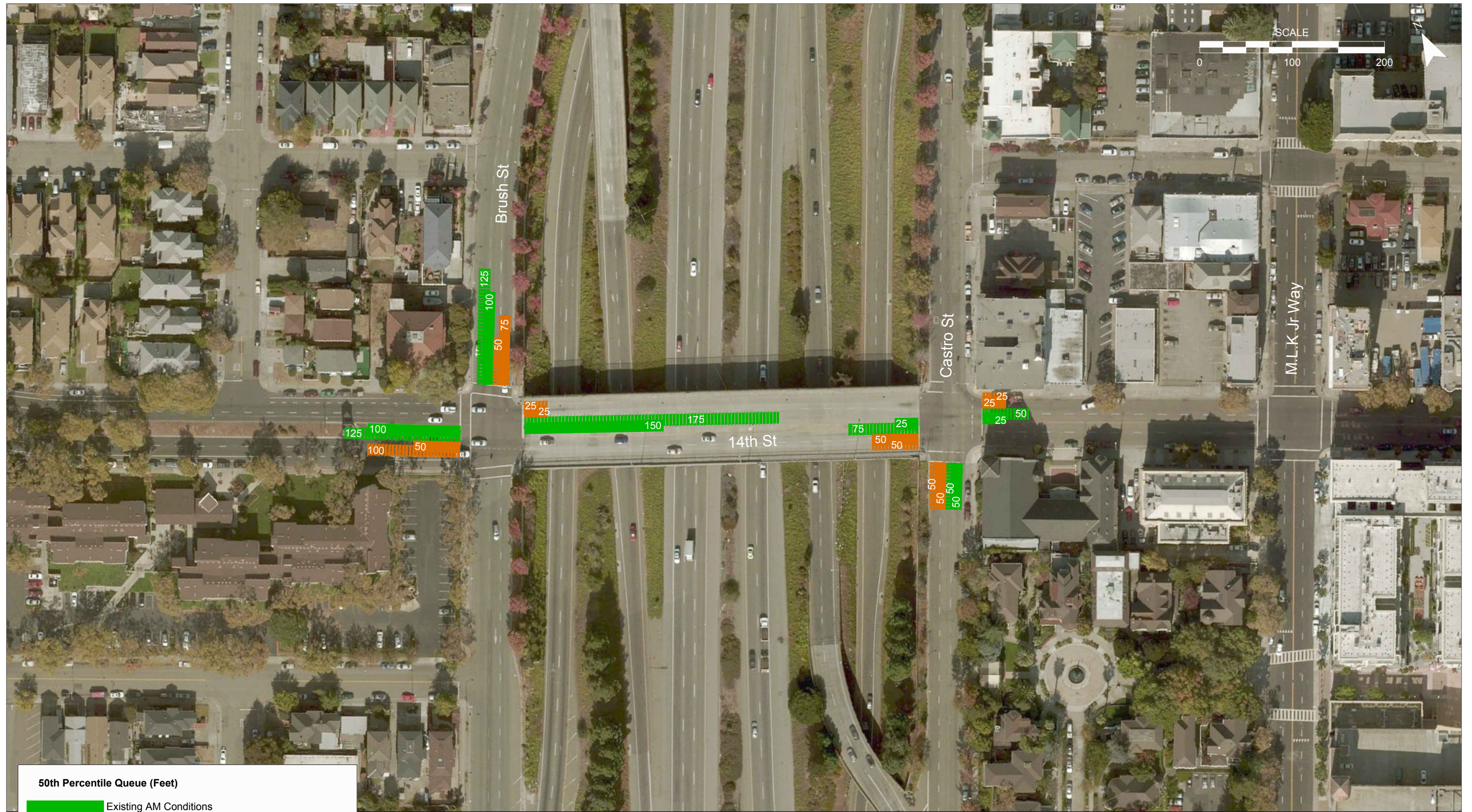
*Appendix C* contains the Synchro 10 output worksheets containing additional details on 50<sup>th</sup> percentile queues.

## Summary

The results from the operations analysis demonstrate traffic would continue to follow acceptably through the corridor with intersections operating within the city's standards during morning and evening commute periods. The study intersections are expected to operate at LOS C or better during AM and PM peak hours, and traffic volumes would remain within the capacity of the intersections.

Queue lengths at the study intersections are estimated to be less than the available storage capacity under existing conditions. With construction of the project, 50<sup>th</sup> percentile, or average queues, are expected to remain within available storage capacity when the project is constructed.

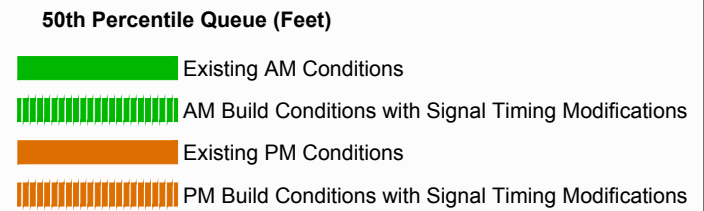




14th Street Safe Streets  
50th Percentile Queues  
Oakland, California

Figure  
1

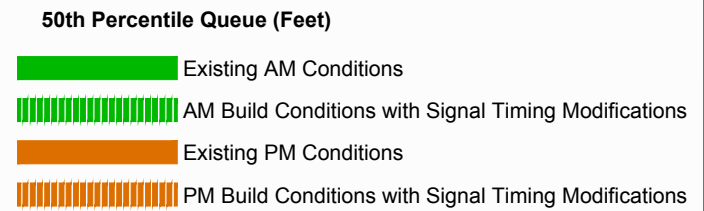
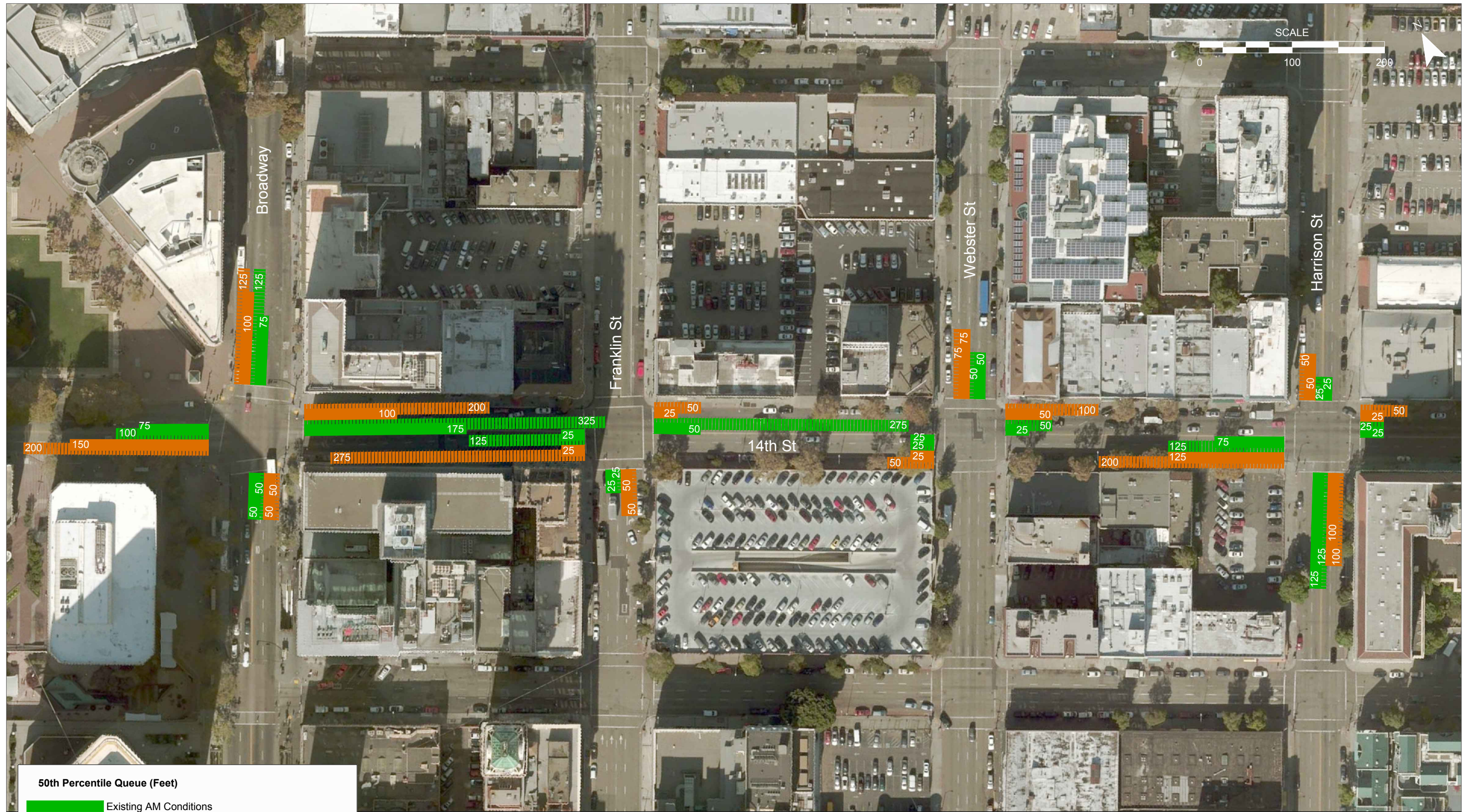




14th Street Safe Streets  
50th Percentile Queues  
Oakland, California

Figure  
2

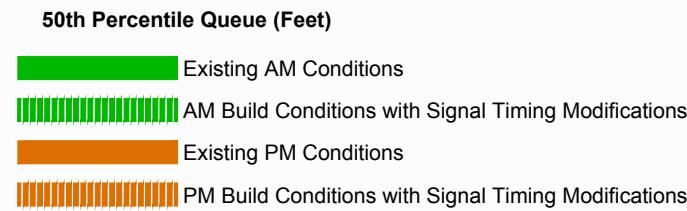
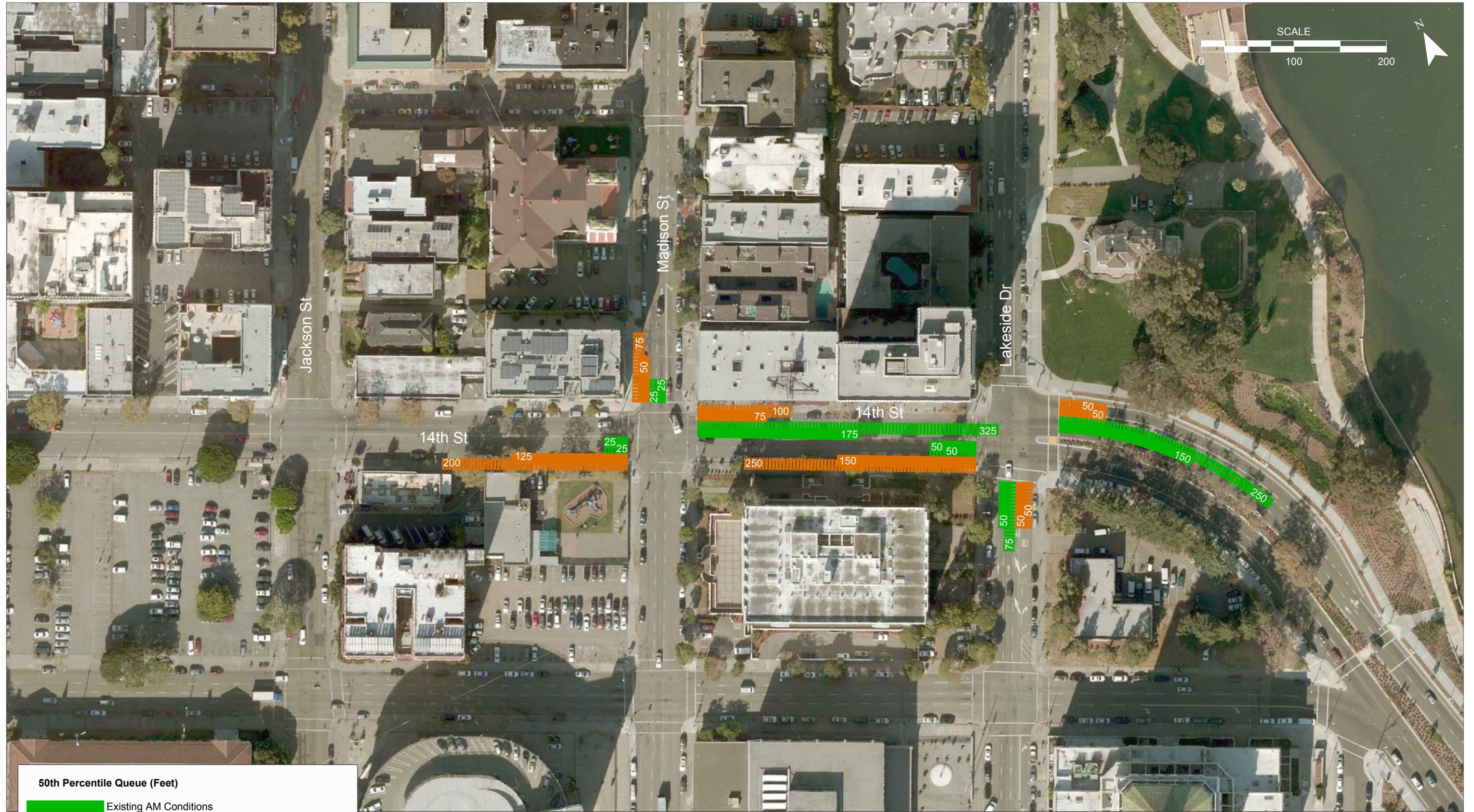




14th Street Safe Streets  
50th Percentile Queues  
Oakland, California

Figure  
3





14th Street Safe Streets  
50th Percentile Queues  
Oakland, California

Figure  
4



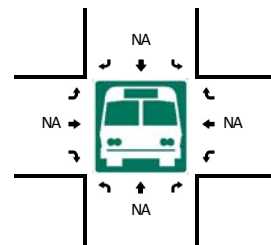
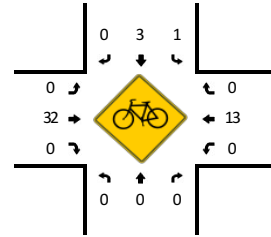
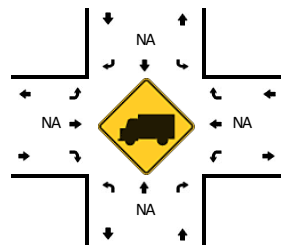
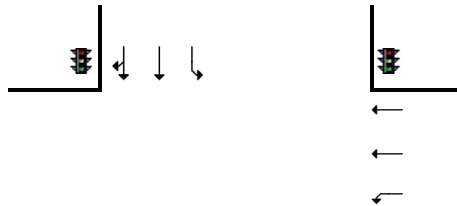
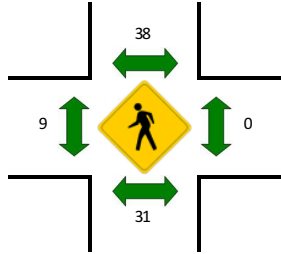
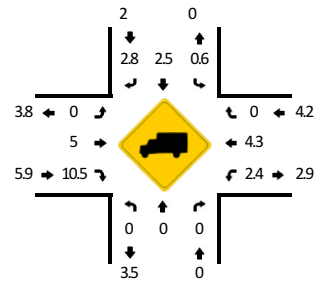
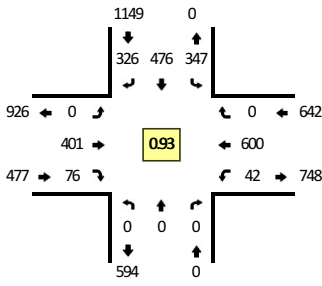
## Appendix A: Intersection Turning Volumes



**LOCATION:** Brush St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998301  
**DATE:** Wed, May 29 2019

**Peak-Hour: 7:50 AM -- 8:50 AM**  
**Peak 15-Min: 8:20 AM -- 8:35 AM**



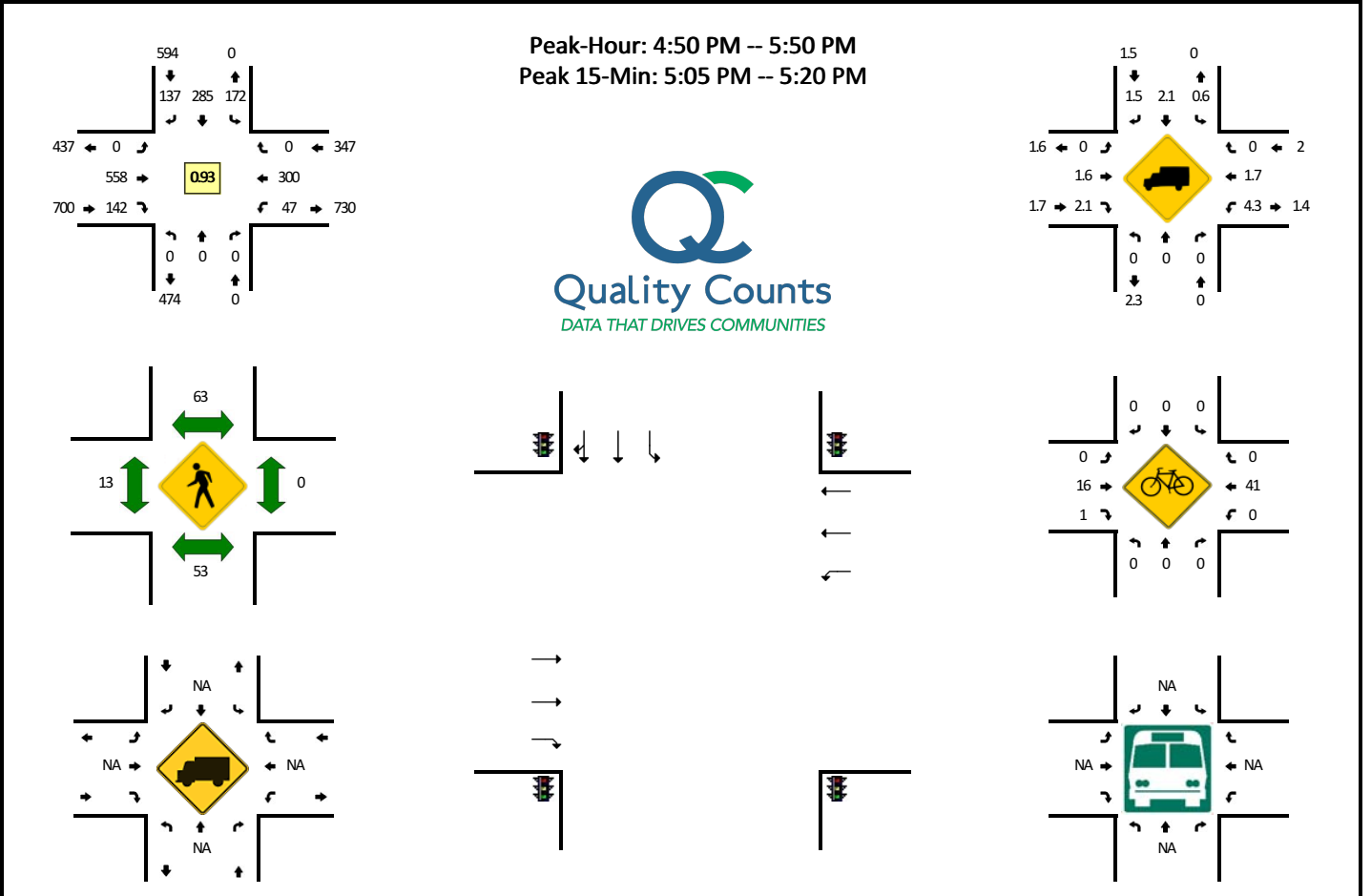
5-Min Count Period Beginning At	Brush St (Northbound)				Brush St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	23	19	22	0	0	13	6	0	1	18	0	0	102	
7:05 AM	0	0	0	0	14	21	13	0	0	15	6	0	2	21	0	0	92	
7:10 AM	0	0	0	0	22	20	14	0	0	18	2	0	2	19	0	0	97	
7:15 AM	0	0	0	0	20	17	10	0	0	13	2	0	3	22	0	0	87	
7:20 AM	0	0	0	0	20	28	11	0	0	21	5	0	2	37	0	0	124	
7:25 AM	0	0	0	0	19	23	13	0	0	16	3	0	4	30	0	0	108	
7:30 AM	0	0	0	0	16	24	14	0	0	27	4	0	3	37	0	0	125	
7:35 AM	0	0	0	0	28	25	11	0	0	31	4	0	2	42	0	0	143	
7:40 AM	0	0	0	0	28	28	14	0	0	25	2	0	4	45	0	0	146	
7:45 AM	0	0	0	0	28	30	12	0	0	29	3	0	7	51	0	0	160	
7:50 AM	0	0	0	0	22	30	16	0	0	32	5	0	2	47	0	0	154	
7:55 AM	0	0	0	0	23	36	30	0	0	34	2	0	5	50	0	0	180	1518
8:00 AM	0	0	0	0	26	36	19	0	0	26	10	0	3	57	0	0	177	1593
8:05 AM	0	0	0	0	28	33	23	0	0	42	4	0	8	57	0	0	195	1696
8:10 AM	0	0	0	0	30	40	13	0	0	39	11	0	6	43	0	0	182	1781
8:15 AM	0	0	0	0	23	33	24	0	0	40	3	0	1	62	0	0	186	1880
8:20 AM	0	0	0	0	44	42	24	0	0	34	8	0	4	46	0	0	202	1958
8:25 AM	0	0	0	0	38	48	42	0	0	37	4	0	0	50	0	0	219	2069
8:30 AM	0	0	0	0	26	43	36	0	0	27	7	0	2	49	0	0	190	2134
8:35 AM	0	0	0	0	28	43	32	0	0	32	5	0	4	55	0	0	199	2190
8:40 AM	0	0	0	0	31	43	41	0	0	30	10	0	5	38	0	0	198	2242
8:45 AM	0	0	0	0	28	49	26	0	0	28	7	0	2	46	0	0	186	2268
8:50 AM	0	0	0	0	25	39	24	0	0	26	6	0	4	29	0	0	153	2267
8:55 AM	0	0	0	0	39	35	20	0	0	25	9	0	8	34	0	0	170	2257
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	0	0	0	432	532	408	0	0	392	76	0	24	580	0	0	2444	
Heavy Trucks	0	0	0	0	0	8	12	0	0	0	0	0	0	16	0	0	36	
Pedestrians		28				36				4				0			68	
Bicycles	0	0	0		1	1	0		0	6	0		0	4	0		12	
Railroad																		
Stopped Buses																		

Comments:



**LOCATION:** Brush St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998302  
**DATE:** Wed, May 29 2019



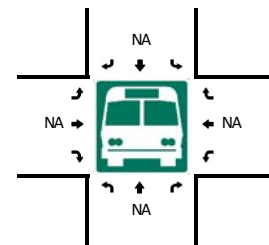
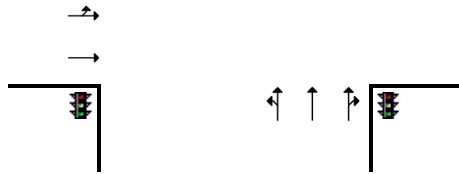
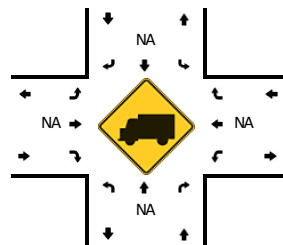
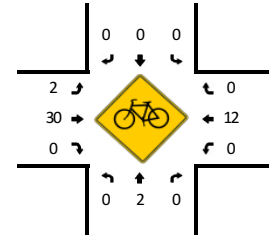
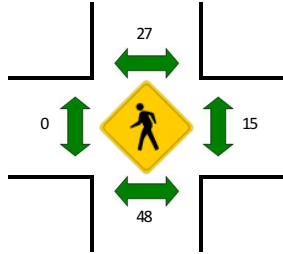
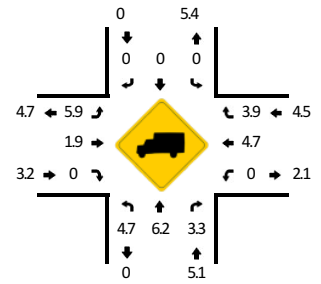
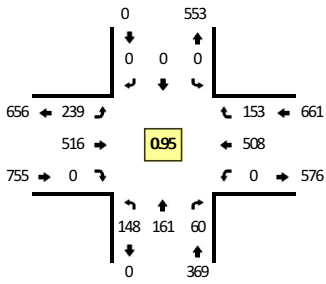
5-Min Count Period Beginning At	Brush St (Northbound)				Brush St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	12	15	10	0	0	33	6	0	6	30	0	0	112	
4:05 PM	0	0	0	0	15	17	11	0	0	28	6	0	6	16	0	0	99	
4:10 PM	0	0	0	0	6	27	17	0	0	24	20	0	4	23	0	0	121	
4:15 PM	0	0	0	0	15	17	10	0	0	36	8	0	0	17	0	0	103	
4:20 PM	0	0	0	0	10	21	17	0	0	34	7	0	3	15	0	0	107	
4:25 PM	0	0	0	0	10	12	6	0	0	42	13	0	2	18	0	0	103	
4:30 PM	0	0	0	0	12	16	9	0	0	44	10	0	3	24	0	0	118	
4:35 PM	0	0	0	0	19	18	13	0	0	46	6	0	4	21	0	0	127	
4:40 PM	0	0	0	0	9	19	12	0	0	47	9	0	2	23	0	0	121	
4:45 PM	0	0	0	0	11	24	11	0	0	43	10	0	2	26	0	0	127	
4:50 PM	0	0	0	0	14	13	11	0	0	58	10	0	5	19	0	0	130	
4:55 PM	0	0	0	0	13	26	12	0	0	62	11	0	4	25	0	0	153	1421
5:00 PM	0	0	0	0	14	24	8	0	0	42	10	0	2	28	0	0	128	1437
5:05 PM	0	0	0	0	8	23	14	0	0	42	12	0	7	31	0	0	137	1475
5:10 PM	0	0	0	0	15	25	11	0	0	50	22	0	2	32	0	0	157	1511
5:15 PM	0	0	0	0	13	23	11	0	0	51	14	0	2	34	0	0	148	1556
5:20 PM	0	0	0	0	12	17	12	0	0	40	10	0	4	22	0	0	117	1566
5:25 PM	0	0	0	0	14	31	11	0	0	44	9	0	4	19	0	0	132	1595
5:30 PM	0	0	0	0	12	22	14	0	0	26	11	0	3	20	0	0	108	1585
5:35 PM	0	0	0	0	26	30	9	0	0	43	12	0	5	23	0	0	148	1606
5:40 PM	0	0	0	0	15	22	7	0	0	46	7	0	5	30	0	0	132	1617
5:45 PM	0	0	0	0	16	29	17	0	0	54	14	0	4	17	0	0	151	1641
5:50 PM	0	0	0	0	14	26	14	0	0	38	14	0	4	18	0	0	128	1639
5:55 PM	0	0	0	0	21	23	18	0	0	36	9	0	8	25	0	0	140	1626
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	0	0	0	144	284	144	0	0	572	192	0	44	388	0	0	1768	
Heavy Trucks	0	0	0	0	0	0	4	0	0	16	4	0	0	8	0	0	32	
Pedestrians		92				68				24				0			184	
Bicycles	0	0	0		0	0	0		0	6	0		0	12	0		18	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Castro St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998303  
**DATE:** Wed, May 29 2019

**Peak-Hour: 7:45 AM -- 8:45 AM**  
**Peak 15-Min: 8:15 AM -- 8:30 AM**



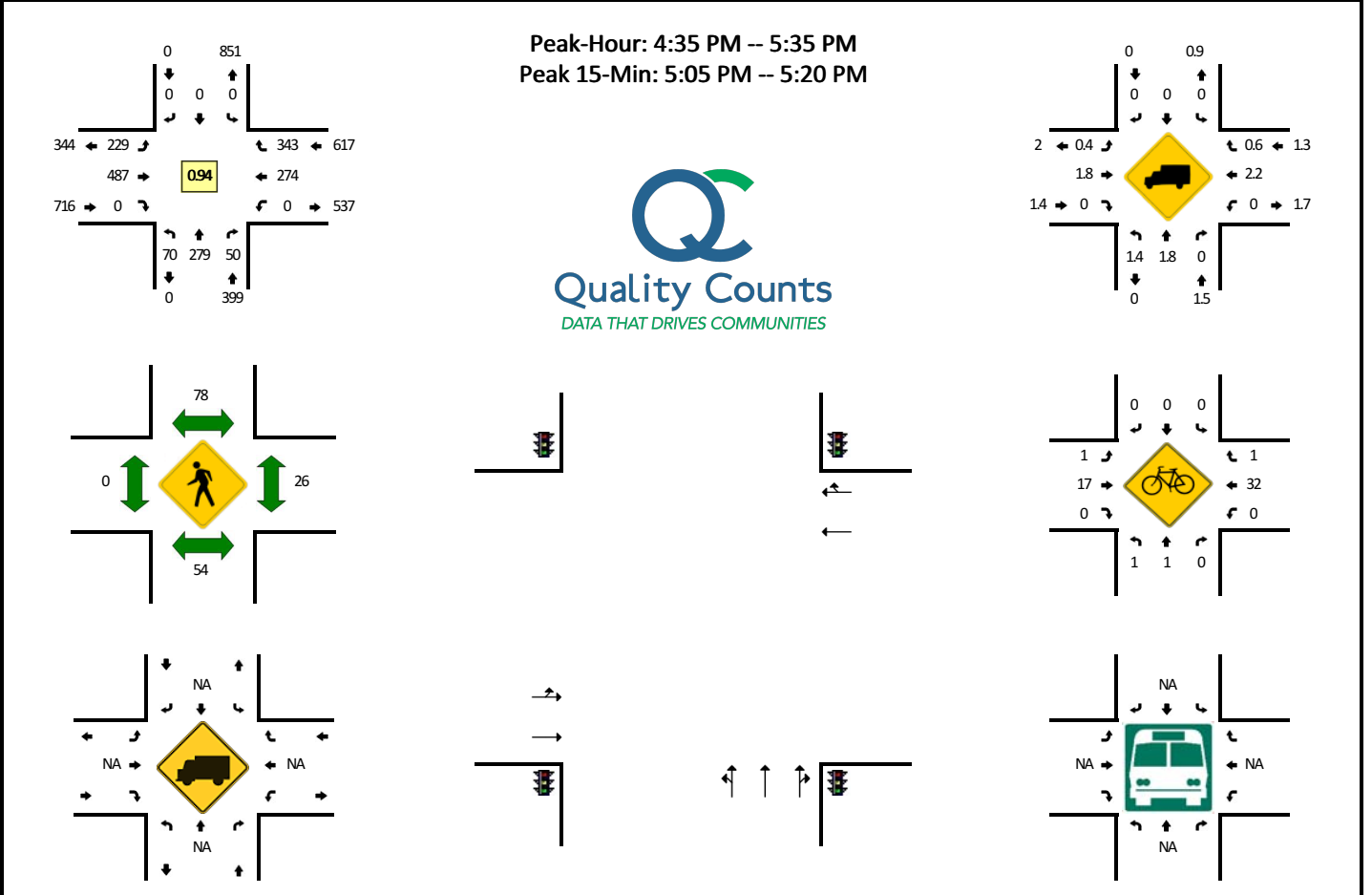
5-Min Count Period Beginning At	Castro St (Northbound)				Castro St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	1	3	0	0	0	0	0	4	31	0	0	0	13	7	0	62	
7:05 AM	9	8	2	0	0	0	0	0	11	20	0	0	0	15	6	0	71	
7:10 AM	10	9	3	0	0	0	0	0	12	23	0	0	0	16	11	0	84	
7:15 AM	11	3	2	0	0	0	0	0	6	33	0	0	0	11	9	0	75	
7:20 AM	18	9	4	0	0	0	0	0	11	31	0	0	0	20	12	0	105	
7:25 AM	16	6	2	0	0	0	0	0	8	23	0	0	0	22	9	0	86	
7:30 AM	15	10	2	0	0	0	0	0	11	27	0	0	0	24	11	0	100	
7:35 AM	19	7	1	0	0	0	0	0	17	45	0	0	0	30	12	0	131	
7:40 AM	8	7	0	0	0	0	0	0	16	36	0	0	0	39	17	0	123	
7:45 AM	16	17	0	0	0	0	0	0	15	40	0	0	0	39	12	0	139	
7:50 AM	14	12	6	0	0	0	0	0	19	40	0	0	0	40	10	0	141	
7:55 AM	9	10	1	0	0	0	0	0	22	35	0	0	0	49	14	0	140	1257
8:00 AM	11	15	4	0	0	0	0	0	12	43	0	0	0	42	11	0	138	1333
8:05 AM	11	11	4	0	0	0	0	0	32	37	0	0	0	56	13	0	164	1426
8:10 AM	7	15	6	0	0	0	0	0	21	39	0	0	0	54	8	0	150	1492
8:15 AM	9	11	8	0	0	0	0	0	25	47	0	0	0	40	12	0	152	1569
8:20 AM	14	13	6	0	0	0	0	0	24	55	0	0	0	40	13	0	165	1629
8:25 AM	12	17	5	0	0	0	0	0	21	50	0	0	0	40	10	0	155	1698
8:30 AM	12	8	3	0	0	0	0	0	15	41	0	0	0	41	15	0	135	1733
8:35 AM	17	18	12	0	0	0	0	0	14	46	0	0	0	35	15	0	157	1759
8:40 AM	16	14	5	0	0	0	0	0	19	43	0	0	0	32	20	0	149	1785
8:45 AM	15	15	5	0	0	0	0	0	18	38	0	0	0	29	11	0	131	1777
8:50 AM	9	10	3	0	0	0	0	0	32	38	0	0	0	30	19	0	141	1777
8:55 AM	13	19	4	0	0	0	0	0	13	48	0	0	0	23	14	0	134	1771
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	140	164	76	0	0	0	0	0	280	608	0	0	0	480	140	0	1888	
Heavy Trucks	0	8	0		0	0	0		20	12	0		0	28	4		72	
Pedestrians		36				32				0				16			84	
Bicycles	0	2	0		0	0	0		0	4	0		0	6	0		12	
Railroad																		
Stopped Buses																		

Comments:



**LOCATION:** Castro St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998304  
**DATE:** Wed, May 29 2019



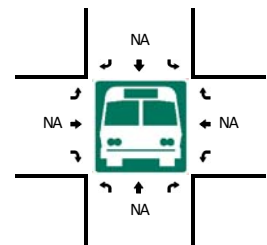
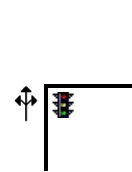
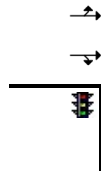
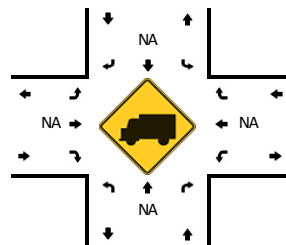
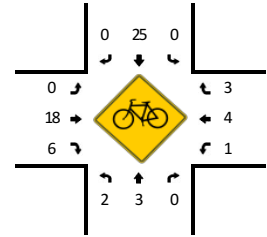
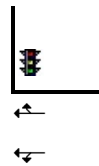
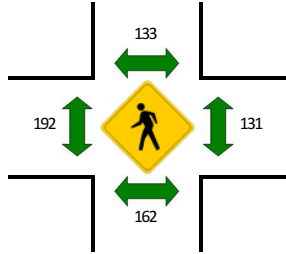
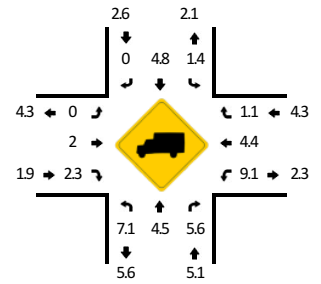
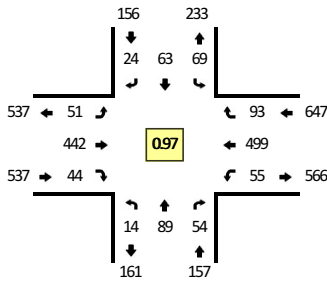
5-Min Count Period Beginning At	Castro St (Northbound)				Castro St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	19	4	0	0	0	0	0	18	24	0	0	0	28	19	0	117	
4:05 PM	1	18	5	0	0	0	0	0	12	35	0	0	0	21	19	0	111	
4:10 PM	6	25	4	0	0	0	0	0	17	16	0	0	0	21	27	0	116	
4:15 PM	3	13	5	0	0	0	0	0	9	31	0	0	0	14	19	0	94	
4:20 PM	2	19	2	0	0	0	0	0	22	30	0	0	0	17	31	0	123	
4:25 PM	4	15	2	0	0	0	0	0	19	36	0	0	0	17	20	0	113	
4:30 PM	7	21	5	0	0	0	0	0	11	36	0	0	0	19	25	0	124	
4:35 PM	4	22	3	0	0	0	0	0	27	43	0	0	0	22	30	0	151	
4:40 PM	3	20	5	0	0	0	0	0	11	49	0	0	0	22	25	0	135	
4:45 PM	9	17	7	0	0	0	0	0	14	40	0	0	0	19	37	0	143	
4:50 PM	9	23	5	0	0	0	0	0	26	38	0	0	0	15	29	0	145	
4:55 PM	5	25	3	0	0	0	0	0	25	55	0	0	0	26	18	0	157	
5:00 PM	6	22	2	0	0	0	0	0	18	38	0	0	0	26	23	0	135	
5:05 PM	9	22	5	0	0	0	0	0	21	29	0	0	0	27	35	0	148	
5:10 PM	4	24	3	0	0	0	0	0	18	42	0	0	0	31	34	0	156	
5:15 PM	10	22	3	0	0	0	0	0	25	45	0	0	0	28	22	0	155	
5:20 PM	3	41	6	0	0	0	0	0	13	39	0	0	0	21	23	0	146	
5:25 PM	2	21	3	0	0	0	0	0	15	39	0	0	0	20	25	0	125	
5:30 PM	6	20	5	0	0	0	0	0	16	30	0	0	0	17	42	0	136	
5:35 PM	3	20	3	0	0	0	0	0	13	51	0	0	0	28	22	0	140	
5:40 PM	6	13	3	0	0	0	0	0	9	54	0	0	0	29	25	0	139	
5:45 PM	6	24	5	0	0	0	0	0	13	57	0	0	0	14	29	0	148	
5:50 PM	2	18	1	0	0	0	0	0	15	45	0	0	0	20	21	0	122	
5:55 PM	8	23	7	0	0	0	0	0	17	37	0	0	0	26	23	0	141	
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	92	272	44	0	0	0	0	0	256	464	0	0	0	344	364	0	1836	
Heavy Trucks	4	0	0	0	0	0	0	0	4	12	0	0	0	8	0	0	28	
Pedestrians		80								0				28			220	
Bicycles	0	0	0		0	0	0		1	5	0		0	10	1		17	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Clay St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998305  
**DATE:** Wed, May 29 2019

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



5-Min Count Period Beginning At	Clay St (Northbound)				Clay St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	4	3	0	2	3	5	0	1	27	0	0	0	14	6	0	66	
7:05 AM	1	3	7	0	2	4	1	0	3	28	2	0	2	16	2	0	71	
7:10 AM	3	2	4	0	2	1	0	0	2	19	0	0	2	20	4	0	59	
7:15 AM	0	4	1	0	3	4	1	0	2	20	2	0	0	18	1	0	56	
7:20 AM	1	2	4	0	1	7	2	0	1	21	2	0	1	23	4	0	69	
7:25 AM	4	5	3	0	3	3	2	0	4	31	4	0	3	25	1	0	88	
7:30 AM	3	6	6	0	5	5	1	0	1	21	3	0	2	29	8	0	90	
7:35 AM	0	6	2	0	6	7	4	0	1	24	0	0	4	43	3	0	100	
7:40 AM	0	4	2	0	3	5	4	0	0	30	4	0	3	53	3	0	111	
7:45 AM	1	4	2	0	1	4	3	0	2	27	3	0	6	36	8	0	97	
7:50 AM	0	7	2	0	5	4	0	0	4	34	4	0	1	49	10	0	120	
7:55 AM	0	7	4	0	12	4	3	0	2	26	1	0	6	48	11	0	124	
8:00 AM	1	9	5	0	5	2	2	0	3	36	3	0	2	49	14	0	131	
8:05 AM	0	2	3	0	4	3	1	0	6	38	3	0	4	54	4	0	122	
8:10 AM	1	7	3	0	7	7	4	0	7	29	3	0	5	54	6	0	133	
8:15 AM	0	6	6	0	5	3	2	0	5	39	2	0	1	49	10	0	128	
8:20 AM	0	7	3	0	5	11	1	0	3	43	1	0	5	42	4	0	125	
8:25 AM	1	6	4	0	5	4	1	0	4	42	4	0	6	33	7	0	117	
8:30 AM	0	11	8	0	7	5	2	0	7	32	6	0	5	43	5	0	131	
8:35 AM	1	11	3	0	5	6	1	0	2	41	1	0	5	47	6	0	129	
8:40 AM	3	8	7	0	8	4	1	0	4	35	6	0	4	26	7	0	113	
8:45 AM	2	2	5	0	7	7	3	0	1	33	6	0	3	30	8	0	107	
8:50 AM	3	12	5	0	4	5	3	0	8	32	4	0	5	31	12	0	124	
8:55 AM	2	8	2	0	7	6	3	0	1	42	5	0	9	41	10	1	137	
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	8	72	44	0	64	48	28	0	64	412	36	0	44	628	96	0	1544	
Heavy Trucks	4	0	0		4	0	0		0	16	0		8	32	0		64	
Pedestrians		160				116				184				152			612	
Bicycles	1	0	0		0	6	0		0	2	0		0	1	0		10	
Railroad																		
Stopped Buses																		

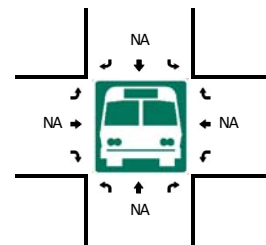
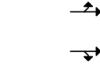
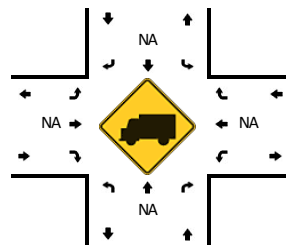
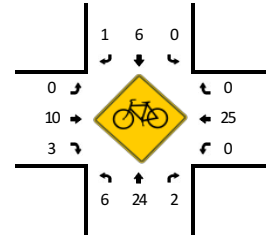
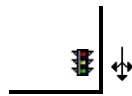
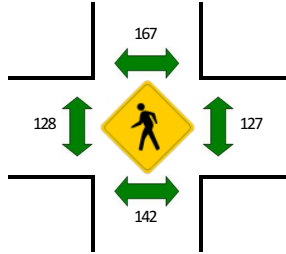
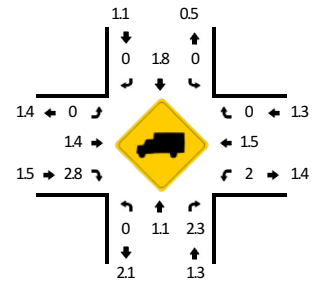
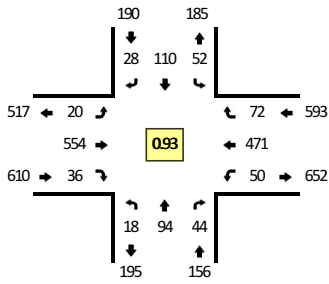
Comments:



**LOCATION:** Clay St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998306  
**DATE:** Wed, May 29 2019

**Peak-Hour: 4:50 PM -- 5:50 PM**  
**Peak 15-Min: 5:05 PM -- 5:20 PM**



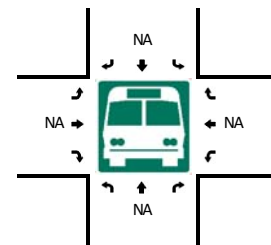
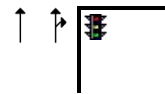
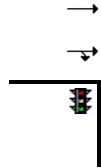
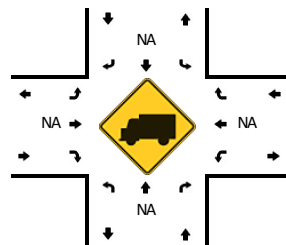
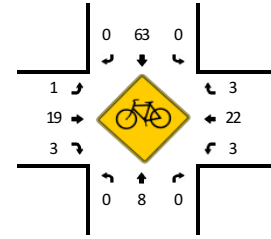
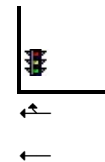
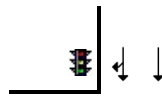
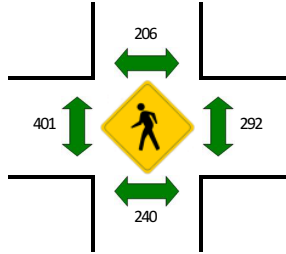
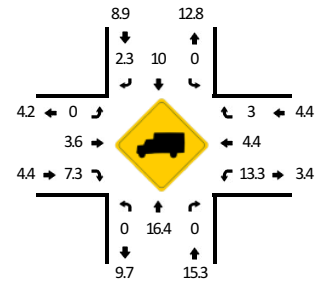
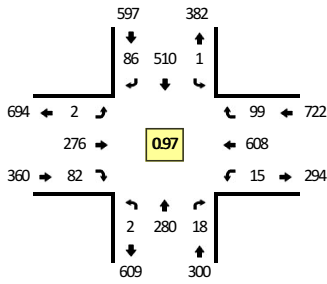
5-Min Count Period Beginning At	Clay St (Northbound)				Clay St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	5	4	0	5	6	3	0	2	27	3	0	2	27	4	0	90	
4:05 PM	3	5	5	0	5	10	3	0	1	39	0	0	3	31	3	0	108	
4:10 PM	3	4	4	0	4	7	3	0	2	23	1	0	2	39	3	0	95	
4:15 PM	2	11	4	0	3	9	3	0	0	27	4	0	0	19	1	0	83	
4:20 PM	1	4	5	0	9	10	3	0	2	34	4	0	2	38	6	0	118	
4:25 PM	4	4	4	0	6	8	3	0	2	35	4	0	8	30	4	0	112	
4:30 PM	2	11	2	0	5	9	3	0	1	45	6	0	1	34	8	0	127	
4:35 PM	2	9	4	0	5	5	7	0	5	41	3	0	1	29	5	0	116	
4:40 PM	2	5	2	0	7	12	3	0	4	50	2	0	3	37	5	0	132	
4:45 PM	0	7	1	0	7	4	2	0	0	43	2	0	3	43	4	0	116	
4:50 PM	4	4	4	0	6	6	0	0	4	58	3	0	1	34	2	0	126	
4:55 PM	2	13	5	0	4	4	4	0	0	43	3	0	3	35	3	0	119	1342
5:00 PM	1	8	2	0	3	7	5	0	1	41	2	0	3	41	9	0	123	1375
5:05 PM	2	2	2	0	3	11	5	0	1	35	5	0	6	48	7	0	127	1394
5:10 PM	0	14	3	0	5	6	3	0	2	47	2	0	2	44	8	0	136	1435
5:15 PM	0	14	4	0	3	12	3	0	2	51	3	0	6	47	7	0	152	1504
5:20 PM	0	8	4	0	4	10	2	0	2	49	1	0	5	36	4	0	125	1511
5:25 PM	1	7	2	0	3	6	0	0	2	48	4	0	5	33	9	0	120	1519
5:30 PM	4	3	4	1	6	6	2	0	4	36	2	0	1	44	8	0	121	1513
5:35 PM	1	5	5	0	3	14	1	0	0	38	4	0	4	40	7	1	123	1520
5:40 PM	0	6	6	0	6	13	1	0	1	54	4	0	7	36	5	1	140	1528
5:45 PM	2	10	3	0	6	15	2	0	0	54	3	1	5	33	3	0	137	1549
5:50 PM	1	5	2	0	3	9	1	0	1	48	4	0	7	35	10	0	126	1549
5:55 PM	3	8	4	1	1	6	2	0	3	42	3	0	1	36	4	0	114	1544
Peak 15-Min Flows	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	8	120	36	0	44	116	44	0	20	532	40	0	56	556	88	0	1660	
Heavy Trucks	0	0	0	0	0	0	0	0	0	12	4	0	0	8	0	0	24	
Pedestrians		148				172				160				120			600	
Bicycles	3	12	0		0	0	1		0	6	0		0	8	0		30	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Broadway -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998307  
**DATE:** Wed, May 29 2019

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



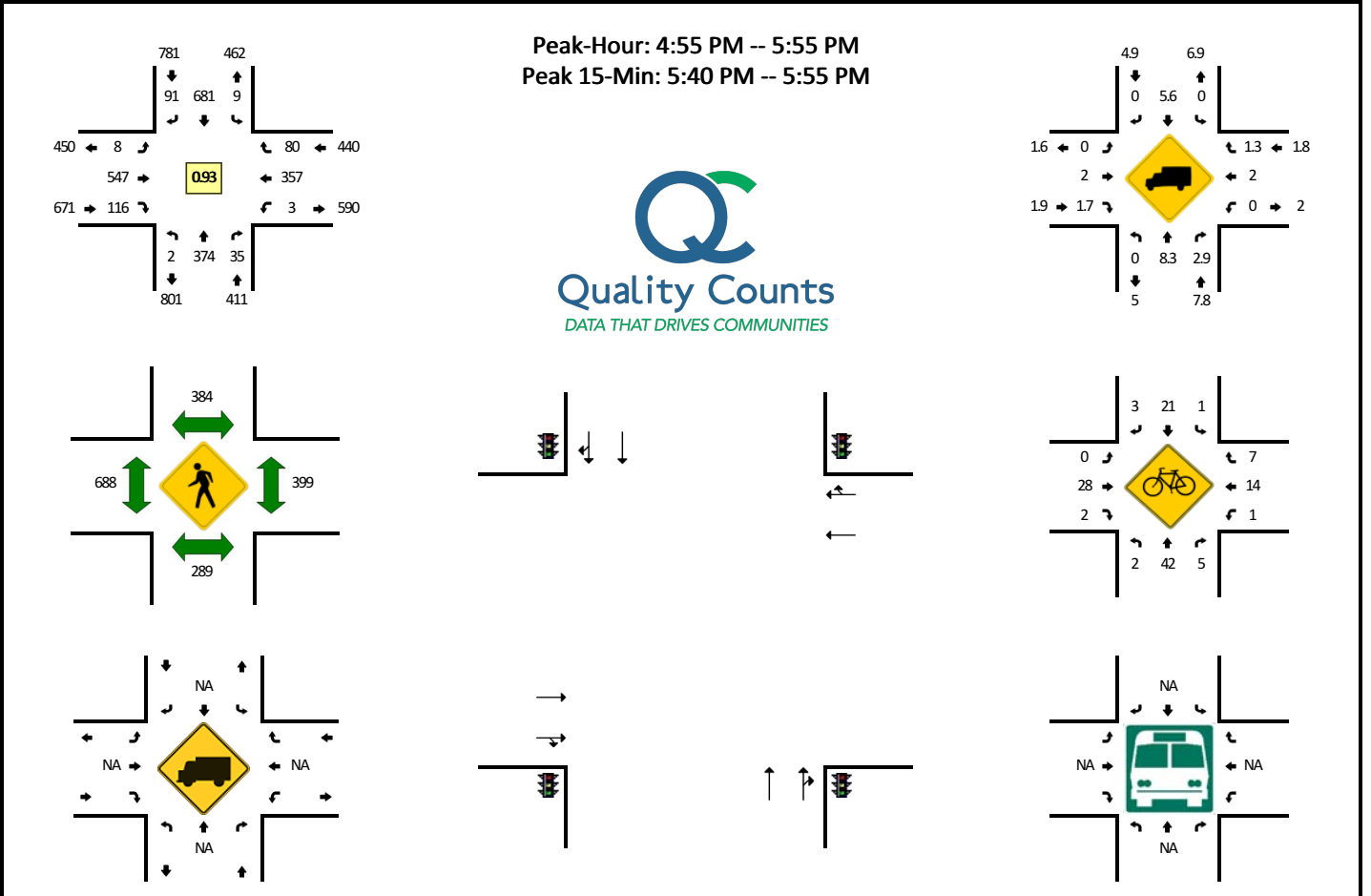
5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	15	1	0	0	22	2	0	0	18	5	0	1	16	1	0	81	
7:05 AM	0	22	3	0	0	31	9	0	0	18	6	0	1	16	6	0	112	
7:10 AM	0	25	3	0	0	26	3	0	0	9	5	0	0	19	5	0	95	
7:15 AM	0	19	1	0	0	21	3	0	1	22	3	0	2	22	8	0	102	
7:20 AM	0	18	2	0	0	32	7	0	0	12	4	0	0	18	2	0	95	
7:25 AM	0	18	0	0	0	23	3	0	0	21	7	0	0	28	5	0	105	
7:30 AM	0	21	2	0	0	21	3	0	0	15	6	0	2	36	12	0	118	
7:35 AM	0	22	3	0	0	40	8	0	0	14	3	0	1	52	3	0	146	
7:40 AM	0	23	2	0	0	43	9	0	0	14	4	0	1	46	7	0	149	
7:45 AM	0	19	3	0	0	29	6	0	0	11	3	0	2	47	9	0	129	
7:50 AM	0	20	1	0	1	32	4	0	0	30	5	0	1	67	9	0	170	
7:55 AM	0	22	0	0	0	30	10	0	1	16	9	0	3	60	5	0	156	1458
8:00 AM	0	23	1	0	0	35	6	0	0	23	1	0	3	60	8	0	160	1537
8:05 AM	0	12	2	0	0	50	3	0	0	28	7	0	0	75	11	0	188	1613
8:10 AM	0	15	1	0	0	34	8	1	0	16	2	0	4	55	13	0	149	1667
8:15 AM	0	29	0	0	0	41	12	0	0	25	6	0	0	41	3	0	157	1722
8:20 AM	0	30	0	0	0	36	7	0	2	23	8	0	1	50	7	0	164	1791
8:25 AM	0	19	4	0	0	46	4	0	0	32	8	0	0	59	10	0	182	1868
8:30 AM	0	33	1	0	0	37	5	0	0	19	8	0	1	41	9	0	154	1904
8:35 AM	0	26	3	0	0	56	10	0	0	22	5	0	1	46	7	0	176	1934
8:40 AM	0	28	3	1	0	40	7	0	0	18	7	0	4	44	10	0	162	1947
8:45 AM	0	15	0	1	0	43	10	0	0	22	13	0	0	43	8	0	155	1973
8:50 AM	0	26	2	0	0	54	6	0	0	24	9	0	1	45	6	0	173	1976
8:55 AM	0	24	1	0	0	38	8	0	0	24	8	0	0	49	7	0	159	1979
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	312	32	0	0	556	76	0	0	292	84	0	8	584	104	0	2048	
Heavy Trucks	0	40	0		0	60	0		0	8	12		4	20	0		144	
Pedestrians		276				232				428				316			1252	
Bicycles	0	3	0		0	12	0		0	3	0		0	8	3		29	
Railroad																		
Stopped Buses																		

Comments:



**LOCATION:** Broadway -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998308  
**DATE:** Wed, May 29 2019



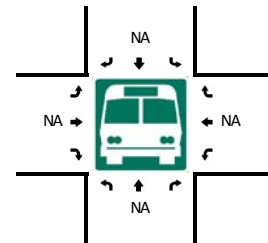
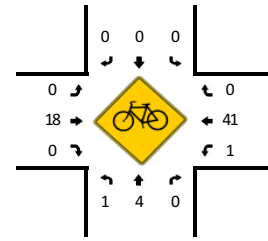
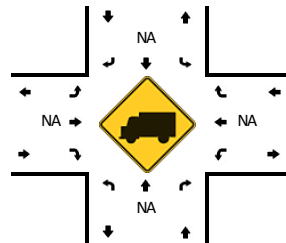
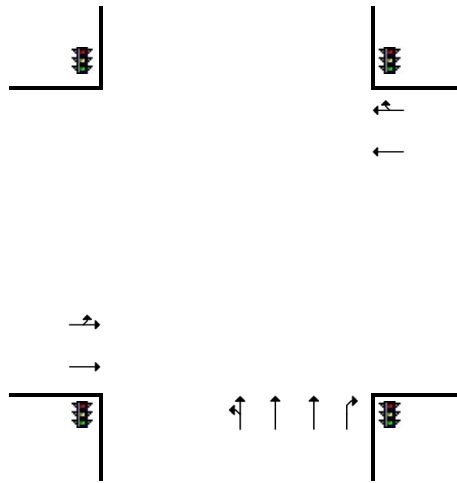
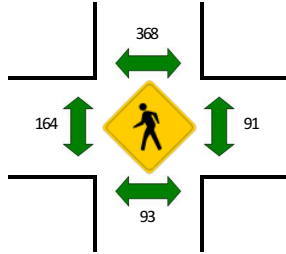
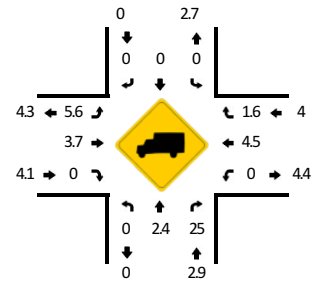
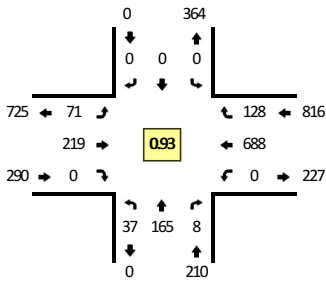
5-Min Count Period Beginning At	Broadway (Northbound)				Broadway (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	17	1	0	0	32	5	0	0	33	7	0	0	24	4	0	123	
4:05 PM	0	33	4	0	0	43	6	1	0	34	6	0	0	17	7	0	151	
4:10 PM	0	25	1	0	0	61	3	0	0	32	9	0	1	31	6	0	169	
4:15 PM	0	29	3	0	0	47	3	0	1	27	5	0	2	11	7	0	135	
4:20 PM	0	27	1	0	1	59	8	0	2	40	8	0	0	29	8	0	183	
4:25 PM	0	30	2	0	1	59	6	0	1	35	6	0	0	21	8	0	169	
4:30 PM	0	21	0	0	1	45	7	0	0	52	7	0	1	26	6	0	166	
4:35 PM	0	26	1	0	1	61	4	0	0	45	10	0	0	24	12	0	184	
4:40 PM	0	28	3	0	0	69	7	0	1	48	4	0	1	23	9	0	193	
4:45 PM	0	31	3	0	0	65	18	0	0	34	10	0	0	23	11	0	195	
4:50 PM	0	29	3	0	0	51	7	0	1	59	15	0	0	19	14	0	198	
4:55 PM	0	36	2	0	0	56	2	0	1	51	11	0	1	32	10	0	202	2068
5:00 PM	0	27	2	0	0	63	8	0	0	41	10	0	0	28	9	0	188	2133
5:05 PM	0	34	2	0	0	58	14	0	0	33	8	0	0	30	5	0	184	2166
5:10 PM	0	28	5	0	0	41	4	0	0	45	10	0	0	43	4	0	180	2177
5:15 PM	1	29	4	1	2	63	7	0	2	52	7	0	0	26	10	0	204	2246
5:20 PM	0	37	2	0	0	71	11	0	2	40	12	0	0	24	6	0	205	2268
5:25 PM	0	27	2	0	0	55	7	0	1	49	12	1	0	30	3	0	187	2286
5:30 PM	0	30	2	0	1	47	9	0	0	37	7	0	0	27	14	0	174	2294
5:35 PM	0	23	4	0	2	53	5	0	0	32	9	0	0	29	5	0	162	2272
5:40 PM	0	36	5	0	1	58	8	1	1	48	12	0	1	27	5	0	203	2282
5:45 PM	0	27	2	0	1	61	6	0	0	65	8	0	1	36	3	0	210	2297
5:50 PM	0	40	3	0	1	55	10	0	0	54	10	0	0	25	6	0	204	2303
5:55 PM	0	25	3	0	0	58	2	0	0	43	8	0	0	30	4	0	173	2274
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	412	40	0	12	696	96	4	4	668	120	0	8	352	56	0	2468	
Heavy Trucks	0	36	0		0	52	0		0	12	4		0	12	0		116	
Pedestrians		264				340				624				364			1592	
Bicycles		13	0		0	9	1		0	4	1		0	4	3		35	
Railroad																		
Stopped Buses																		

*Comments:*

**LOCATION:** Franklin St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998309  
**DATE:** Wed, May 29 2019

**Peak-Hour: 7:55 AM -- 8:55 AM**  
**Peak 15-Min: 7:55 AM -- 8:10 AM**



5-Min Count Period Beginning At	Franklin St (Northbound)				Franklin St (Southbound)				14th St (Eastbound)				14th 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	7	0	0	0	0	0	0	4	15	0	0	0	19	1	0	46	
7:05 AM	0	6	2	0	0	0	0	0	2	19	0	0	0	22	5	0	56	
7:10 AM	0	5	0	0	0	0	0	0	6	4	0	0	0	24	6	0	45	
7:15 AM	1	7	0	0	0	0	0	0	6	10	0	0	0	26	8	0	58	
7:20 AM	0	4	0	0	0	0	0	0	4	16	0	0	0	27	7	0	58	
7:25 AM	0	8	1	0	0	0	0	0	5	15	0	0	0	41	9	0	79	
7:30 AM	1	5	1	0	0	0	0	0	4	12	0	0	0	47	10	0	80	
7:35 AM	0	4	1	0	0	0	0	0	6	10	0	0	0	53	8	0	82	
7:40 AM	1	7	1	0	0	0	0	0	5	11	0	0	0	63	19	0	107	
7:45 AM	2	6	1	0	0	0	0	0	2	16	0	0	0	60	10	0	97	
7:50 AM	2	7	1	0	0	0	0	0	4	25	0	0	0	67	16	0	122	
7:55 AM	3	12	2	0	0	0	0	0	2	15	0	0	0	68	11	0	113	943
8:00 AM	3	14	0	0	0	0	0	0	7	19	0	0	0	70	9	0	122	1019
8:05 AM	4	8	1	0	0	0	0	0	8	20	0	0	0	71	7	0	119	1082
8:10 AM	3	14	0	0	0	0	0	0	6	12	0	0	0	62	8	0	105	1142
8:15 AM	2	14	0	0	0	0	0	0	4	22	0	0	0	53	7	0	102	1186
8:20 AM	3	10	1	0	0	0	0	0	7	17	0	0	0	62	12	0	112	1240
8:25 AM	4	18	1	0	0	0	0	0	10	24	0	0	0	50	12	0	119	1280
8:30 AM	2	16	0	0	0	0	0	0	2	17	0	0	0	51	6	0	94	1294
8:35 AM	1	15	1	0	0	0	0	0	5	19	0	0	0	53	8	0	102	1314
8:40 AM	6	16	0	0	0	0	0	0	7	14	0	0	0	44	17	0	104	1311
8:45 AM	2	14	0	0	0	0	0	0	5	15	0	0	0	52	12	0	100	1314
8:50 AM	4	14	2	0	0	0	0	0	8	25	0	0	0	52	19	0	124	1316
8:55 AM	4	10	2	0	0	0	0	0	12	12	1	0	0	54	10	0	105	1308
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	40	136	12	0	0	0	0	0	68	216	0	0	0	836	108	0	1416	
Heavy Trucks	0	4	4		0	0	0		8	4	0		0	44	0		64	
Pedestrians		104					308			116				68			596	
Bicycles	0	0	0		0	0	0		0	6	0		1	4	0		11	
Railroad																		
Stopped Buses																		

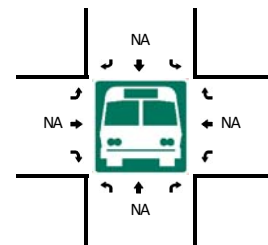
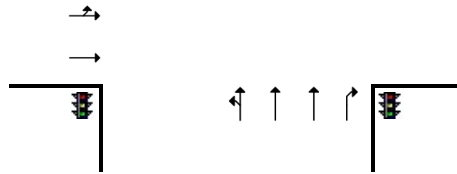
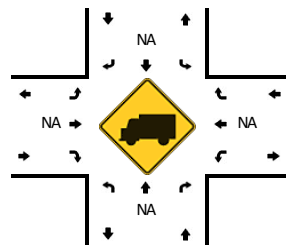
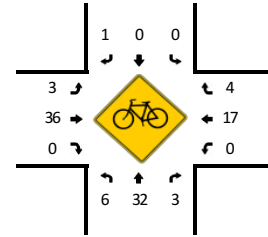
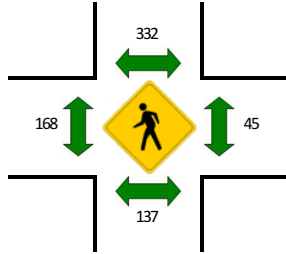
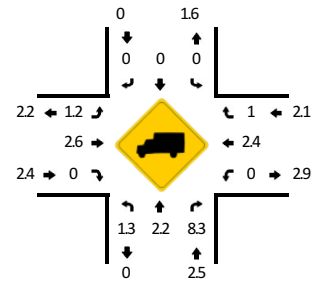
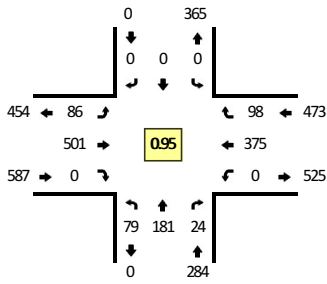
Comments:



**LOCATION:** Franklin St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998310  
**DATE:** Wed, May 29 2019

**Peak-Hour: 4:50 PM -- 5:50 PM**  
**Peak 15-Min: 5:15 PM -- 5:30 PM**

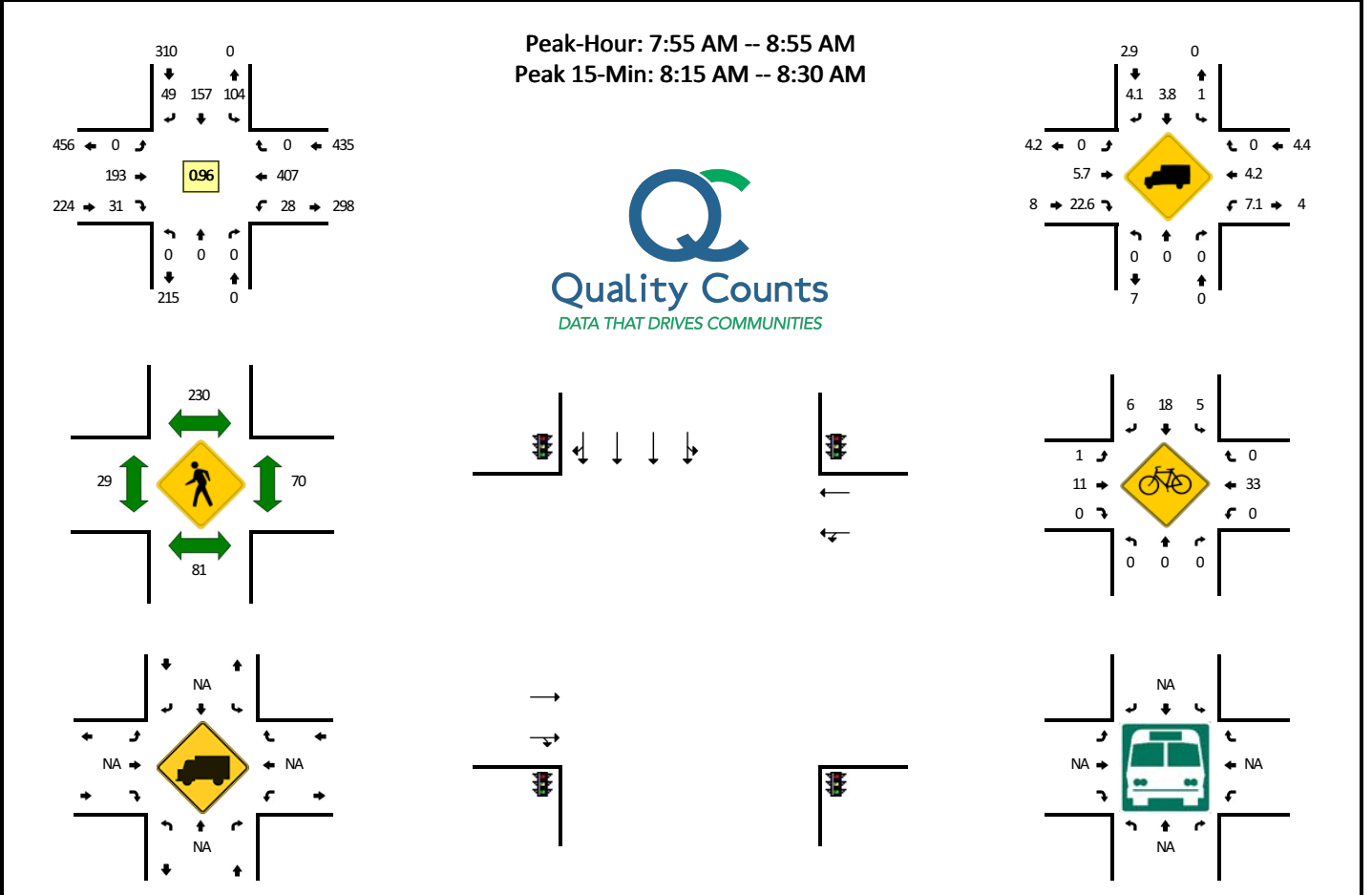


5-Min Count Period Beginning At	Franklin St (Northbound)				Franklin St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	9	3	0	0	0	0	0	7	28	0	0	0	17	5	0	76	
4:05 PM	8	13	2	0	0	0	0	0	6	30	0	0	0	18	9	0	86	
4:10 PM	2	7	1	0	0	0	0	0	1	31	0	0	0	39	4	0	85	
4:15 PM	0	0	0	0	0	0	0	0	2	26	0	0	0	27	16	0	71	
4:20 PM	3	2	1	0	0	0	0	0	2	39	0	0	0	25	8	0	80	
4:25 PM	6	12	2	0	0	0	0	0	7	31	0	0	0	25	8	0	91	
4:30 PM	2	10	1	0	0	0	0	0	3	45	0	0	0	31	8	0	100	
4:35 PM	4	14	0	0	0	0	0	0	7	39	0	0	0	24	2	0	90	
4:40 PM	7	12	3	0	0	0	0	0	8	47	0	0	0	31	5	0	113	
4:45 PM	9	10	1	0	0	0	0	0	4	32	0	1	0	26	13	0	96	
4:50 PM	3	13	1	0	0	0	0	0	6	50	0	0	0	26	8	0	107	
4:55 PM	11	15	1	0	0	0	0	0	9	49	0	0	0	31	10	0	126	1121
5:00 PM	10	19	4	0	0	0	0	0	8	33	0	0	0	33	7	0	114	1159
5:05 PM	5	12	1	0	0	0	0	0	6	31	0	0	0	37	8	0	100	1173
5:10 PM	4	13	2	0	0	0	0	0	5	39	0	0	0	34	12	0	109	1197
5:15 PM	2	16	3	0	0	0	0	0	7	58	0	0	0	39	14	0	139	1265
5:20 PM	12	20	4	0	0	0	0	0	5	37	0	0	0	23	5	0	106	1291
5:25 PM	7	18	4	0	0	0	0	0	7	41	0	0	0	25	8	0	110	1310
5:30 PM	7	14	0	0	0	0	0	0	6	33	0	0	0	30	5	0	95	1305
5:35 PM	3	13	0	0	0	0	0	0	6	36	0	0	0	32	7	0	97	1312
5:40 PM	5	7	4	0	0	0	0	0	12	46	0	0	0	31	8	0	113	1312
5:45 PM	10	21	0	0	0	0	0	0	9	48	0	0	0	34	6	0	128	1344
5:50 PM	2	11	2	0	0	0	0	0	11	52	0	0	0	23	4	0	105	1342
5:55 PM	8	14	3	0	0	0	0	0	10	38	0	0	0	29	7	0	109	1325
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	84	216	44	0	0	0	0	0	76	544	0	0	0	348	108	0	1420	
Heavy Trucks	0	4	8	0	0	0	0	0	0	8	0	0	0	0	0	0	20	
Pedestrians	0	144	0	0	0	392	0	0	0	164	0	0	0	48	0	0	748	
Bicycles	0	14	0	0	0	0	0	0	0	8	0	0	0	2	3	0	27	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Webster St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998311  
**DATE:** Thu, Jun 6 2019



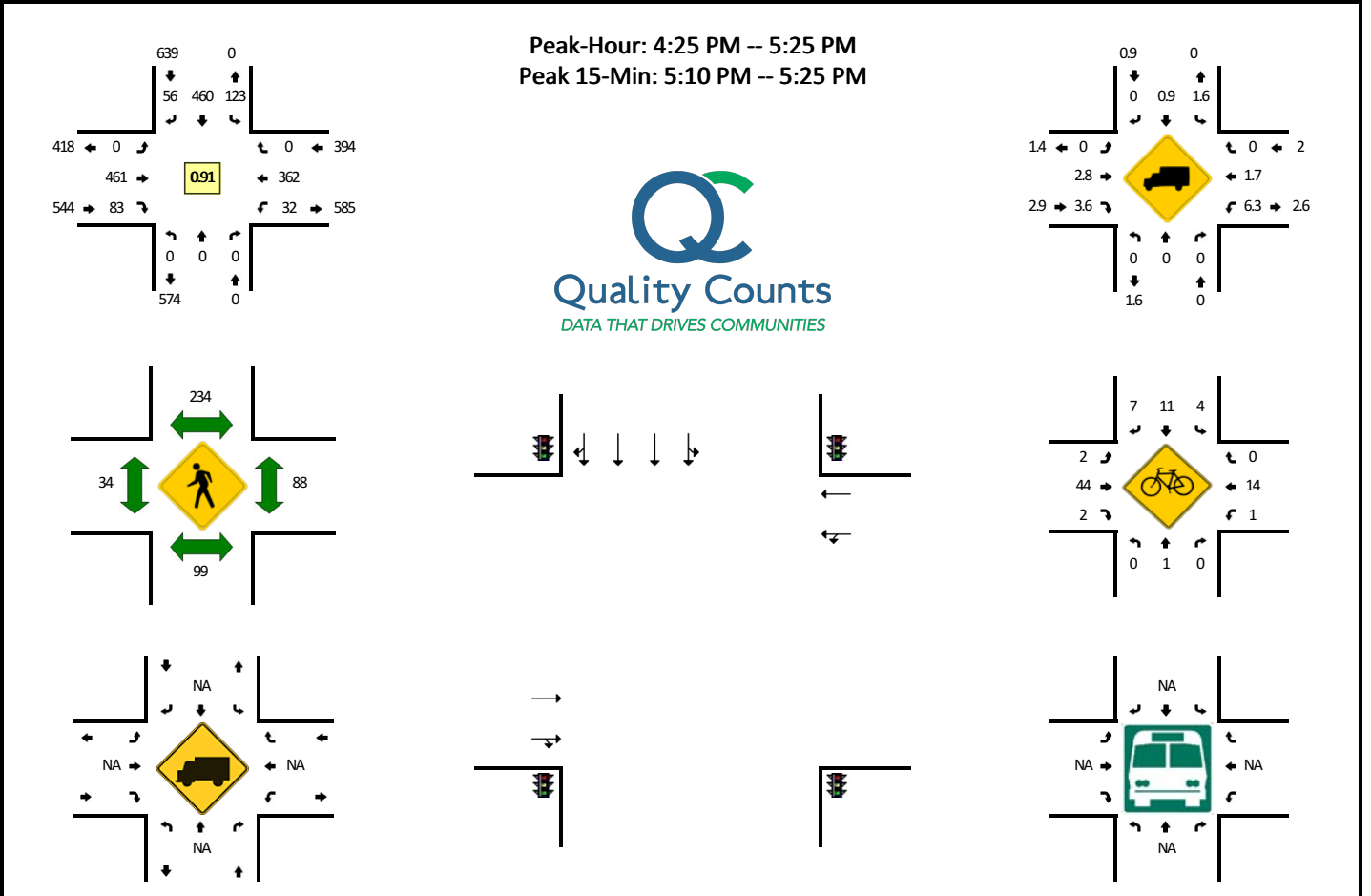
5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
7:00 AM	0	0	0	0	0	8	0	0	0	0	8	0	0	3	17	0	0	36	
7:05 AM	0	0	0	0	1	4	0	0	0	0	11	0	0	2	12	0	0	30	
7:10 AM	0	0	0	0	1	2	1	0	0	0	11	1	0	1	10	0	0	27	
7:15 AM	0	0	0	0	0	7	1	0	0	0	11	0	0	1	25	0	0	45	
7:20 AM	0	0	0	0	3	8	3	0	0	0	10	2	0	1	24	0	0	51	
7:25 AM	0	0	0	0	1	10	0	0	0	0	7	2	0	2	21	0	0	43	
7:30 AM	0	0	0	0	4	8	1	0	0	0	14	5	0	1	26	0	0	59	
7:35 AM	0	0	0	0	4	12	3	0	0	0	7	2	0	1	26	0	0	55	
7:40 AM	0	0	0	0	1	13	1	0	0	0	15	2	0	3	36	0	0	71	
7:45 AM	0	0	0	0	2	7	1	0	0	0	17	1	0	2	29	0	0	59	
7:50 AM	0	0	0	0	5	23	2	0	0	0	19	3	0	1	23	0	0	76	
7:55 AM	0	0	0	0	9	13	2	0	0	0	16	4	0	3	49	0	0	96	648
8:00 AM	0	0	0	0	4	15	6	0	0	0	19	5	0	2	30	0	0	81	693
8:05 AM	0	0	0	0	12	6	7	0	0	0	15	0	0	2	27	0	1	70	733
8:10 AM	0	0	0	0	13	8	7	0	0	0	24	0	0	1	30	0	0	83	789
8:15 AM	0	0	0	0	8	10	2	0	0	0	12	2	0	2	36	0	0	72	816
8:20 AM	0	0	0	0	10	16	6	0	0	0	21	2	0	2	39	0	0	96	861
8:25 AM	0	0	0	0	18	16	3	0	0	0	15	1	0	3	29	0	0	85	903
8:30 AM	0	0	0	0	8	11	5	0	0	0	13	5	0	0	29	0	0	71	915
8:35 AM	0	0	0	0	5	15	1	0	0	0	20	3	0	2	34	0	0	80	940
8:40 AM	0	0	0	0	7	18	1	0	0	0	11	3	0	2	32	0	0	74	943
8:45 AM	0	0	0	0	5	15	3	0	0	0	13	4	0	5	29	0	0	74	958
8:50 AM	0	0	0	0	5	14	6	0	0	0	14	2	0	3	43	0	0	87	969
8:55 AM	0	0	0	0	8	18	2	0	0	0	14	2	0	5	25	0	0	74	947
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	0	0	0	144	168	44	0	0	192	20	0	28	416	0	0	1012		
Heavy Trucks	0	0	0	0	0	4	4	0	0	16	12	0	4	20	0	0	60		
Pedestrians		76				280				8				64			428		
Bicycles	0	0	0		1	8	2		1	0	0		0	6	0		18		
Railroad																			
Stopped Buses																			

Comments: Construction from (7:40am – 4:45pm) and 1 lane was coned off. There was no noticeable impact on traffic volume.



**LOCATION:** Webster St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998312  
**DATE:** Thu, Jun 6 2019

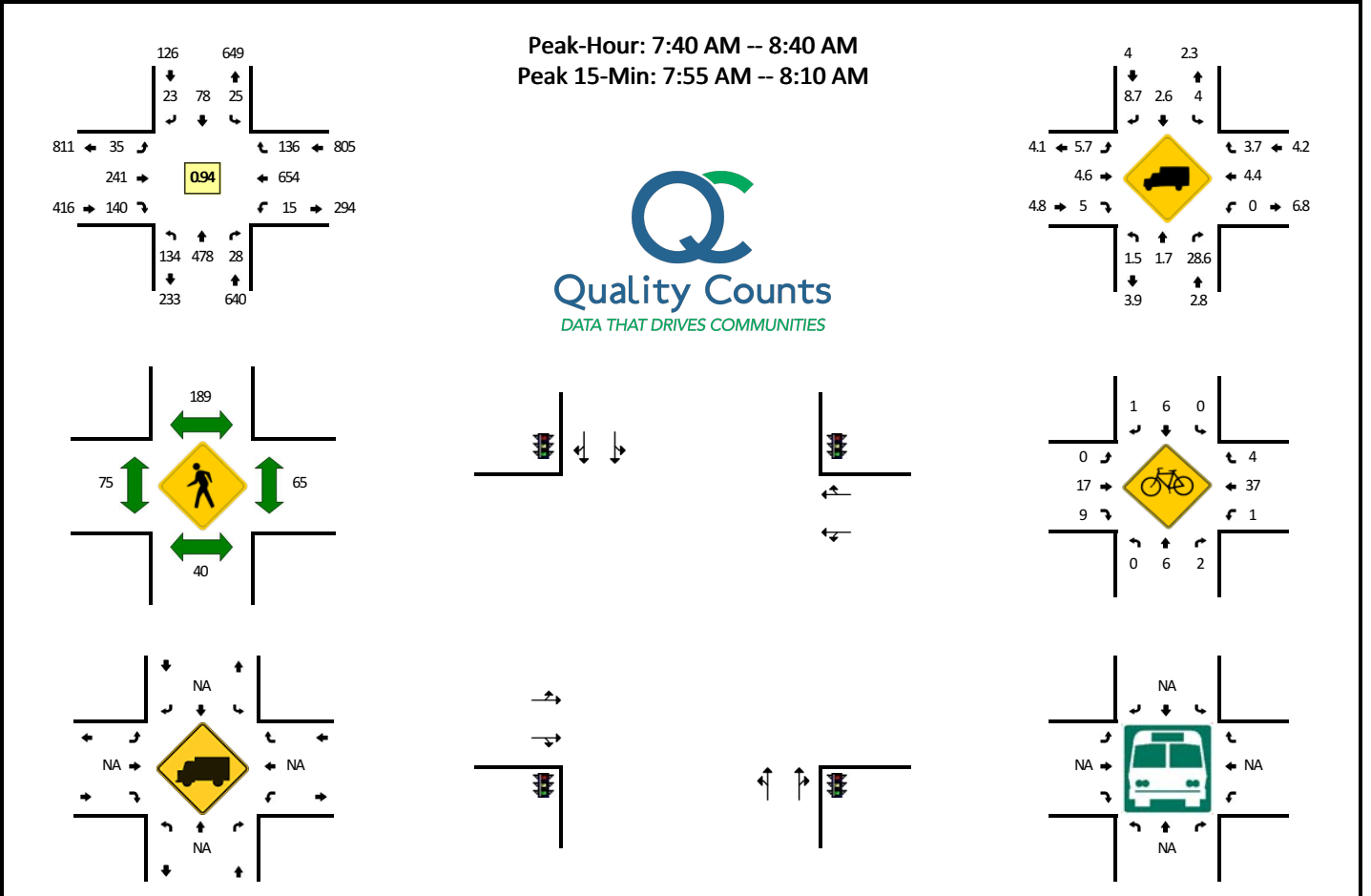


5-Min Count Period Beginning At	Webster St (Northbound)				Webster St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	7	17	7	0	0	26	2	0	1	30	0	0	90	
4:05 PM	0	0	0	0	19	32	7	0	0	20	6	0	3	24	0	0	111	
4:10 PM	0	0	0	0	24	37	1	0	0	32	6	0	4	20	0	0	124	
4:15 PM	0	0	0	0	6	16	2	0	0	43	3	0	1	28	0	0	99	
4:20 PM	0	0	0	0	13	26	7	0	0	34	3	0	0	25	0	0	108	
4:25 PM	0	0	0	0	13	33	4	0	0	42	4	0	4	32	0	0	132	
4:30 PM	0	0	0	0	7	24	2	0	0	45	2	0	3	47	0	1	131	
4:35 PM	0	0	0	0	15	35	6	0	0	38	6	0	4	28	0	0	132	
4:40 PM	0	0	0	0	11	32	4	0	0	47	7	0	0	31	0	0	132	
4:45 PM	0	0	0	0	8	37	3	0	0	40	9	0	1	27	0	0	125	
4:50 PM	0	0	0	0	5	38	3	0	0	29	10	0	5	28	0	0	118	
4:55 PM	0	0	0	0	5	53	4	0	0	30	6	0	4	31	0	0	133	
5:00 PM	0	0	0	0	12	33	6	0	0	27	5	0	2	24	0	0	109	
5:05 PM	0	0	0	0	11	41	5	0	0	36	5	0	3	29	0	0	130	
5:10 PM	0	0	0	0	13	54	7	0	0	36	11	0	2	31	0	0	154	
5:15 PM	0	0	0	0	12	37	7	0	0	47	12	0	2	23	0	0	140	
5:20 PM	0	0	0	0	11	43	5	0	0	44	6	0	1	31	0	0	141	
5:25 PM	0	0	0	0	13	31	4	0	0	34	8	0	3	31	0	0	124	
5:30 PM	0	0	0	0	9	37	6	0	0	47	10	0	2	25	0	0	136	
5:35 PM	0	0	0	0	11	31	8	0	0	37	2	0	2	23	0	0	114	
5:40 PM	0	0	0	0	7	33	3	0	0	44	8	0	2	17	0	0	114	
5:45 PM	0	0	0	0	10	28	7	0	0	38	4	0	3	21	0	0	111	
5:50 PM	0	0	0	0	12	34	5	0	0	36	8	0	3	30	0	0	128	
5:55 PM	0	0	0	0	6	19	7	0	0	20	4	0	8	29	0	1	94	
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	0	0	0	144	536	76	0	0	508	116	0	20	340	0	0	1740	
Heavy Trucks	0	0	0	0	0	8	0	0	0	8	0	0	0	4	0	0	20	
Pedestrians		124				260				24				120			528	
Bicycles	0	0	0		2	2	0		0	14	1		1	3	0		23	
Railroad																		
Stopped Buses																		

Comments: Construction from (7:40am - 4:45pm) and 1 lane was coned off. There was no noticeable impact on traffic volume.

**LOCATION:** Harrison St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998313  
**DATE:** Wed, May 29 2019



5-Min Count Period Beginning At	Harrison St (Northbound)				Harrison St (Southbound)				14th St (Eastbound)				14th 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	22	1	0	1	4	1	0	1	8	2	1	0	12	7	0	63	
7:05 AM	5	22	0	0	1	5	1	0	4	20	8	0	0	24	3	0	93	
7:10 AM	9	31	4	0	1	1	4	0	1	7	9	0	3	16	7	0	93	
7:15 AM	7	25	0	0	1	5	0	0	1	9	6	0	1	27	9	0	91	
7:20 AM	8	28	3	0	1	0	4	0	2	14	8	0	0	19	9	0	96	
7:25 AM	12	43	0	0	1	5	0	0	3	16	3	0	0	31	9	0	123	
7:30 AM	13	31	1	0	0	3	1	0	7	8	12	1	0	44	6	0	127	
7:35 AM	16	26	0	0	1	8	3	0	5	8	8	0	1	38	9	0	123	
7:40 AM	22	53	3	0	0	5	3	0	0	14	9	0	1	60	7	0	177	
7:45 AM	12	33	4	0	0	3	1	0	4	13	10	0	1	65	14	0	160	
7:50 AM	20	35	2	0	2	5	5	0	3	18	11	0	1	42	11	0	155	
7:55 AM	13	37	0	0	4	4	1	0	3	20	17	0	3	65	16	0	183	1484
8:00 AM	10	41	2	0	4	6	4	0	3	23	9	0	2	68	9	0	181	1602
8:05 AM	11	38	1	0	4	12	3	0	1	21	12	0	1	52	10	0	166	1675
8:10 AM	14	40	4	0	1	7	0	0	3	13	14	0	2	58	10	0	166	1748
8:15 AM	10	33	2	0	2	7	1	0	1	20	13	0	0	45	13	0	147	1804
8:20 AM	5	44	1	0	2	10	2	0	4	18	14	0	1	54	16	0	171	1879
8:25 AM	6	38	3	0	2	8	1	0	4	37	14	0	2	51	13	0	179	1935
8:30 AM	3	53	3	0	2	7	0	0	4	23	6	0	1	44	9	0	155	1963
8:35 AM	8	33	3	0	2	4	2	0	5	21	11	0	0	50	8	0	147	1987
8:40 AM	12	40	1	0	0	6	4	0	2	16	11	0	0	42	11	0	145	1955
8:45 AM	13	46	0	0	2	2	1	0	4	14	9	0	2	42	8	0	143	1938
8:50 AM	8	37	3	0	1	6	3	0	7	18	20	0	2	54	12	0	171	1954
8:55 AM	4	56	3	0	0	4	3	0	5	15	10	0	3	43	9	0	155	1926
Peak 15-Min Flows	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	136	464	12	0	48	88	32	0	28	256	152	0	24	740	140	0	2120	
Heavy Trucks	4	8	4	0	0	0	8	0	8	24	4	0	0	32	0	0	92	
Pedestrians		28				160				92				64			344	
Bicycles	0	1	2		0	3	0		0	4	3		1	4	1		19	
Railroad																		
Stopped Buses																		

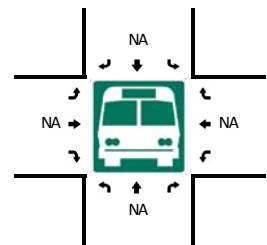
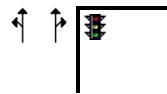
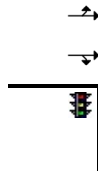
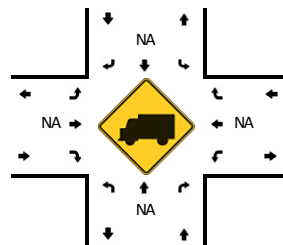
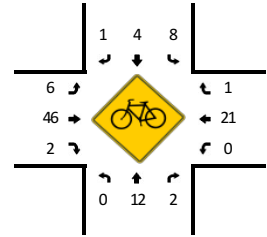
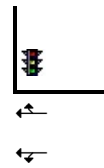
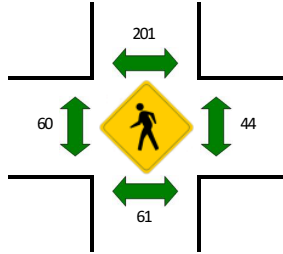
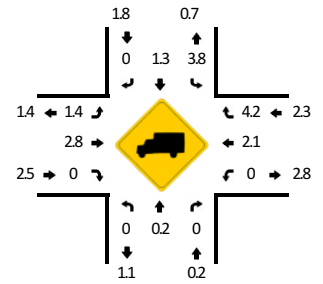
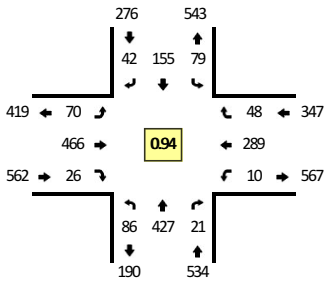
Comments:



**LOCATION:** Harrison St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998314  
**DATE:** Wed, May 29 2019

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



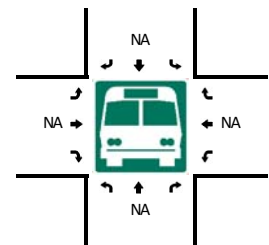
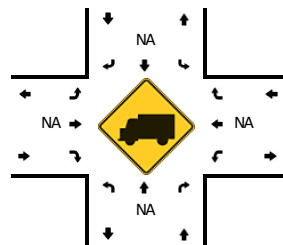
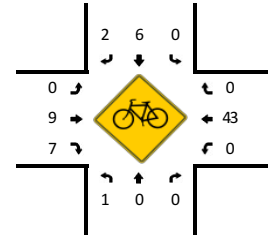
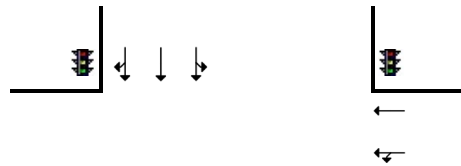
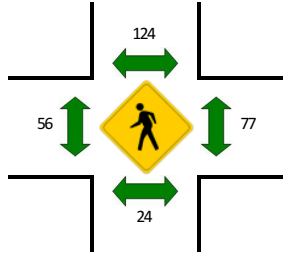
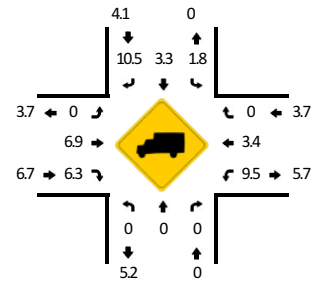
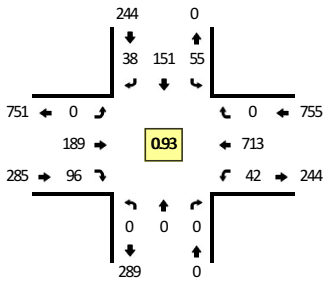
5-Min Count Period Beginning At	Harrison St (Northbound)				Harrison St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	30	3	0	8	8	0	0	3	21	2	0	3	17	3	0	102	
4:05 PM	7	26	2	0	4	7	2	0	4	25	2	0	1	27	4	0	111	
4:10 PM	5	30	0	0	4	10	3	0	7	38	4	1	0	24	2	0	128	
4:15 PM	14	44	2	0	3	14	1	0	2	36	10	0	0	25	3	0	154	
4:20 PM	6	25	1	0	2	8	1	0	4	46	4	0	2	25	3	0	127	
4:25 PM	3	34	3	0	2	10	2	0	5	34	1	0	0	15	4	0	113	
4:30 PM	7	25	4	0	5	10	2	0	3	43	1	0	0	22	3	0	125	
4:35 PM	6	25	2	0	1	6	3	0	6	42	2	0	1	16	2	0	112	
4:40 PM	6	43	0	0	4	15	4	0	4	33	3	0	0	23	2	0	137	
4:45 PM	6	30	1	0	4	8	4	0	9	47	3	0	0	32	1	0	145	
4:50 PM	7	37	2	0	3	7	1	0	1	45	0	0	1	18	2	0	124	
4:55 PM	8	41	3	0	6	12	4	0	3	42	3	1	1	24	4	0	152	1530
5:00 PM	8	39	2	0	9	12	4	0	6	40	4	1	1	21	3	0	150	1578
5:05 PM	6	28	2	0	9	14	6	0	4	30	2	0	2	30	2	1	136	1603
5:10 PM	9	23	4	0	8	17	5	0	8	41	3	0	0	29	6	0	153	1628
5:15 PM	7	33	5	0	3	16	4	0	10	42	1	0	1	26	6	0	154	1628
5:20 PM	4	37	0	0	10	16	4	0	10	45	1	0	0	16	3	0	146	1647
5:25 PM	7	41	0	0	7	12	1	0	7	48	2	0	1	25	5	0	156	1690
5:30 PM	8	35	2	0	10	16	2	0	4	25	3	0	2	23	9	0	139	1704
5:35 PM	10	40	0	0	6	10	3	0	2	28	1	0	0	22	5	0	127	1719
5:40 PM	4	25	6	0	3	12	4	0	10	41	0	0	4	19	8	0	136	1718
5:45 PM	10	28	2	0	7	6	3	0	4	38	2	0	0	19	2	0	121	1694
5:50 PM	2	28	1	0	4	14	5	0	6	52	2	0	0	18	3	0	135	1705
5:55 PM	4	27	3	0	6	8	1	0	7	36	3	2	0	15	2	0	114	1667
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	72	444	20	0	80	176	36	0	108	540	16	0	8	268	56	0	1824	
Heavy Trucks	0	4	0	0	8	4	0	0	0	12	0	0	0	0	4	0	32	
Pedestrians		72				236				80				48			436	
Bicycles	0	3	0		0	2	1		0	13	1		0	0	0		20	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Madison St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998315  
**DATE:** Wed, May 29 2019

**Peak-Hour: 7:50 AM -- 8:50 AM**  
**Peak 15-Min: 8:15 AM -- 8:30 AM**



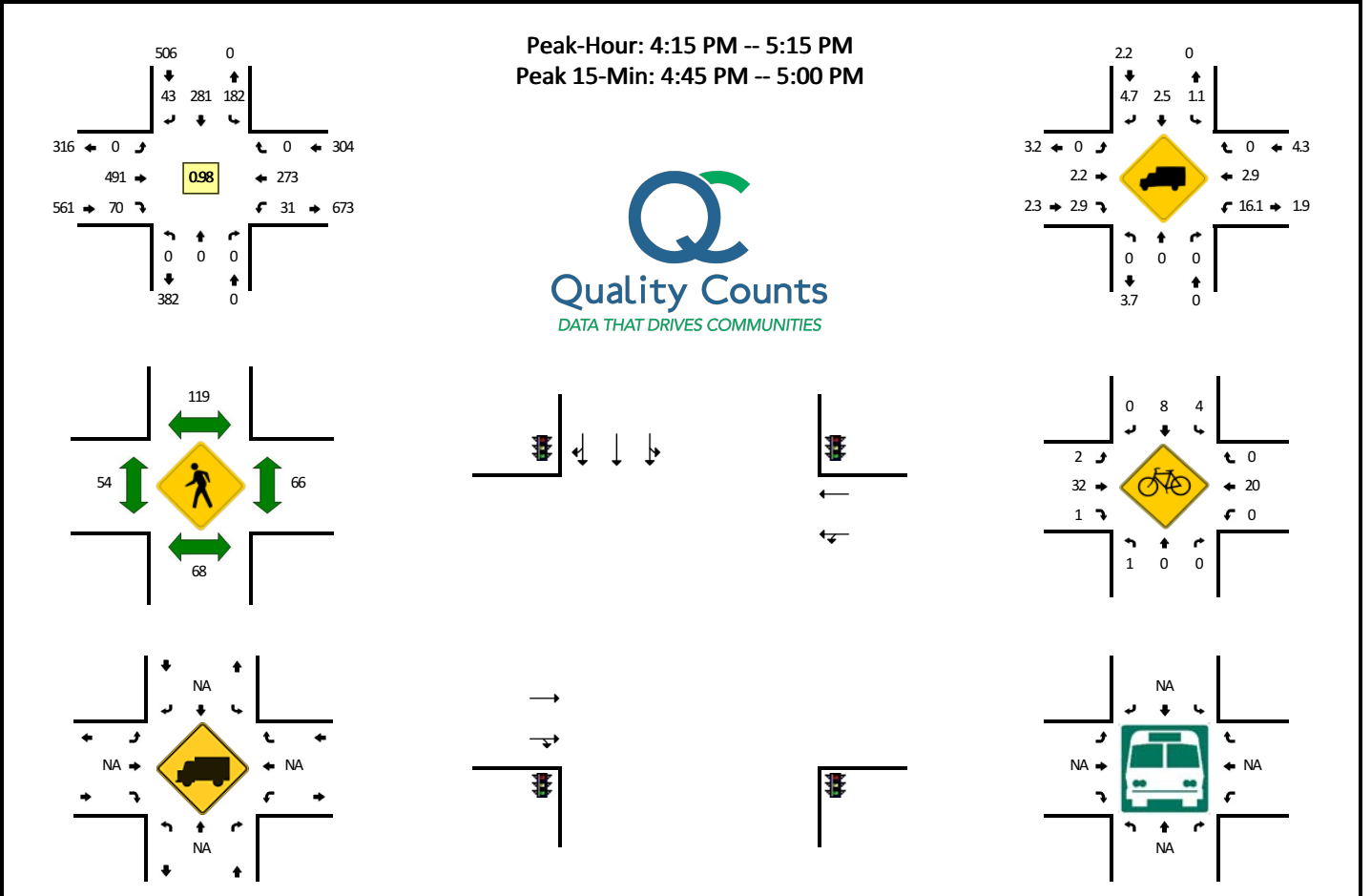
5-Min Count Period Beginning At	Madison St (Northbound)				Madison St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	0	10	2	0	0	4	0	0	2	15	0	0	33	
7:05 AM	0	0	0	0	0	6	1	0	0	11	3	0	1	19	0	0	41	
7:10 AM	0	0	0	0	2	9	4	0	0	6	2	0	3	14	0	0	40	
7:15 AM	0	0	0	0	3	11	3	0	0	3	3	0	3	22	0	0	48	
7:20 AM	0	0	0	0	2	13	2	0	0	4	5	0	0	19	0	0	45	
7:25 AM	0	0	0	0	1	5	4	0	0	9	7	0	1	35	0	0	62	
7:30 AM	0	0	0	0	2	17	4	0	0	6	8	0	2	25	0	0	64	
7:35 AM	0	0	0	0	3	10	5	0	0	7	2	0	1	39	0	0	67	
7:40 AM	0	0	0	0	6	9	3	0	0	7	5	0	2	47	0	0	79	
7:45 AM	0	0	0	0	1	8	2	0	0	11	3	0	3	52	0	0	80	
7:50 AM	0	0	0	0	4	12	1	0	0	12	9	0	5	59	0	0	102	
7:55 AM	0	0	0	0	6	17	4	0	0	10	9	0	1	72	0	0	119	780
8:00 AM	0	0	0	0	3	11	2	0	0	15	5	0	2	68	0	0	106	853
8:05 AM	0	0	0	0	3	17	5	0	0	16	8	0	1	68	0	0	118	930
8:10 AM	0	0	0	0	1	14	2	0	0	9	6	0	2	58	0	0	92	982
8:15 AM	0	0	0	0	5	11	6	0	0	16	6	0	5	70	0	0	119	1053
8:20 AM	0	0	0	0	9	10	4	0	0	25	6	0	3	56	0	0	113	1121
8:25 AM	0	0	0	0	7	15	3	0	0	21	9	0	4	54	0	0	113	1172
8:30 AM	0	0	0	0	3	10	3	0	0	24	9	0	3	50	0	0	102	1210
8:35 AM	0	0	0	0	3	14	1	0	0	19	9	0	6	47	0	0	99	1242
8:40 AM	0	0	0	0	7	11	2	0	0	13	12	0	4	58	0	0	107	1270
8:45 AM	0	0	0	0	4	9	5	0	0	9	8	0	6	53	0	0	94	1284
8:50 AM	0	0	0	0	4	11	3	0	0	9	4	0	3	68	0	0	102	1284
8:55 AM	0	0	0	0	6	9	2	0	0	10	5	0	5	41	0	0	78	1243
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	0	0	0	84	144	52	0	0	248	84	0	48	720	0	0	1380	
Heavy Trucks	0	0	0	0	4	4	8	0	0	16	0	0	8	24	0	0	64	
Pedestrians		28				136				60				76			300	
Bicycles	0	0	0	0	0	1	0	0	0	3	2	0	0	14	0	0	20	
Railroad																		
Stopped Buses																		

Comments:



**LOCATION:** Madison St -- 14th St  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998316  
**DATE:** Wed, May 29 2019

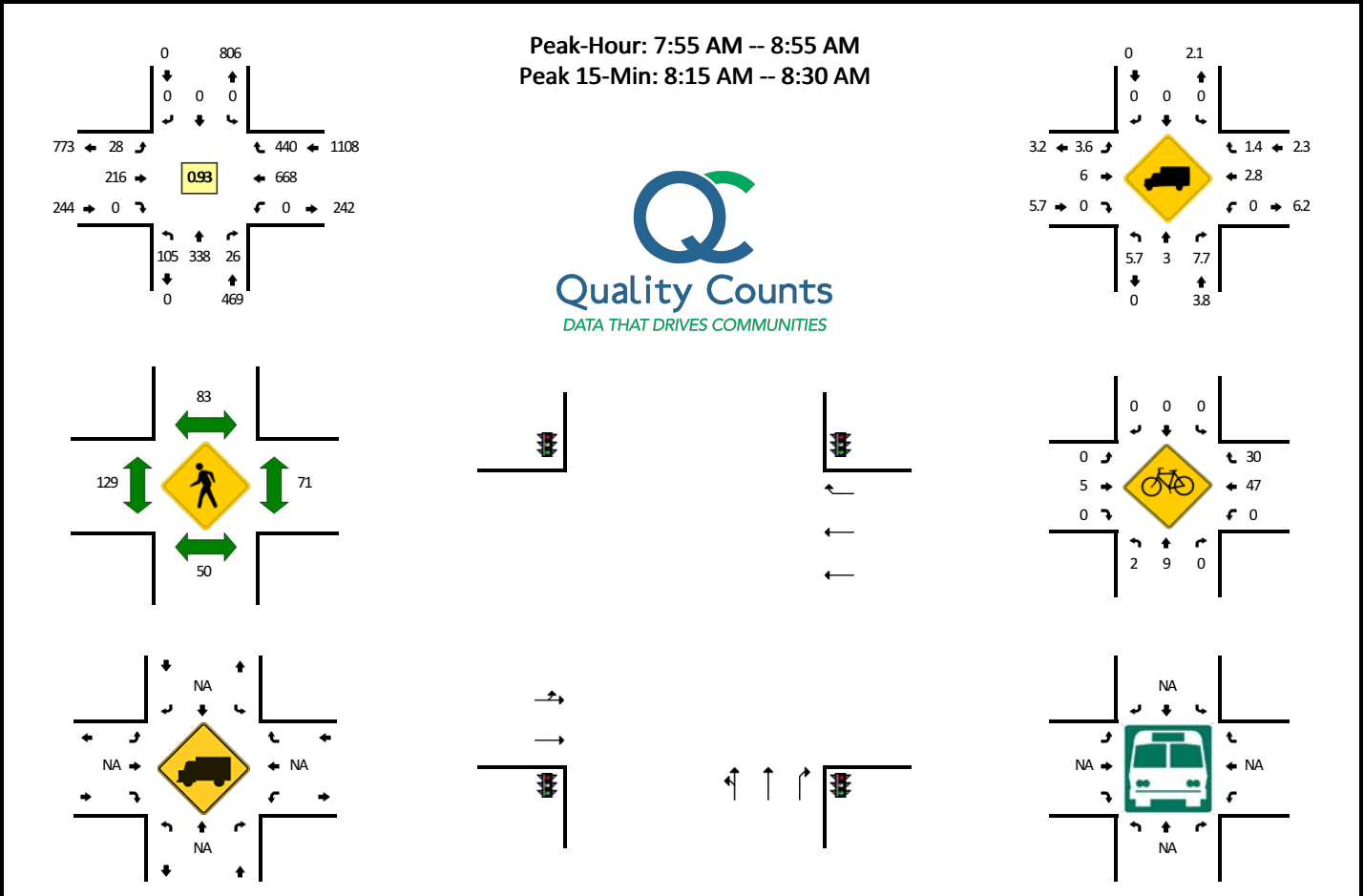


5-Min Count Period Beginning At	Madison St (Northbound)				Madison St (Southbound)				14th St (Eastbound)				14th St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	13	20	3	0	0	26	6	0	0	22	0	0	90	
4:05 PM	0	0	0	0	11	24	1	0	0	31	3	0	1	21	0	0	92	
4:10 PM	0	0	0	0	15	25	5	0	0	32	8	0	6	20	0	0	111	
4:15 PM	0	0	0	0	16	29	5	0	0	35	7	0	4	27	0	0	123	
4:20 PM	0	0	0	0	19	18	4	0	0	38	7	0	2	22	0	0	110	
4:25 PM	0	0	0	0	14	22	5	0	0	37	4	0	3	24	0	0	109	
4:30 PM	0	0	0	0	19	25	5	0	0	41	3	0	4	22	0	0	119	
4:35 PM	0	0	0	0	15	28	2	0	0	42	5	0	3	13	0	0	108	
4:40 PM	0	0	0	0	17	28	0	0	0	42	6	0	2	13	0	0	108	
4:45 PM	0	0	0	0	15	22	3	0	0	51	9	0	2	30	0	0	132	
4:50 PM	0	0	0	0	11	19	5	0	0	38	2	0	3	29	0	0	107	
4:55 PM	0	0	0	0	14	20	2	0	0	48	7	0	0	21	0	0	112	1321
5:00 PM	0	0	0	0	13	14	3	0	0	33	7	0	1	23	0	0	94	1325
5:05 PM	0	0	0	0	14	21	4	0	0	47	5	0	2	32	0	0	125	1358
5:10 PM	0	0	0	0	15	35	5	0	0	39	8	0	5	17	0	0	124	1371
5:15 PM	0	0	0	0	12	22	1	0	0	42	8	0	1	24	0	0	110	1358
5:20 PM	0	0	0	0	15	23	4	0	0	42	6	0	1	19	0	0	110	1358
5:25 PM	0	0	0	0	13	23	2	0	0	37	9	0	0	19	0	0	103	1352
5:30 PM	0	0	0	0	14	35	1	0	0	47	3	0	3	20	0	0	123	1356
5:35 PM	0	0	0	0	17	16	2	0	0	23	12	0	4	29	0	0	103	1351
5:40 PM	0	0	0	0	20	38	8	0	0	34	2	0	1	17	0	0	120	1363
5:45 PM	0	0	0	0	6	23	3	0	0	48	6	0	1	19	0	0	106	1337
5:50 PM	0	0	0	0	12	24	6	0	0	44	9	0	1	21	0	0	117	1347
5:55 PM	0	0	0	0	16	23	4	0	0	42	5	0	0	19	0	0	109	1344
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	0	0	0	160	244	40	0	0	548	72	0	20	320	0	0	1404	
Heavy Trucks	0	0	0	0	0	12	0	0	0	12	0	0	4	8	0	0	36	
Pedestrians		68				84				48				64			264	
Bicycles	1	0	0		0	2	0		0	10	0		0	10	0		23	
Railroad																		
Stopped Buses																		

*Comments:*

**LOCATION:** Lakeside Dr/Oak St -- 14th St/Lake Merritt Blvd  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998317  
**DATE:** Wed, May 29 2019

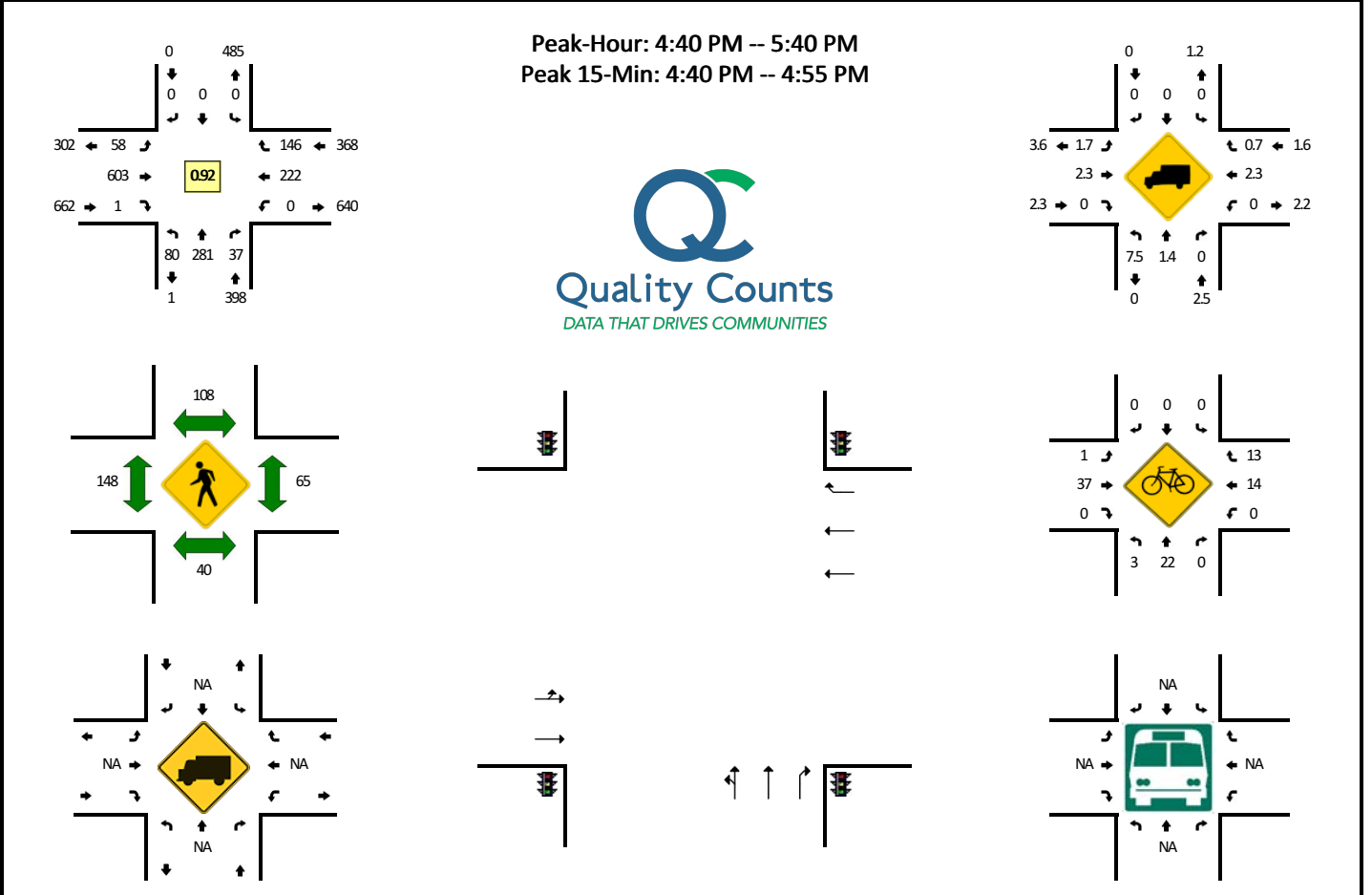


5-Min Count Period Beginning At	Lakeside Dr/Oak St (Northbound)				Lakeside Dr/Oak St (Southbound)				14th St/Lake Merritt Blvd (Eastbound)				14th St/Lake Merritt Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	6	11	2	0	0	0	0	0	0	5	0	0	0	14	4	0	42	
7:05 AM	2	20	0	0	0	0	0	0	1	11	0	0	0	19	4	0	57	
7:10 AM	5	21	4	0	0	0	0	0	0	9	0	0	0	12	9	0	60	
7:15 AM	4	12	2	0	0	0	0	0	1	4	0	0	0	18	11	0	52	
7:20 AM	3	16	1	0	0	0	0	0	2	5	0	0	0	20	15	0	62	
7:25 AM	5	22	1	0	0	0	0	0	0	8	0	0	0	28	9	0	73	
7:30 AM	2	18	1	0	0	0	0	0	0	5	0	0	0	25	19	0	70	
7:35 AM	6	15	1	0	0	0	0	0	2	10	0	0	0	44	15	0	93	
7:40 AM	3	19	1	0	0	0	0	0	0	12	0	0	0	48	24	0	107	
7:45 AM	6	16	1	0	0	0	0	0	3	11	0	0	0	44	11	0	92	
7:50 AM	5	19	0	0	0	0	0	0	2	12	0	0	0	65	34	0	137	
7:55 AM	8	22	3	0	0	0	0	0	4	15	0	0	0	71	30	0	153	998
8:00 AM	13	23	0	0	0	0	0	0	2	13	0	0	0	52	26	0	129	1085
8:05 AM	4	24	1	0	0	0	0	0	2	18	0	0	0	56	29	0	134	1162
8:10 AM	5	32	2	0	0	0	0	0	0	12	0	0	0	59	40	0	150	1252
8:15 AM	10	19	0	0	0	0	0	0	1	20	0	0	0	66	55	0	171	1371
8:20 AM	8	23	0	0	0	0	0	0	4	27	0	0	0	44	39	0	145	1454
8:25 AM	6	37	3	0	0	0	0	0	2	29	0	0	0	59	37	0	173	1554
8:30 AM	7	32	5	0	0	0	0	0	2	24	0	0	0	62	31	0	163	1647
8:35 AM	5	26	2	0	0	0	0	0	5	18	0	0	0	40	40	0	136	1690
8:40 AM	12	40	4	0	0	0	0	0	4	14	0	0	0	49	33	0	156	1739
8:45 AM	10	29	5	0	0	0	0	0	1	13	0	0	0	55	35	0	148	1795
8:50 AM	17	31	1	0	0	0	0	0	1	13	0	0	0	55	45	0	163	1821
8:55 AM	9	19	1	0	0	0	0	0	3	11	0	0	0	32	24	0	99	1767
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	316	12	0	0	0	0	0	28	304	0	0	0	676	524	0	1956	
Heavy Trucks	12	20	0	0	0	0	0	0	0	16	0	0	0	12	8	0	68	
Pedestrians		16					80				128			44			268	
Bicycles	0	1	0		0	0	0		0	2	0		0	15	10		28	
Railroad																		
Stopped Buses																		

Comments:

**LOCATION:** Lakeside Dr/Oak St -- 14th St/Lake Merritt Blvd  
**CITY/STATE:** Oakland, CA

**QC JOB #:** 14998318  
**DATE:** Wed, May 29 2019



5-Min Count Period Beginning At	Lakeside Dr/Oak St (Northbound)				Lakeside Dr/Oak St (Southbound)				14th St/Lake Merritt Blvd (Eastbound)				14th St/Lake Merritt Blvd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	16	4	0	0	0	0	0	6	25	0	0	0	20	14	0	90	
4:05 PM	6	17	1	0	0	0	0	0	8	45	0	0	0	19	8	0	104	
4:10 PM	7	28	3	0	0	0	0	0	3	40	0	0	0	15	6	0	102	
4:15 PM	6	30	2	0	0	0	0	0	3	42	0	0	0	23	16	0	122	
4:20 PM	6	16	2	0	0	0	0	0	4	61	0	0	0	21	11	0	121	
4:25 PM	7	20	3	0	0	0	0	0	5	45	0	0	0	17	13	1	111	
4:30 PM	10	17	6	0	0	0	0	0	4	50	0	0	0	17	8	1	113	
4:35 PM	3	15	4	0	0	0	0	0	6	48	0	0	0	13	10	0	99	
4:40 PM	4	18	7	0	0	0	0	0	3	61	1	0	0	15	17	0	126	
4:45 PM	10	32	3	0	0	0	0	0	5	62	0	0	0	25	11	0	148	
4:50 PM	9	23	5	0	0	0	0	0	5	41	0	0	0	16	14	0	113	
4:55 PM	5	30	1	0	0	0	0	0	7	45	0	0	0	19	10	0	117	
5:00 PM	4	24	3	0	0	0	0	0	5	50	0	0	0	17	5	0	108	
5:05 PM	10	27	4	0	0	0	0	0	6	52	0	0	0	21	8	0	128	
5:10 PM	8	18	4	0	0	0	0	0	3	53	0	0	0	13	16	0	115	
5:15 PM	6	20	1	0	0	0	0	0	6	51	0	0	0	22	14	0	120	
5:20 PM	4	26	3	0	0	0	0	0	6	46	0	0	0	17	12	0	114	
5:25 PM	3	20	2	0	0	0	0	0	4	44	0	0	0	17	8	0	98	
5:30 PM	4	18	1	0	0	0	0	0	2	61	0	0	0	22	15	0	123	
5:35 PM	13	25	3	0	0	0	0	0	6	37	0	0	0	18	16	0	118	
5:40 PM	5	19	0	0	0	0	0	0	6	48	0	0	0	10	9	0	97	
5:45 PM	5	23	1	0	0	0	0	0	6	41	0	0	0	16	20	1	113	
5:50 PM	3	20	0	0	0	0	0	0	5	57	0	0	0	19	17	0	121	
5:55 PM	3	26	1	0	0	0	0	0	7	47	0	0	0	12	23	0	119	
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	92	292	60	0	0	0	0	0	52	656	4	0	0	224	168	0	1548	
Heavy Trucks	4	4	0	0	0	0	0	0	4	16	0	0	0	4	4	0	36	
Pedestrians		64				84				120				60			328	
Bicycles	2	3	0		0	0	0		0	9	0		0	8	3		25	
Railroad																		
Stopped Buses																		

Comments:



## Appendix B: Synchro Level of Service Outputs

# HCM Signalized Intersection Capacity Analysis

# 14th Street Safe Streets

## 1: Brush St & 14th St

Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑						↑↑↑	
Traffic Volume (vph)	0	401	76	42	600	0	0	0	0	347	476	326
Future Volume (vph)	0	401	76	42	600	0	0	0	0	347	476	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0						5.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.91	
Frbp, ped/bikes		1.00	0.90	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	0.97	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.96	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3355	1331	1685	3261						4451	
Flt Permitted		1.00	1.00	0.46	1.00						0.99	
Satd. Flow (perm)		3355	1331	810	3261						4451	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	401	76	42	600	0	0	0	0	347	476	326
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	401	19	42	600	0	0	0	0	0	1125	0
Confl. Peds. (#/hr)	37		49	49		37	12		1	1		12
Confl. Bikes (#/hr)			27			7						
Heavy Vehicles (%)	0%	4%	6%	0%	7%	0%	0%	0%	0%	1%	3%	0%
Parking (#/hr)											3	
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		17.4	17.4	17.4	17.4						42.6	
Effective Green, g (s)		17.4	17.4	17.4	17.4						42.6	
Actuated g/C Ratio		0.25	0.25	0.25	0.25						0.61	
Clearance Time (s)		5.0	5.0	5.0	5.0						5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		833	330	201	810						2708	
v/s Ratio Prot		0.12			c0.18							
v/s Ratio Perm			0.01	0.05							0.25	
v/c Ratio		0.48	0.06	0.21	0.74						0.42	
Uniform Delay, d1		22.4	20.0	20.8	24.2						7.2	
Progression Factor		1.00	1.00	1.04	0.96						1.00	
Incremental Delay, d2		0.2	0.0	0.2	3.1						0.5	
Delay (s)		22.6	20.1	21.9	26.4						7.6	
Level of Service		C	C	C	C						A	
Approach Delay (s)		22.2			26.1			0.0			7.6	
Approach LOS		C			C			A			A	

### Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
2: Castro St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕↕				
Traffic Volume (vph)	239	516	0	0	508	153	148	161	60	0	0	0
Future Volume (vph)	239	516	0	0	508	153	148	161	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frbp, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		0.99			1.00			1.00				
Frt		1.00			0.97			0.98				
Flt Protected		0.98			1.00			0.98				
Satd. Flow (prot)		3338			3009			4304				
Flt Permitted		0.63			1.00			0.98				
Satd. Flow (perm)		2140			3009			4304				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	239	516	0	0	508	153	148	161	60	0	0	0
RTOR Reduction (vph)	0	0	0	0	28	0	0	49	0	0	0	0
Lane Group Flow (vph)	0	755	0	0	633	0	0	320	0	0	0	0
Confl. Peds. (#/hr)	40		58	58		40			8	8		
Confl. Bikes (#/hr)			26			7						
Heavy Vehicles (%)	5%	1%	0%	0%	5%	3%	6%	7%	6%	0%	0%	0%
Parking (#/hr)					1			5				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		48.9			48.9			11.1				
Effective Green, g (s)		48.9			48.9			11.1				
Actuated g/C Ratio		0.70			0.70			0.16				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1494			2102			682				
v/s Ratio Prot					0.21							
v/s Ratio Perm		0.35						0.07				
v/c Ratio		0.51			0.30			0.47				
Uniform Delay, d1		4.9			4.0			26.8				
Progression Factor		0.72			0.34			1.00				
Incremental Delay, d2		1.1			0.4			0.2				
Delay (s)		4.7			1.7			27.0				
Level of Service		A			A			C				
Approach Delay (s)		4.7			1.7			27.0			0.0	
Approach LOS		A			A			C			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			8.2				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			63.6%				ICU Level of Service		B			
Analysis Period (min)			15									

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

## 3: Clay St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↕	↗		↔↔	
Traffic Volume (vph)	51	442	44	55	499	93	14	89	54	69	63	24
Future Volume (vph)	51	442	44	55	499	93	14	89	54	69	63	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0	5.0		5.0	
Lane Util. Factor		0.95			0.95			1.00	1.00		0.95	
Frbp, ped/bikes		0.99			0.96			1.00	0.85		0.97	
Flpb, ped/bikes		0.99			0.99			0.98	1.00		0.95	
Frt		0.99			0.98			1.00	0.85		0.98	
Flt Protected		1.00			1.00			0.99	1.00		0.98	
Satd. Flow (prot)		3278			3136			1695	1203		2875	
Flt Permitted		0.85			0.87			0.96	1.00		0.81	
Satd. Flow (perm)		2795			2734			1635	1203		2375	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	442	44	55	499	93	14	89	54	69	63	24
RTOR Reduction (vph)	0	9	0	0	19	0	0	0	35	0	16	0
Lane Group Flow (vph)	0	528	0	0	628	0	0	103	19	0	140	0
Confl. Peds. (#/hr)	163		152	152		163	148		135	135		148
Confl. Bikes (#/hr)			7			9			3			4
Heavy Vehicles (%)	0%	2%	6%	0%	3%	5%	11%	5%	10%	0%	0%	5%
Parking (#/hr)												3
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2		2	2		
Actuated Green, G (s)		36.0			36.0			24.0	24.0		24.0	
Effective Green, g (s)		36.0			36.0			24.0	24.0		24.0	
Actuated g/C Ratio		0.51			0.51			0.34	0.34		0.34	
Clearance Time (s)		5.0			5.0			5.0	5.0		5.0	
Vehicle Extension (s)		2.0			2.0			2.0	2.0		2.0	
Lane Grp Cap (vph)		1437			1406			560	412		814	
v/s Ratio Prot												
v/s Ratio Perm		0.19			0.23			0.06	0.02		0.06	
v/c Ratio		0.37			0.45			0.18	0.04		0.17	
Uniform Delay, d1		10.2			10.7			16.1	15.4		16.1	
Progression Factor		1.06			0.14			1.00	1.00		1.00	
Incremental Delay, d2		0.6			0.7			0.7	0.2		0.5	
Delay (s)		11.4			2.2			16.9	15.6		16.5	
Level of Service		B			A			B	B		B	
Approach Delay (s)		11.4			2.2			16.4			16.5	
Approach LOS		B			A			B			B	

### Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
4: Broadway & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Traffic Volume (vph)	2	276	82	15	608	99	2	280	18	1	510	86
Future Volume (vph)	2	276	82	15	608	99	2	280	18	1	510	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.5			5.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frbp, ped/bikes		0.93			0.96			0.98			0.95	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.98			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3054			2985			2918			2873	
Flt Permitted		0.95			0.94			0.95			0.95	
Satd. Flow (perm)		2908			2822			2781			2743	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	276	82	15	608	99	2	280	18	1	510	86
RTOR Reduction (vph)	0	36	0	0	18	0	0	7	0	0	3	0
Lane Group Flow (vph)	0	324	0	0	704	0	0	293	0	0	594	0
Confl. Peds. (#/hr)	303		292	292		303	332		373	373		332
Confl. Bikes (#/hr)			5			14			1			27
Heavy Vehicles (%)	33%	2%	6%	50%	2%	2%	0%	17%	4%	0%	15%	4%
Parking (#/hr)					3							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		22.9			22.9			37.1			37.1	
Effective Green, g (s)		22.9			22.9			37.1			37.1	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.5			4.5			5.5			5.5	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		951			923			1473			1453	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.25			0.11			c0.22	
v/c Ratio		0.34			0.76			0.20			0.41	
Uniform Delay, d1		17.8			21.1			8.6			9.9	
Progression Factor		1.20			1.85			1.00			1.00	
Incremental Delay, d2		0.1			3.0			0.3			0.9	
Delay (s)		21.4			42.0			8.9			10.7	
Level of Service		C			D			A			B	
Approach Delay (s)		21.4			42.0			8.9			10.7	
Approach LOS		C			D			A			B	

Intersection Summary		
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.54	
Actuated Cycle Length (s)	70.0	Sum of lost time (s) 10.0
Intersection Capacity Utilization	59.2%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 5: Franklin St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔↔	↔			
Traffic Volume (vph)	71	219	0	0	688	128	37	165	8	0	0	0
Future Volume (vph)	71	219	0	0	688	128	37	165	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			0.91	1.00			
Frbp, ped/bikes		1.00			0.95			1.00	0.87			
Flpb, ped/bikes		0.98			1.00			0.97	1.00			
Frt		1.00			0.98			1.00	0.85			
Flt Protected		0.99			1.00			0.99	1.00			
Satd. Flow (prot)		3137			2971			4488	1300			
Flt Permitted		0.72			1.00			0.99	1.00			
Satd. Flow (perm)		2287			2971			4488	1300			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	219	0	0	688	128	37	165	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	5	0	0	0
Lane Group Flow (vph)	0	290	0	0	794	0	0	202	3	0	0	0
Confl. Peds. (#/hr)	332		165	165		332	168		111	111		168
Confl. Bikes (#/hr)			4			52			9			
Heavy Vehicles (%)	2%	2%	0%	0%	3%	1%	4%	3%	5%	0%	0%	0%
Parking (#/hr)		1			3			3			1	
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)		37.0			37.0			25.0	25.0			
Effective Green, g (s)		37.0			37.0			25.0	25.0			
Actuated g/C Ratio		0.53			0.53			0.36	0.36			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1208			1570			1602	464			
v/s Ratio Prot					0.27							
v/s Ratio Perm		0.13						0.05	0.00			
v/c Ratio		0.24			0.51			0.13	0.01			
Uniform Delay, d1		8.9			10.6			15.1	14.5			
Progression Factor		0.32			0.48			1.00	1.00			
Incremental Delay, d2		0.4			1.2			0.2	0.0			
Delay (s)		3.3			6.2			15.3	14.5			
Level of Service		A			A			B	B			
Approach Delay (s)		3.3			6.2			15.3			0.0	
Approach LOS		A			A			B			A	

### Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
6: Webster St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	193	31	28	407	0	0	0	0	104	157	49
Future Volume (vph)	0	193	31	28	407	0	0	0	0	104	157	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		0.95			0.95						0.91	
Frbp, ped/bikes		0.99			1.00						0.98	
Flpb, ped/bikes		1.00			1.00						0.98	
Frt		0.98			1.00						0.98	
Flt Protected		1.00			1.00						0.98	
Satd. Flow (prot)		3108			3217						4420	
Flt Permitted		1.00			0.93						0.98	
Satd. Flow (perm)		3108			2995						4420	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	193	31	28	407	0	0	0	0	104	157	49
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	209	0	0	435	0	0	0	0	0	277	0
Confl. Peds. (#/hr)	256		66	66		256	70		44	44		70
Confl. Bikes (#/hr)			9			62						37
Heavy Vehicles (%)	0%	3%	2%	3%	2%	0%	0%	0%	0%	0%	1%	6%
Parking (#/hr)		1			1			1			1	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		37.0			37.0						23.0	
Effective Green, g (s)		37.0			37.0						23.0	
Actuated g/C Ratio		0.53			0.53						0.33	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.0			2.0						2.0	
Lane Grp Cap (vph)		1642			1583						1452	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.15						0.06	
v/c Ratio		0.13			0.27						0.19	
Uniform Delay, d1		8.3			9.1						16.8	
Progression Factor		0.12			0.52						1.00	
Incremental Delay, d2		0.2			0.4						0.3	
Delay (s)		1.2			5.1						17.1	
Level of Service		A			A						B	
Approach Delay (s)		1.2			5.1			0.0			17.1	
Approach LOS		A			A			A			B	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
7: Harrison St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	35	241	140	15	654	136	134	478	28	25	78	23
Future Volume (vph)	35	241	140	15	654	136	134	478	28	25	78	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frbp, ped/bikes		0.98			0.96			1.00			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.95			0.97			0.99			0.97	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3009			3008			3127			3021	
Flt Permitted		0.86			0.95			0.85			0.82	
Satd. Flow (perm)		2593			2846			2675			2514	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	241	140	15	654	136	134	478	28	25	78	23
RTOR Reduction (vph)	0	72	0	0	24	0	0	4	0	0	14	0
Lane Group Flow (vph)	0	344	0	0	781	0	0	636	0	0	112	0
Confl. Peds. (#/hr)	199		49	49		199	76		48	48		76
Confl. Bikes (#/hr)			11			67			6			2
Heavy Vehicles (%)	0%	2%	0%	15%	3%	1%	2%	1%	24%	4%	4%	0%
Parking (#/hr)		1			1			1			1	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		34.0			34.0			26.5			26.5	
Effective Green, g (s)		34.0			34.0			26.5			26.5	
Actuated g/C Ratio		0.49			0.49			0.38			0.38	
Clearance Time (s)		4.5			4.5			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		1259			1382			1012			951	
v/s Ratio Prot												
v/s Ratio Perm		0.13			c0.27			c0.24			0.04	
v/c Ratio		0.27			0.56			0.63			0.12	
Uniform Delay, d1		10.7			12.8			17.7			14.1	
Progression Factor		1.94			0.18			1.00			1.00	
Incremental Delay, d2		0.5			1.5			3.0			0.3	
Delay (s)		21.3			3.8			20.7			14.4	
Level of Service		C			A			C			B	
Approach Delay (s)		21.3			3.8			20.7			14.4	
Approach LOS		C			A			C			B	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
8: Madison St & 14th St

14th Street Safe Streets  
Existing AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↑	↑↑	
Traffic Volume (vph)	0	186	91	40	722	0	0	0	0	55	150	40
Future Volume (vph)	0	186	91	40	722	0	0	0	0	55	150	40
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		0.95			0.95					1.00	0.95	
Frbp, ped/bikes		0.98			1.00					1.00	0.98	
Flpb, ped/bikes		1.00			1.00					0.90	1.00	
Frt		0.95			1.00					1.00	0.97	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		2961			3218					1561	3100	
Flt Permitted		1.00			0.93					0.95	1.00	
Satd. Flow (perm)		2961			2989					1561	3100	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	186	91	40	722	0	0	0	0	55	150	40
RTOR Reduction (vph)	0	42	0	0	0	0	0	0	0	0	27	0
Lane Group Flow (vph)	0	235	0	0	762	0	0	0	0	55	163	0
Confl. Peds. (#/hr)	140		53	53		140	66		87	87		66
Confl. Bikes (#/hr)			6			60						12
Heavy Vehicles (%)	0%	4%	3%	7%	2%	0%	0%	0%	0%	1%	1%	0%
Parking (#/hr)		1			1			1				3
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		38.0			38.0					23.0	23.0	
Effective Green, g (s)		38.0			38.0					23.0	23.0	
Actuated g/C Ratio		0.54			0.54					0.33	0.33	
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)		1607			1622					512	1018	
v/s Ratio Prot		0.08									c0.05	
v/s Ratio Perm					c0.25					0.04		
v/c Ratio		0.15			0.47					0.11	0.16	
Uniform Delay, d1		7.9			9.8					16.4	16.7	
Progression Factor		0.79			1.03					1.00	1.00	
Incremental Delay, d2		0.2			0.9					0.4	0.3	
Delay (s)		6.5			11.0					16.8	17.0	
Level of Service		A			B					B	B	
Approach Delay (s)		6.5			11.0			0.0			16.9	
Approach LOS		A			B			A			B	





















Intersection Summary		
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.35	B
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	63.6%	9.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
 9: Oak St & 14th St/Lake Merritt Blvd

14th Street Safe Streets  
 Existing AM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 					
Traffic Volume (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
Future Volume (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0	6.0				
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00				
Frbp, ped/bikes		1.00			1.00	0.86		1.00	0.95				
Flpb, ped/bikes		1.00			1.00	1.00		0.97	1.00				
Frt		1.00			1.00	0.85		1.00	0.85				
Flt Protected		0.99			1.00	1.00		0.99	1.00				
Satd. Flow (prot)		3167			3421	1304		3051	1476				
Flt Permitted		0.84			1.00	1.00		0.99	1.00				
Satd. Flow (perm)		2670			3421	1304		3051	1476				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	171	0	0	13	0	0	0	
Lane Group Flow (vph)	0	244	0	0	668	269	0	443	13	0	0	0	
Confl. Peds. (#/hr)	78		23	23		78	138		50	50		138	
Confl. Bikes (#/hr)			4			63			8				
Heavy Vehicles (%)	7%	3%	0%	0%	2%	3%	6%	3%	0%	0%	0%	0%	
Parking (#/hr)		1						3					
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm				
Protected Phases		2			6			8					
Permitted Phases	2					6	8		8				
Actuated Green, G (s)		21.7			21.7	21.7		36.3	36.3				
Effective Green, g (s)		21.7			21.7	21.7		36.3	36.3				
Actuated g/C Ratio		0.31			0.31	0.31		0.52	0.52				
Clearance Time (s)		6.0			6.0	6.0		6.0	6.0				
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0				
Lane Grp Cap (vph)		827			1060	404		1582	765				
v/s Ratio Prot					0.20								
v/s Ratio Perm		0.09				c0.21		0.15	0.01				
v/c Ratio		0.30			0.63	0.67		0.28	0.02				
Uniform Delay, d1		18.3			20.7	21.0		9.5	8.2				
Progression Factor		1.15			1.00	1.00		1.00	1.00				
Incremental Delay, d2		0.1			0.9	3.2		0.4	0.0				
Delay (s)		21.2			21.6	24.2		9.9	8.2				
Level of Service		C			C	C		A	A				
Approach Delay (s)		21.2			22.6			9.8			0.0		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			19.1		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					12.0			
Intersection Capacity Utilization			80.8%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

# 14th Street Safe Streets

## 1: Brush St & 14th St

Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑						↑↑↑	
Traffic Volume (vph)	0	558	142	47	300	0	0	0	0	172	285	137
Future Volume (vph)	0	558	142	47	300	0	0	0	0	172	285	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0						5.0	
Lane Util. Factor		0.95	1.00	1.00	0.95						0.91	
Frbp, ped/bikes		1.00	0.93	1.00	1.00						1.00	
Flpb, ped/bikes		1.00	1.00	0.98	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3455	1395	1702	3421						4510	
Flt Permitted		1.00	1.00	0.44	1.00						0.99	
Satd. Flow (perm)		3455	1395	794	3421						4510	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	558	142	47	300	0	0	0	0	172	285	137
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	0	0	103	0
Lane Group Flow (vph)	0	558	83	47	300	0	0	0	0	0	491	0
Confl. Peds. (#/hr)	41		47	47		41	11		2	2		11
Confl. Bikes (#/hr)			19			19						
Heavy Vehicles (%)	0%	1%	4%	0%	2%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)												3
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		35.0	35.0	35.0	35.0						15.0	
Effective Green, g (s)		35.0	35.0	35.0	35.0						15.0	
Actuated g/C Ratio		0.58	0.58	0.58	0.58						0.25	
Clearance Time (s)		5.0	5.0	5.0	5.0						5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		2015	813	463	1995						1127	
v/s Ratio Prot		c0.16			0.09							
v/s Ratio Perm			0.06	0.06							0.11	
v/c Ratio		0.28	0.10	0.10	0.15						0.44	
Uniform Delay, d1		6.2	5.5	5.5	5.7						18.9	
Progression Factor		1.00	1.00	1.26	1.13						1.00	
Incremental Delay, d2		0.3	0.3	0.4	0.2						0.1	
Delay (s)		6.6	5.8	7.4	6.6						19.0	
Level of Service		A	A	A	A						B	
Approach Delay (s)		6.4			6.7			0.0			19.0	
Approach LOS		A			A			A			B	

### Intersection Summary

HCM 2000 Control Delay	11.0	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	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 2: Castro St & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕↕				
Traffic Volume (vph)	229	487	0	0	274	343	70	279	50	0	0	0
Future Volume (vph)	229	487	0	0	274	343	70	279	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.95			0.95			0.91				
Frbp, ped/bikes		1.00			0.96			1.00				
Flpb, ped/bikes		0.99			1.00			1.00				
Frt		1.00			0.92			0.98				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		3388			2863			4618				
Flt Permitted		0.65			1.00			0.99				
Satd. Flow (perm)		2220			2863			4618				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	229	487	0	0	274	343	70	279	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	114	0	0	39	0	0	0	0
Lane Group Flow (vph)	0	716	0	0	503	0	0	360	0	0	0	0
Confl. Peds. (#/hr)	48		49	49		48			15	15		
Confl. Bikes (#/hr)			17			18			1			
Heavy Vehicles (%)	0%	1%	0%	0%	3%	1%	3%	1%	0%	0%	0%	0%
Parking (#/hr)					1			3				
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)		39.2			39.2			10.8				
Effective Green, g (s)		39.2			39.2			10.8				
Actuated g/C Ratio		0.65			0.65			0.18				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1450			1870			831				
v/s Ratio Prot					0.18							
v/s Ratio Perm		c0.32						0.08				
v/c Ratio		0.49			0.27			0.43				
Uniform Delay, d1		5.3			4.4			21.9				
Progression Factor		0.70			1.69			1.00				
Incremental Delay, d2		1.2			0.3			0.1				
Delay (s)		4.9			7.7			22.0				
Level of Service		A			A			C				
Approach Delay (s)		4.9			7.7			22.0			0.0	
Approach LOS		A			A			C			A	

### Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

## 3: Clay St & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕			↕↕			↕	↕		↕↕		
Traffic Volume (vph)	17	544	37	56	472	80	15	95	42	49	113	29	
Future Volume (vph)	17	544	37	56	472	80	15	95	42	49	113	29	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.0			5.0			5.0	5.0		5.0		
Lane Util. Factor		0.95			0.95			1.00	1.00		0.95		
Frbp, ped/bikes		0.99			0.96			1.00	0.86		0.98		
Flpb, ped/bikes		1.00			0.99			0.99	1.00		0.97		
Frt		0.99			0.98			1.00	0.85		0.98		
Flt Protected		1.00			1.00			0.99	1.00		0.99		
Satd. Flow (prot)		3325			3183			1784	1341		3017		
Flt Permitted		0.93			0.86			0.95	1.00		0.87		
Satd. Flow (perm)		3107			2736			1713	1341		2656		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	17	544	37	56	472	80	15	95	42	49	113	29	
RTOR Reduction (vph)	0	8	0	0	20	0	0	0	27	0	18	0	
Lane Group Flow (vph)	0	590	0	0	588	0	0	110	15	0	173	0	
Confl. Peds. (#/hr)	200		175	175		200	145		139	139		145	
Confl. Bikes (#/hr)			14			14			13			8	
Heavy Vehicles (%)	0%	2%	9%	3%	2%	0%	0%	1%	0%	0%	1%	0%	
Parking (#/hr)												1	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA		
Protected Phases		4			4			2			2		
Permitted Phases	4			4			2		2	2			
Actuated Green, G (s)		28.0			28.0			22.0	22.0		22.0		
Effective Green, g (s)		28.0			28.0			22.0	22.0		22.0		
Actuated g/C Ratio		0.47			0.47			0.37	0.37		0.37		
Clearance Time (s)		5.0			5.0			5.0	5.0		5.0		
Vehicle Extension (s)		2.0			2.0			2.0	2.0		2.0		
Lane Grp Cap (vph)		1449			1276			628	491		973		
v/s Ratio Prot													
v/s Ratio Perm		0.19			c0.21			0.06	0.01		c0.07		
v/c Ratio		0.41			0.46			0.18	0.03		0.18		
Uniform Delay, d1		10.5			10.9			12.9	12.2		12.9		
Progression Factor		1.04			1.00			1.00	1.00		1.00		
Incremental Delay, d2		0.8			1.2			0.6	0.1		0.4		
Delay (s)		11.8			12.1			13.5	12.3		13.3		
Level of Service		B			B			B	B		B		
Approach Delay (s)		11.8			12.1			13.1			13.3		
Approach LOS		B			B			B			B		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			12.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			65.6%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
4: Broadway & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Traffic Volume (vph)	8	547	116	3	357	80	2	374	35	9	681	91
Future Volume (vph)	8	547	116	3	357	80	2	374	35	9	681	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.5			5.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frbp, ped/bikes		0.95			0.94			0.97			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3161			2950			2944			3075	
Flt Permitted		0.95			0.95			0.95			0.95	
Satd. Flow (perm)		3003			2808			2805			2923	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	547	116	3	357	80	2	374	35	9	681	91
RTOR Reduction (vph)	0	11	0	0	28	0	0	6	0	0	11	0
Lane Group Flow (vph)	0	660	0	0	412	0	0	405	0	0	770	0
Confl. Peds. (#/hr)	336		311	311		336	414		411	411		414
Confl. Bikes (#/hr)			23			24			35			7
Heavy Vehicles (%)	0%	1%	4%	0%	3%	1%	0%	15%	0%	0%	8%	0%
Parking (#/hr)					1							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		23.5			23.5			36.5			36.5	
Effective Green, g (s)		23.5			23.5			36.5			36.5	
Actuated g/C Ratio		0.34			0.34			0.52			0.52	
Clearance Time (s)		4.5			4.5			5.5			5.5	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		1008			942			1462			1524	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.15			0.14			c0.26	
v/c Ratio		0.65			0.44			0.28			0.50	
Uniform Delay, d1		19.8			18.1			9.4			10.9	
Progression Factor		1.00			1.60			1.00			1.00	
Incremental Delay, d2		1.2			0.1			0.5			1.2	
Delay (s)		21.0			29.1			9.8			12.1	
Level of Service		C			C			A			B	
Approach Delay (s)		21.0			29.1			9.8			12.1	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
5: Franklin St & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕↕	↕			
Traffic Volume (vph)	86	501	0	0	375	98	79	181	24	0	0	0
Future Volume (vph)	86	501	0	0	375	98	79	181	24	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			0.91	1.00			
Frbp, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		0.98			1.00			0.95	1.00			
Frt		1.00			0.97			1.00	0.85			
Flt Protected		0.99			1.00			0.99	1.00			
Satd. Flow (prot)		3164			2930			4436	1353			
Flt Permitted		0.82			1.00			0.99	1.00			
Satd. Flow (perm)		2612			2930			4436	1353			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	501	0	0	375	98	79	181	24	0	0	0
RTOR Reduction (vph)	0	0	0	0	34	0	0	0	15	0	0	0
Lane Group Flow (vph)	0	587	0	0	439	0	0	260	9	0	0	0
Confl. Peds. (#/hr)	284		173	173		284	176		105	105		176
Confl. Bikes (#/hr)			31			23			38			
Heavy Vehicles (%)	2%	1%	0%	0%	3%	0%	1%	1%	0%	0%	0%	0%
Parking (#/hr)		3			3			5			3	
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			4			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)		36.0			36.0			26.0	26.0			
Effective Green, g (s)		36.0			36.0			26.0	26.0			
Actuated g/C Ratio		0.51			0.51			0.37	0.37			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1343			1506			1647	502			
v/s Ratio Prot					0.15							
v/s Ratio Perm		c0.22						0.06	0.01			
v/c Ratio		0.44			0.29			0.16	0.02			
Uniform Delay, d1		10.7			9.7			14.7	13.9			
Progression Factor		0.19			0.28			1.00	1.00			
Incremental Delay, d2		0.8			0.5			0.2	0.1			
Delay (s)		2.9			3.2			14.9	14.0			
Level of Service		A			A			B	B			
Approach Delay (s)		2.9			3.2			14.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
6: Webster St & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑						↑↑↑	
Traffic Volume (vph)	0	461	83	32	362	0	0	0	0	123	460	56
Future Volume (vph)	0	461	83	32	362	0	0	0	0	123	460	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						5.0	
Lane Util. Factor		0.95			0.95						0.91	
Frbp, ped/bikes		0.98			1.00						0.99	
Flpb, ped/bikes		1.00			1.00						0.99	
Frt		0.98			1.00						0.99	
Flt Protected		1.00			1.00						0.99	
Satd. Flow (prot)		3102			3196						4572	
Flt Permitted		1.00			0.89						0.99	
Satd. Flow (perm)		3102			2846						4572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	461	83	32	362	0	0	0	0	123	460	56
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	523	0	0	394	0	0	0	0	0	623	0
Confl. Peds. (#/hr)	213		114	114		213	70		61	61		70
Confl. Bikes (#/hr)			28			17						11
Heavy Vehicles (%)	0%	2%	0%	2%	2%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)		1			3			3			3	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		30.0			30.0						30.0	
Effective Green, g (s)		30.0			30.0						30.0	
Actuated g/C Ratio		0.43			0.43						0.43	
Clearance Time (s)		5.0			5.0						5.0	
Vehicle Extension (s)		2.0			2.0						2.0	
Lane Grp Cap (vph)		1329			1219						1959	
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.14						0.14	
v/c Ratio		0.39			0.32						0.32	
Uniform Delay, d1		13.7			13.3						13.2	
Progression Factor		0.50			0.85						1.00	
Incremental Delay, d2		0.8			0.7						0.4	
Delay (s)		7.6			12.0						13.7	
Level of Service		A			B						B	
Approach Delay (s)		7.6			12.0			0.0			13.7	
Approach LOS		A			B			A			B	

Intersection Summary		
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.36	
Actuated Cycle Length (s)	70.0	Sum of lost time (s) 10.0
Intersection Capacity Utilization	58.2%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
7: Harrison St & 14th St

14th Street Safe Streets  
Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	70	466	26	10	289	48	86	427	21	79	155	42
Future Volume (vph)	70	466	26	10	289	48	86	427	21	79	155	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frbp, ped/bikes		1.00			0.96			1.00			0.99	
Flpb, ped/bikes		0.98			1.00			0.99			0.99	
Frt		0.99			0.98			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3121			3058			3191			3086	
Flt Permitted		0.86			0.94			0.84			0.73	
Satd. Flow (perm)		2706			2875			2717			2287	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	466	26	10	289	48	86	427	21	79	155	42
RTOR Reduction (vph)	0	5	0	0	18	0	0	4	0	0	21	0
Lane Group Flow (vph)	0	557	0	0	329	0	0	530	0	0	255	0
Confl. Peds. (#/hr)	237		68	68		237	74		52	52		74
Confl. Bikes (#/hr)			41			29			7			4
Heavy Vehicles (%)	0%	2%	0%	0%	2%	2%	0%	1%	6%	0%	1%	0%
Parking (#/hr)		3			1			1			3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		31.0			31.0			29.5			29.5	
Effective Green, g (s)		31.0			31.0			29.5			29.5	
Actuated g/C Ratio		0.44			0.44			0.42			0.42	
Clearance Time (s)		4.5			4.5			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		1198			1273			1145			963	
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.11			c0.20			0.11	
v/c Ratio		0.46			0.26			0.46			0.26	
Uniform Delay, d1		13.7			12.3			14.6			13.2	
Progression Factor		1.47			0.64			1.00			1.00	
Incremental Delay, d2		1.2			0.5			1.3			0.7	
Delay (s)		21.3			8.3			15.9			13.9	
Level of Service		C			A			B			B	
Approach Delay (s)		21.3			8.3			15.9			13.9	
Approach LOS		C			A			B			B	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

# 14th Street Safe Streets

## 8: Madison St & 14th St

Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↘	↑↑	
Traffic Volume (vph)	0	491	70	31	273	0	0	0	0	182	281	43
Future Volume (vph)	0	491	70	31	273	0	0	0	0	182	281	43
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		0.95			0.95					1.00	0.95	
Frbp, ped/bikes		0.98			1.00					1.00	0.99	
Flpb, ped/bikes		1.00			0.99					0.93	1.00	
Frt		0.98			1.00					1.00	0.98	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3140			3162					1631	3128	
Flt Permitted		1.00			0.88					0.95	1.00	
Satd. Flow (perm)		3140			2792					1631	3128	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	491	70	31	273	0	0	0	0	182	281	43
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	545	0	0	304	0	0	0	0	182	307	0
Confl. Peds. (#/hr)	163		107	107		163	78		59	59		78
Confl. Bikes (#/hr)			33			21						2
Heavy Vehicles (%)	0%	1%	5%	17%	2%	0%	0%	0%	0%	0%	2%	0%
Parking (#/hr)		1			1			3			3	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		31.0			31.0					30.0	30.0	
Effective Green, g (s)		31.0			31.0					30.0	30.0	
Actuated g/C Ratio		0.44			0.44					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)		1390			1236					699	1340	
v/s Ratio Prot		c0.17									0.10	
v/s Ratio Perm					0.11					c0.11		
v/c Ratio		0.39			0.25					0.26	0.23	
Uniform Delay, d1		13.1			12.2					12.9	12.7	
Progression Factor		1.72			1.23					1.00	1.00	
Incremental Delay, d2		0.8			0.5					0.9	0.4	
Delay (s)		23.4			15.5					13.8	13.1	
Level of Service		C			B					B	B	
Approach Delay (s)		23.4			15.5			0.0			13.3	
Approach LOS		C			B			A			B	

### Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 9: Oak St & 14th St/Lake Merritt Blvd

14th Street Safe Streets  
 Existing PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↕↕	↗		↕↕	↗			
Traffic Volume (vph)	58	603	1	0	222	146	80	281	37	0	0	0
Future Volume (vph)	58	603	1	0	222	146	80	281	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0	6.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frbp, ped/bikes		1.00			1.00	0.86		1.00	0.92			
Flpb, ped/bikes		0.99			1.00	1.00		0.98	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3236			3388	1346		3160	1439			
Flt Permitted		0.90			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2914			3388	1346		3160	1439			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	603	1	0	222	146	80	281	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	17	0	0	0
Lane Group Flow (vph)	0	662	0	0	222	43	0	361	20	0	0	0
Confl. Peds. (#/hr)	102		27	27		102	128		72	72		128
Confl. Bikes (#/hr)			42			15			24			
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	5%	0%	0%	0%	0%	0%
Parking (#/hr)		1						1				
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases	2					6	8		8			
Actuated Green, G (s)		20.8			20.8	20.8		37.2	37.2			
Effective Green, g (s)		20.8			20.8	20.8		37.2	37.2			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		6.0			6.0	6.0		6.0	6.0			
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0			
Lane Grp Cap (vph)		865			1006	399		1679	764			
v/s Ratio Prot					0.07							
v/s Ratio Perm		c0.23				0.03		0.11	0.01			
v/c Ratio		0.77			0.22	0.11		0.22	0.03			
Uniform Delay, d1		22.4			18.5	17.9		8.7	7.8			
Progression Factor		1.10			1.00	1.00		1.00	1.00			
Incremental Delay, d2		3.5			0.0	0.0		0.3	0.1			
Delay (s)		28.0			18.5	17.9		9.0	7.9			
Level of Service		C			B	B		A	A			
Approach Delay (s)		28.0			18.3			8.9			0.0	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

# 14th Street Safe Streets

## 1: Brush St & 14th St

Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↖	↗
Traffic Volume (vph)	0	401	76	42	600	0	0	0	0	347	476	326
Future Volume (vph)	0	401	76	42	600	0	0	0	0	347	476	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0						5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frbp, ped/bikes		1.00	0.91	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	0.97	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.96	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1766	1343	1694	1717						4432	
Flt Permitted		1.00	1.00	0.40	1.00						0.99	
Satd. Flow (perm)		1766	1343	709	1717						4432	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	401	76	42	600	0	0	0	0	347	476	326
RTOR Reduction (vph)	0	0	45	0	0	0	0	0	0	0	91	0
Lane Group Flow (vph)	0	401	31	42	600	0	0	0	0	0	1058	0
Confl. Peds. (#/hr)	37		49	49		37	12		1	1		12
Confl. Bikes (#/hr)			27			7						
Heavy Vehicles (%)	0%	4%	6%	0%	7%	0%	0%	0%	0%	1%	3%	0%
Parking (#/hr)											3	
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		28.4	28.4	28.4	28.4						31.6	
Effective Green, g (s)		28.4	28.4	28.4	28.4						31.6	
Actuated g/C Ratio		0.41	0.41	0.41	0.41						0.45	
Clearance Time (s)		5.0	5.0	5.0	5.0						5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		716	544	287	696						2000	
v/s Ratio Prot		0.23			c0.35							
v/s Ratio Perm			0.02	0.06							0.24	
v/c Ratio		0.56	0.06	0.15	0.86						0.53	
Uniform Delay, d1		16.0	12.7	13.1	19.0						13.8	
Progression Factor		1.00	1.00	1.15	0.99						1.00	
Incremental Delay, d2		0.6	0.0	0.1	9.6						1.0	
Delay (s)		16.6	12.7	15.2	28.4						14.8	
Level of Service		B	B	B	C						B	
Approach Delay (s)		16.0			27.6			0.0			14.8	
Approach LOS		B			C			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			18.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			63.8%			ICU Level of Service				B		
Analysis Period (min)			15									

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
2: Castro St & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗		↖↗↘				
Traffic Volume (vph)	239	516	0	0	508	153	148	161	60	0	0	0
Future Volume (vph)	239	516	0	0	508	153	148	161	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91				
Frbp, ped/bikes	1.00	1.00			1.00	0.94		0.99				
Flpb, ped/bikes	0.98	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.98				
Flt Protected	0.95	1.00			1.00	1.00		0.98				
Satd. Flow (prot)	1625	1818			1566	1421		4294				
Flt Permitted	0.44	1.00			1.00	1.00		0.98				
Satd. Flow (perm)	760	1818			1566	1421		4294				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	239	516	0	0	508	153	148	161	60	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	46	0	49	0	0	0	0
Lane Group Flow (vph)	239	516	0	0	508	107	0	320	0	0	0	0
Confl. Peds. (#/hr)	40		58	58		40			8	8		
Confl. Bikes (#/hr)			26			7						
Heavy Vehicles (%)	5%	1%	0%	0%	5%	3%	6%	7%	6%	0%	0%	0%
Parking (#/hr)					1			5				
Turn Type	Perm	NA			NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	48.9	48.9			48.9	48.9		11.1				
Effective Green, g (s)	48.9	48.9			48.9	48.9		11.1				
Actuated g/C Ratio	0.70	0.70			0.70	0.70		0.16				
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0				
Vehicle Extension (s)	2.0	2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)	530	1270			1093	992		680				
v/s Ratio Prot		0.28			0.32							
v/s Ratio Perm	0.31					0.08		0.07				
v/c Ratio	0.45	0.41			0.46	0.11		0.47				
Uniform Delay, d1	4.6	4.4			4.7	3.4		26.8				
Progression Factor	1.11	1.12			1.00	1.00		1.00				
Incremental Delay, d2	2.4	0.8			1.4	0.2		0.2				
Delay (s)	7.6	5.8			6.1	3.7		27.0				
Level of Service	A	A			A	A		C				
Approach Delay (s)		6.4			5.6			27.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary		
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	63.8%	10.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 3: Clay St & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	51	442	44	55	499	93	14	89	54	69	63	24	
Future Volume (vph)	51	442	44	55	499	93	14	89	54	69	63	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.0			5.0			5.0			5.0		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frbp, ped/bikes		0.98			0.96			0.91			0.96		
Flpb, ped/bikes		0.99			0.99			0.98			0.92		
Frt		0.99			0.98			0.95			0.98		
Flt Protected		1.00			1.00			1.00			0.98		
Satd. Flow (prot)		1714			1650			1458			1365		
Flt Permitted		0.90			0.92			0.97			0.83		
Satd. Flow (perm)		1558			1532			1421			1159		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	51	442	44	55	499	93	14	89	54	69	63	24	
RTOR Reduction (vph)	0	5	0	0	9	0	0	27	0	0	9	0	
Lane Group Flow (vph)	0	532	0	0	638	0	0	130	0	0	147	0	
Confl. Peds. (#/hr)	163		152	152		163	148		135	135		148	
Confl. Bikes (#/hr)			7			9			3			4	
Heavy Vehicles (%)	0%	2%	6%	0%	3%	5%	11%	5%	10%	0%	0%	5%	
Parking (#/hr)												3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			4			2			2		
Permitted Phases	4			4			2			2			
Actuated Green, G (s)		40.0			40.0			20.0			20.0		
Effective Green, g (s)		40.0			40.0			20.0			20.0		
Actuated g/C Ratio		0.57			0.57			0.29			0.29		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Vehicle Extension (s)		2.0			2.0			2.0			2.0		
Lane Grp Cap (vph)		890			875			406			331		
v/s Ratio Prot													
v/s Ratio Perm		0.34			0.42			0.09			0.13		
v/c Ratio		0.60			0.73			0.32			0.44		
Uniform Delay, d1		9.8			11.0			19.7			20.4		
Progression Factor		1.00			0.76			1.00			1.00		
Incremental Delay, d2		3.0			2.5			2.1			4.3		
Delay (s)		12.7			10.8			21.7			24.7		
Level of Service		B			B			C			C		
Approach Delay (s)		12.7			10.8			21.7			24.7		
Approach LOS		B			B			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			14.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			82.1%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
4: Broadway & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖			↖↗			↖↗	
Traffic Volume (vph)	2	276	82	15	608	99	2	280	18	1	510	86
Future Volume (vph)	2	276	82	15	608	99	2	280	18	1	510	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			5.5			5.5	
Lane Util. Factor		1.00	1.00		1.00			0.95			0.95	
Frbp, ped/bikes		1.00	0.71		0.96			0.97			0.92	
Flpb, ped/bikes		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.98			0.99			0.98	
Flt Protected		1.00	1.00		1.00			1.00			1.00	
Satd. Flow (prot)		1795	1051		1478			2879			2779	
Flt Permitted		1.00	1.00		0.99			0.95			0.95	
Satd. Flow (perm)		1790	1051		1468			2741			2653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	276	82	15	608	99	2	280	18	1	510	86
RTOR Reduction (vph)	0	0	19	0	7	0	0	7	0	0	19	0
Lane Group Flow (vph)	0	278	63	0	715	0	0	293	0	0	578	0
Confl. Peds. (#/hr)	303		292	292		303	332		373	373		332
Confl. Bikes (#/hr)			5			14			1			27
Heavy Vehicles (%)	33%	2%	6%	50%	2%	2%	0%	17%	4%	0%	15%	4%
Parking (#/hr)					3							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		36.3	36.3		36.3			23.7			23.7	
Effective Green, g (s)		36.3	36.3		36.3			23.7			23.7	
Actuated g/C Ratio		0.52	0.52		0.52			0.34			0.34	
Clearance Time (s)		4.5	4.5		4.5			5.5			5.5	
Vehicle Extension (s)		2.0	2.0		2.0			2.0			2.0	
Lane Grp Cap (vph)		928	545		761			928			898	
v/s Ratio Prot												
v/s Ratio Perm		0.16	0.06		0.49			0.11			0.22	
v/c Ratio		0.30	0.12		0.94			0.32			0.64	
Uniform Delay, d1		9.6	8.6		15.8			17.1			19.6	
Progression Factor		0.88	0.88		1.80			1.00			1.00	
Incremental Delay, d2		0.1	0.0		9.8			0.9			3.5	
Delay (s)		8.5	7.6		38.3			18.0			23.1	
Level of Service		A	A		D			B			C	
Approach Delay (s)		8.3			38.3			18.0			23.1	
Approach LOS		A			D			B			C	

Intersection Summary

HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
5: Franklin St & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖	↗			
Traffic Volume (vph)	71	219	0	0	688	128	37	165	8	0	0	0
Future Volume (vph)	71	219	0	0	688	128	37	165	8	0	0	0
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				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.95			0.99				
Flpb, ped/bikes		0.99			1.00			0.95				
Frt		1.00			0.98			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1571			1472			2961				
Flt Permitted		0.59			1.00			0.99				
Satd. Flow (perm)		934			1472			2961				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	219	0	0	688	128	37	165	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	290	0	0	806	0	0	206	0	0	0	0
Confl. Peds. (#/hr)	332		165	165		332	168		111	111		168
Confl. Bikes (#/hr)			4			52			9			
Heavy Vehicles (%)	2%	2%	0%	0%	3%	1%	4%	3%	5%	0%	0%	0%
Parking (#/hr)		1			3			3			1	
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		41.0			41.0			21.0				
Effective Green, g (s)		41.0			41.0			21.0				
Actuated g/C Ratio		0.59			0.59			0.30				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		547			862			888				
v/s Ratio Prot					0.55							
v/s Ratio Perm		0.31						0.07				
v/c Ratio		0.53			0.94			0.23				
Uniform Delay, d1		8.7			13.3			18.4				
Progression Factor		1.48			0.67			1.00				
Incremental Delay, d2		3.5			18.3			0.6				
Delay (s)		16.5			27.1			19.0				
Level of Service		B			C			B				
Approach Delay (s)		16.5			27.1			19.0			0.0	
Approach LOS		B			C			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			23.5				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			91.2%				ICU Level of Service		F			
Analysis Period (min)			15									

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
6: Webster St & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↖			↑	↗	↘	↑↑↑	
Traffic Volume (vph)	0	193	31	28	407	0	0	0	0	104	157	49
Future Volume (vph)	0	193	31	28	407	0	0	0	0	104	157	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frbp, ped/bikes		1.00	0.91		1.00						0.97	
Flpb, ped/bikes		1.00	1.00		1.00						0.97	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		1.00						0.98	
Satd. Flow (prot)		1596	1392		1599						4309	
Flt Permitted		1.00	1.00		0.98						0.98	
Satd. Flow (perm)		1596	1392		1566						4309	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	193	31	28	407	0	0	0	0	104	157	49
RTOR Reduction (vph)	0	0	13	0	0	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	193	18	0	435	0	0	0	0	0	274	0
Confl. Peds. (#/hr)	256		66	66		256	70		44	44		70
Confl. Bikes (#/hr)			9			62						37
Heavy Vehicles (%)	0%	3%	2%	3%	2%	0%	0%	0%	0%	0%	1%	6%
Parking (#/hr)		1			1			1			1	
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		41.0	41.0		41.0						19.0	
Effective Green, g (s)		41.0	41.0		41.0						19.0	
Actuated g/C Ratio		0.59	0.59		0.59						0.27	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Vehicle Extension (s)		2.0	2.0		2.0						2.0	
Lane Grp Cap (vph)		934	815		917						1169	
v/s Ratio Prot		0.12										
v/s Ratio Perm			0.01		0.28						0.06	
v/c Ratio		0.21	0.02		0.47						0.23	
Uniform Delay, d1		6.8	6.1		8.3						19.8	
Progression Factor		0.33	0.27		0.46						1.00	
Incremental Delay, d2		0.4	0.0		0.8						0.5	
Delay (s)		2.7	1.7		4.6						20.3	
Level of Service		A	A		A						C	
Approach Delay (s)		2.5			4.6			0.0			20.3	
Approach LOS		A			A			A			C	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
7: Harrison St & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	241	140	15	654	136	134	478	28	25	78	23
Future Volume (vph)	35	241	140	15	654	136	134	478	28	25	78	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frbp, ped/bikes		0.98			0.96			1.00			0.97	
Flpb, ped/bikes		1.00			1.00			0.98			0.99	
Frt		0.95			0.98			0.99			0.97	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		1505			1500			3091			2980	
Flt Permitted		0.91			0.99			0.85			0.81	
Satd. Flow (perm)		1375			1488			2654			2442	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	241	140	15	654	136	134	478	28	25	78	23
RTOR Reduction (vph)	0	26	0	0	11	0	0	5	0	0	16	0
Lane Group Flow (vph)	0	390		0	794		0	635		0	110	
Confl. Peds. (#/hr)	199		49	49		199	76		48	48		76
Confl. Bikes (#/hr)			11			67			6			2
Heavy Vehicles (%)	0%	2%	0%	15%	3%	1%	2%	1%	24%	4%	4%	0%
Parking (#/hr)		1			1			1			1	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		40.5			40.5			20.0			20.0	
Effective Green, g (s)		40.5			40.5			20.0			20.0	
Actuated g/C Ratio		0.58			0.58			0.29			0.29	
Clearance Time (s)		4.5			4.5			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		795			860			758			697	
v/s Ratio Prot												
v/s Ratio Perm		0.28			c0.53			c0.24			0.04	
v/c Ratio		0.49			0.92			0.84			0.16	
Uniform Delay, d1		8.7			13.4			23.5			18.7	
Progression Factor		1.36			0.22			1.00			1.00	
Incremental Delay, d2		2.1			12.2			10.7			0.5	
Delay (s)		13.9			15.2			34.2			19.2	
Level of Service		B			B			C			B	
Approach Delay (s)		13.9			15.2			34.2			19.2	
Approach LOS		B			B			C			B	

Intersection Summary

HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 8: Madison St & 14th St

14th Street Safe Streets  
Project AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔					↔	↔↔	
Traffic Volume (vph)	0	186	91	40	722	0	0	0	0	55	150	40
Future Volume (vph)	0	186	91	40	722	0	0	0	0	55	150	40
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			1.00					1.00	0.95	
Frbp, ped/bikes		0.98			1.00					1.00	0.97	
Flpb, ped/bikes		1.00			1.00					0.84	1.00	
Frt		0.96			1.00					1.00	0.97	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		1480			1600					1451	3058	
Flt Permitted		1.00			0.97					0.95	1.00	
Satd. Flow (perm)		1480			1563					1451	3058	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	186	91	40	722	0	0	0	0	55	150	40
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	252	0	0	762	0	0	0	0	55	161	0
Confl. Peds. (#/hr)	140		53	53		140	66		87	87		66
Confl. Bikes (#/hr)			6			60						12
Heavy Vehicles (%)	0%	4%	3%	7%	2%	0%	0%	0%	0%	1%	1%	0%
Parking (#/hr)		1			1			1				3
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		42.0			42.0					19.0	19.0	
Effective Green, g (s)		42.0			42.0					19.0	19.0	
Actuated g/C Ratio		0.60			0.60					0.27	0.27	
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)		888			937					393	830	
v/s Ratio Prot		0.17									c0.05	
v/s Ratio Perm					c0.49					0.04		
v/c Ratio		0.28			0.81					0.14	0.19	
Uniform Delay, d1		6.7			10.9					19.3	19.6	
Progression Factor		0.65			0.99					1.00	1.00	
Incremental Delay, d2		0.7			5.0					0.7	0.5	
Delay (s)		5.1			15.9					20.1	20.1	
Level of Service		A			B					C	C	
Approach Delay (s)		5.1			15.9			0.0			20.1	
Approach LOS		A			B			A			C	


















### Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 9: Oak St & 14th St/Lake Merritt Blvd

14th Street Safe Streets  
 Project AM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
Future Volume (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0	6.0				
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00				
Frbp, ped/bikes		1.00			1.00	0.87		1.00	0.91				
Flpb, ped/bikes		1.00			1.00	1.00		0.96	1.00				
Frt		1.00			1.00	0.85		1.00	0.85				
Flt Protected		0.99			1.00	1.00		0.99	1.00				
Satd. Flow (prot)		1577			1801	1320		2996	1416				
Flt Permitted		0.69			1.00	1.00		0.99	1.00				
Satd. Flow (perm)		1087			1801	1320		2996	1416				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	28	216	0	0	668	440	105	338	26	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	135	0	0	15	0	0	0	
Lane Group Flow (vph)	0	244	0	0	668	305	0	443	11	0	0	0	
Confl. Peds. (#/hr)	78		23	23		78	138		50	50		138	
Confl. Bikes (#/hr)			4			63			8				
Heavy Vehicles (%)	7%	3%	0%	0%	2%	3%	6%	3%	0%	0%	0%	0%	
Parking (#/hr)		1						3					
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm				
Protected Phases		2			6			8					
Permitted Phases	2					6	8		8				
Actuated Green, G (s)		29.6			29.6	29.6		28.4	28.4				
Effective Green, g (s)		29.6			29.6	29.6		28.4	28.4				
Actuated g/C Ratio		0.42			0.42	0.42		0.41	0.41				
Clearance Time (s)		6.0			6.0	6.0		6.0	6.0				
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0				
Lane Grp Cap (vph)		459			761	558		1215	574				
v/s Ratio Prot					c0.37								
v/s Ratio Perm		0.22				0.23		0.15	0.01				
v/c Ratio		0.53			0.88	0.55		0.36	0.02				
Uniform Delay, d1		15.0			18.5	15.2		14.5	12.5				
Progression Factor		1.05			1.00	1.00		1.00	1.00				
Incremental Delay, d2		0.6			10.9	0.6		0.8	0.1				
Delay (s)		16.4			29.4	15.8		15.4	12.5				
Level of Service		B			C	B		B	B				
Approach Delay (s)		16.4			24.0			15.2			0.0		
Approach LOS		B			C			B			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			20.7		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization			83.6%		ICU Level of Service				E				
Analysis Period (min)			15										

c Critical Lane Group



# HCM Signalized Intersection Capacity Analysis

# 14th Street Safe Streets

## 1: Brush St & 14th St

Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↖↗	↖↗
Traffic Volume (vph)	0	558	142	47	300	0	0	0	0	172	285	137
Future Volume (vph)	0	558	142	47	300	0	0	0	0	172	285	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0	5.0	5.0						5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	
Frbp, ped/bikes		1.00	0.93	1.00	1.00						0.99	
Flpb, ped/bikes		1.00	1.00	0.98	1.00						1.00	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		1818	1395	1711	1801						4496	
Flt Permitted		1.00	1.00	0.37	1.00						0.99	
Satd. Flow (perm)		1818	1395	674	1801						4496	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	558	142	47	300	0	0	0	0	172	285	137
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	0	0	103	0
Lane Group Flow (vph)	0	558	83	47	300	0	0	0	0	0	491	0
Confl. Peds. (#/hr)	41		47	47		41	11		2	2		11
Confl. Bikes (#/hr)			19			19						
Heavy Vehicles (%)	0%	1%	4%	0%	2%	0%	0%	0%	0%	1%	2%	0%
Parking (#/hr)												3
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		35.0	35.0	35.0	35.0						15.0	
Effective Green, g (s)		35.0	35.0	35.0	35.0						15.0	
Actuated g/C Ratio		0.58	0.58	0.58	0.58						0.25	
Clearance Time (s)		5.0	5.0	5.0	5.0						5.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1060	813	393	1050						1124	
v/s Ratio Prot		c0.31			0.17							
v/s Ratio Perm			0.06	0.07							0.11	
v/c Ratio		0.53	0.10	0.12	0.29						0.44	
Uniform Delay, d1		7.5	5.5	5.6	6.2						18.9	
Progression Factor		1.00	1.00	0.99	0.88						1.00	
Incremental Delay, d2		1.9	0.3	0.6	0.7						0.1	
Delay (s)		9.4	5.8	6.1	6.2						19.0	
Level of Service		A	A	A	A						B	
Approach Delay (s)		8.7			6.2			0.0			19.0	
Approach LOS		A			A			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			11.9			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)			10.0			
Intersection Capacity Utilization			63.1%			ICU Level of Service					B	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
2: Castro St & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑			↑	↗		↗↘↙				
Traffic Volume (vph)	229	487	0	0	274	343	70	279	50	0	0	0
Future Volume (vph)	229	487	0	0	274	343	70	279	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0				
Lane Util. Factor	1.00	1.00			1.00	1.00		0.91				
Frbp, ped/bikes	1.00	1.00			1.00	0.93		0.99				
Flpb, ped/bikes	0.97	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.98				
Flt Protected	0.95	1.00			1.00	1.00		0.99				
Satd. Flow (prot)	1684	1818			1596	1442		4608				
Flt Permitted	0.59	1.00			1.00	1.00		0.99				
Satd. Flow (perm)	1048	1818			1596	1442		4608				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	229	487	0	0	274	343	70	279	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	114	0	39	0	0	0	0
Lane Group Flow (vph)	229	487	0	0	274	229	0	360	0	0	0	0
Confl. Peds. (#/hr)	48		49	49		48			15	15		
Confl. Bikes (#/hr)			17			18			1			
Heavy Vehicles (%)	0%	1%	0%	0%	3%	1%	3%	1%	0%	0%	0%	0%
Parking (#/hr)					1			3				
Turn Type	Perm	NA			NA	Perm	Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	39.2	39.2			39.2	39.2		10.8				
Effective Green, g (s)	39.2	39.2			39.2	39.2		10.8				
Actuated g/C Ratio	0.65	0.65			0.65	0.65		0.18				
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0				
Vehicle Extension (s)	2.0	2.0			2.0	2.0		2.0				
Lane Grp Cap (vph)	684	1187			1042	942		829				
v/s Ratio Prot		c0.27			0.17							
v/s Ratio Perm	0.22					0.16		0.08				
v/c Ratio	0.33	0.41			0.26	0.24		0.43				
Uniform Delay, d1	4.6	4.9			4.4	4.3		21.9				
Progression Factor	0.61	0.61			0.96	2.16		1.00				
Incremental Delay, d2	1.2	0.9			0.5	0.5		0.1				
Delay (s)	4.0	4.0			4.6	9.7		22.0				
Level of Service	A	A			A	A		C				
Approach Delay (s)		4.0			7.5			22.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary		
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.42	A
Actuated Cycle Length (s)	60.0	Sum of lost time (s)
Intersection Capacity Utilization	63.1%	10.0
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 3: Clay St & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	544	37	56	472	80	15	95	42	49	113	29
Future Volume (vph)	17	544	37	56	472	80	15	95	42	49	113	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.96			0.96			0.96	
Flpb, ped/bikes		1.00			0.99			0.98			0.98	
Frt		0.99			0.98			0.96			0.98	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1740			1675			1654			1485	
Flt Permitted		0.98			0.91			0.97			0.89	
Satd. Flow (perm)		1707			1537			1605			1344	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	17	544	37	56	472	80	15	95	42	49	113	29
RTOR Reduction (vph)	0	4	0	0	9	0	0	23	0	0	11	0
Lane Group Flow (vph)	0	594	0	0	599	0	0	129	0	0	180	0
Confl. Peds. (#/hr)	200		175	175		200	145		139	139		145
Confl. Bikes (#/hr)			14			14			13			8
Heavy Vehicles (%)	0%	2%	9%	3%	2%	0%	0%	1%	0%	0%	1%	0%
Parking (#/hr)												1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		30.0			30.0			20.0			20.0	
Effective Green, g (s)		30.0			30.0			20.0			20.0	
Actuated g/C Ratio		0.50			0.50			0.33			0.33	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		853			768			535			448	
v/s Ratio Prot												
v/s Ratio Perm		0.35			0.39			0.08			0.13	
v/c Ratio		0.70			0.78			0.24			0.40	
Uniform Delay, d1		11.5			12.3			14.5			15.4	
Progression Factor		0.98			1.00			1.00			1.00	
Incremental Delay, d2		4.5			7.7			1.1			2.7	
Delay (s)		15.7			20.0			15.6			18.1	
Level of Service		B			C			B			B	
Approach Delay (s)		15.7			20.0			15.6			18.1	
Approach LOS		B			C			B			B	

### Intersection Summary

HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
4: Broadway & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	↗
Traffic Volume (vph)	8	547	116	3	357	80	2	374	35	9	681	91
Future Volume (vph)	8	547	116	3	357	80	2	374	35	9	681	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			5.5			5.5	
Lane Util. Factor		1.00	1.00		1.00			0.95			0.95	
Frbp, ped/bikes		1.00	0.69		0.94			0.95			0.94	
Flpb, ped/bikes		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.98			0.99			0.98	
Flt Protected		1.00	1.00		1.00			1.00			1.00	
Satd. Flow (prot)		1814	1037		1471			2886			2990	
Flt Permitted		0.99	1.00		1.00			0.95			0.95	
Satd. Flow (perm)		1804	1037		1468			2749			2841	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	547	116	3	357	80	2	374	35	9	681	91
RTOR Reduction (vph)	0	0	23	0	10	0	0	9	0	0	13	0
Lane Group Flow (vph)	0	555	93	0	430	0	0	402	0	0	768	0
Confl. Peds. (#/hr)	336		311	311		336	414		411	411		414
Confl. Bikes (#/hr)			23			24			35			7
Heavy Vehicles (%)	0%	1%	4%	0%	3%	1%	0%	15%	0%	0%	8%	0%
Parking (#/hr)					1							
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		28.2	28.2		28.2			31.8			31.8	
Effective Green, g (s)		28.2	28.2		28.2			31.8			31.8	
Actuated g/C Ratio		0.40	0.40		0.40			0.45			0.45	
Clearance Time (s)		4.5	4.5		4.5			5.5			5.5	
Vehicle Extension (s)		2.0	2.0		2.0			2.0			2.0	
Lane Grp Cap (vph)		726	417		591			1248			1290	
v/s Ratio Prot												
v/s Ratio Perm		c0.31	0.09		0.29			0.15			c0.27	
v/c Ratio		0.76	0.22		0.73			0.32			0.60	
Uniform Delay, d1		18.0	13.7		17.7			12.2			14.3	
Progression Factor		1.00	1.00		1.53			1.00			1.00	
Incremental Delay, d2		4.3	0.1		3.3			0.7			2.0	
Delay (s)		22.4	13.8		30.4			12.9			16.3	
Level of Service		C	B		C			B			B	
Approach Delay (s)		20.9			30.4			12.9			16.3	
Approach LOS		C			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.67	B
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	78.9%	10.0
Analysis Period (min)	15	ICU Level of Service
		D

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 5: Franklin St & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	86	501	0	0	375	98	79	181	24	0	0	0
Future Volume (vph)	86	501	0	0	375	98	79	181	24	0	0	0
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				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.94			0.98				
Flpb, ped/bikes		0.98			1.00			0.92				
Frt		1.00			0.97			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1567			1453			2843				
Flt Permitted		0.88			1.00			0.99				
Satd. Flow (perm)		1386			1453			2843				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	501	0	0	375	98	79	181	24	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	587	0	0	460	0	0	274	0	0	0	0
Confl. Peds. (#/hr)	284		173	173		284	176		105	105		176
Confl. Bikes (#/hr)			31			23			38			
Heavy Vehicles (%)	2%	1%	0%	0%	3%	0%	1%	1%	0%	0%	0%	0%
Parking (#/hr)		3			3			5			3	
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		41.0			41.0			21.0				
Effective Green, g (s)		41.0			41.0			21.0				
Actuated g/C Ratio		0.59			0.59			0.30				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		811			851			852				
v/s Ratio Prot					0.32							
v/s Ratio Perm		c0.42						0.10				
v/c Ratio		0.72			0.54			0.32				
Uniform Delay, d1		10.4			8.8			19.0				
Progression Factor		0.97			0.28			1.00				
Incremental Delay, d2		4.3			2.3			1.0				
Delay (s)		14.5			4.7			20.0				
Level of Service		B			A			B				
Approach Delay (s)		14.5			4.7			20.0			0.0	
Approach LOS		B			A			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.2				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			86.1%				ICU Level of Service		E			
Analysis Period (min)			15									

c Critical Lane Group



HCM Signalized Intersection Capacity Analysis  
6: Webster St & 14th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↖			↑	↗	↘	↑↑↑	
Traffic Volume (vph)	0	461	83	32	362	0	0	0	0	123	460	56
Future Volume (vph)	0	461	83	32	362	0	0	0	0	123	460	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0		5.0						5.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frbp, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		1.00						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		1.00						0.99	
Satd. Flow (prot)		1612	1325		1580						4503	
Flt Permitted		1.00	1.00		0.95						0.99	
Satd. Flow (perm)		1612	1325		1501						4503	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	461	83	32	362	0	0	0	0	123	460	56
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	461	49	0	394	0	0	0	0	0	623	0
Confl. Peds. (#/hr)	213		114	114		213	70		61	61		70
Confl. Bikes (#/hr)			28			17						11
Heavy Vehicles (%)	0%	2%	0%	2%	2%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)		1			3			3				3
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		39.0	39.0		39.0						21.0	
Effective Green, g (s)		39.0	39.0		39.0						21.0	
Actuated g/C Ratio		0.56	0.56		0.56						0.30	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Vehicle Extension (s)		2.0	2.0		2.0						2.0	
Lane Grp Cap (vph)		898	738		836						1350	
v/s Ratio Prot		c0.29										
v/s Ratio Perm			0.04		0.26						0.14	
v/c Ratio		0.51	0.07		0.47						0.46	
Uniform Delay, d1		9.6	7.1		9.3						19.9	
Progression Factor		0.70	1.44		1.02						1.00	
Incremental Delay, d2		1.5	0.1		1.7						1.1	
Delay (s)		8.2	10.4		11.2						21.0	
Level of Service		A	B		B						C	
Approach Delay (s)		8.6			11.2			0.0			21.0	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
7: Harrison St & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	70	466	26	10	289	48	86	427	21	79	155	42
Future Volume (vph)	70	466	26	10	289	48	86	427	21	79	155	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			5.0			5.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frbp, ped/bikes		1.00			0.97			1.00			0.98	
Flpb, ped/bikes		0.98			1.00			0.99			0.99	
Frt		0.99			0.98			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		1546			1524			3167			3044	
Flt Permitted		0.92			0.98			0.84			0.67	
Satd. Flow (perm)		1428			1503			2672			2057	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	466	26	10	289	48	86	427	21	79	155	42
RTOR Reduction (vph)	0	3	0	0	8	0	0	4	0	0	21	0
Lane Group Flow (vph)	0	559	0	0	339	0	0	530	0	0	255	0
Confl. Peds. (#/hr)	237		68	68		237	74		52	52		74
Confl. Bikes (#/hr)			41			29			7			4
Heavy Vehicles (%)	0%	2%	0%	0%	2%	2%	0%	1%	6%	0%	1%	0%
Parking (#/hr)		3			1			1			3	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		40.5			40.5			20.0			20.0	
Effective Green, g (s)		40.5			40.5			20.0			20.0	
Actuated g/C Ratio		0.58			0.58			0.29			0.29	
Clearance Time (s)		4.5			4.5			5.0			5.0	
Vehicle Extension (s)		2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)		826			869			763			587	
v/s Ratio Prot												
v/s Ratio Perm		c0.39			0.23			c0.20			0.12	
v/c Ratio		0.68			0.39			0.69			0.43	
Uniform Delay, d1		10.2			8.0			22.3			20.4	
Progression Factor		1.57			0.75			1.00			1.00	
Incremental Delay, d2		3.9			1.3			5.2			2.3	
Delay (s)		19.9			7.3			27.4			22.7	
Level of Service		B			A			C			C	
Approach Delay (s)		19.9			7.3			27.4			22.7	
Approach LOS		B			A			C			C	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

# HCM Signalized Intersection Capacity Analysis

## 8: Madison St & 14th St

14th Street Safe Streets  
Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↶			↷					↶	↷	
Traffic Volume (vph)	0	491	70	31	273	0	0	0	0	182	281	43
Future Volume (vph)	0	491	70	31	273	0	0	0	0	182	281	43
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			1.00					1.00	0.95	
Frbp, ped/bikes		0.98			1.00					1.00	0.98	
Flpb, ped/bikes		1.00			1.00					0.89	1.00	
Frt		0.98			1.00					1.00	0.98	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		1565			1573					1555	3100	
Flt Permitted		1.00			0.93					0.95	1.00	
Satd. Flow (perm)		1565			1467					1555	3100	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	491	70	31	273	0	0	0	0	182	281	43
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	554	0	0	304	0	0	0	0	182	307	0
Confl. Peds. (#/hr)	163		107	107		163	78		59	59		78
Confl. Bikes (#/hr)			33			21						2
Heavy Vehicles (%)	0%	1%	5%	17%	2%	0%	0%	0%	0%	0%	2%	0%
Parking (#/hr)		1			1			3			3	
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		42.0			42.0					19.0	19.0	
Effective Green, g (s)		42.0			42.0					19.0	19.0	
Actuated g/C Ratio		0.60			0.60					0.27	0.27	
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)		939			880					422	841	
v/s Ratio Prot		c0.35									0.10	
v/s Ratio Perm					0.21					c0.12		
v/c Ratio		0.59			0.35					0.43	0.36	
Uniform Delay, d1		8.7			7.1					21.0	20.6	
Progression Factor		2.04			1.73					1.00	1.00	
Incremental Delay, d2		2.1			1.0					3.2	1.2	
Delay (s)		19.8			13.3					24.2	21.8	
Level of Service		B			B					C	C	
Approach Delay (s)		19.8			13.3			0.0			22.7	
Approach LOS		B			B			A			C	

### Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis  
 9: Oak St & 14th St/Lake Merritt Blvd

14th Street Safe Streets  
 Project PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↑	↗		↕	↗			
Traffic Volume (vph)	58	603	1	0	222	146	80	281	37	0	0	0
Future Volume (vph)	58	603	1	0	222	146	80	281	37	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0	6.0			
Lane Util. Factor		1.00			1.00	1.00		0.95	1.00			
Frbp, ped/bikes		1.00			1.00	0.87		1.00	0.86			
Flpb, ped/bikes		0.99			1.00	1.00		0.96	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		1609			1783	1351		3111	1349			
Flt Permitted		0.95			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		1538			1783	1351		3111	1349			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	603	1	0	222	146	80	281	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	81	0	0	23	0	0	0
Lane Group Flow (vph)	0	662	0	0	222	65	0	361	14	0	0	0
Confl. Peds. (#/hr)	102		27	27		102	128		72	72		128
Confl. Bikes (#/hr)			42			15			24			
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	5%	0%	0%	0%	0%	0%
Parking (#/hr)		1						1				
Turn Type	Perm	NA			NA	Perm	Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases	2					6	8		8			
Actuated Green, G (s)		31.3			31.3	31.3		26.7	26.7			
Effective Green, g (s)		31.3			31.3	31.3		26.7	26.7			
Actuated g/C Ratio		0.45			0.45	0.45		0.38	0.38			
Clearance Time (s)		6.0			6.0	6.0		6.0	6.0			
Vehicle Extension (s)		2.0			2.0	2.0		2.0	2.0			
Lane Grp Cap (vph)		687			797	604		1186	514			
v/s Ratio Prot					0.12							
v/s Ratio Perm		c0.43				0.05		0.12	0.01			
v/c Ratio		0.96			0.28	0.11		0.30	0.03			
Uniform Delay, d1		18.8			12.2	11.2		15.2	13.5			
Progression Factor		1.15			1.00	1.00		1.00	1.00			
Incremental Delay, d2		22.7			0.1	0.0		0.7	0.1			
Delay (s)		44.3			12.3	11.3		15.8	13.6			
Level of Service		D			B	B		B	B			
Approach Delay (s)		44.3			11.9			15.6			0.0	
Approach LOS		D			B			B			A	

Intersection Summary		
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.66	C
Actuated Cycle Length (s)	70.0	Sum of lost time (s)
Intersection Capacity Utilization	86.8%	12.0
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

## Appendix C: 50<sup>th</sup> Percentile Queues Synchro Outputs



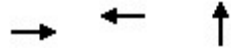
Queues  
1: Brush St & 14th St



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	401	76	42	600	1149
v/c Ratio	0.48	0.20	0.21	0.74	0.42
Control Delay	23.8	6.3	22.6	28.7	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	6.3	22.6	28.7	7.9
Queue Length 50th (ft)	77	0	14	134	77
Queue Length 95th (ft)	105	26	40	172	128
Internal Link Dist (ft)	501			413	244
Turn Bay Length (ft)		200	300		
Base Capacity (vph)	1057	473	255	1027	2734
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.16	0.16	0.58	0.42

Intersection Summary

Queues  
2: Castro St & 14th St



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	755	661	369
v/c Ratio	0.51	0.31	0.50
Control Delay	5.6	1.8	24.1
Queue Delay	0.0	0.0	0.0
Total Delay	5.6	1.8	24.1
Queue Length 50th (ft)	21	12	46
Queue Length 95th (ft)	164	17	60
Internal Link Dist (ft)	413	1068	384
Turn Bay Length (ft)			
Base Capacity (vph)	1495	2129	1271
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.51	0.31	0.29
<b>Intersection Summary</b>			

Queues  
3: Clay St & 14th St



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	537	647	103	54	156
v/c Ratio	0.37	0.45	0.18	0.12	0.19
Control Delay	11.2	2.2	17.3	5.9	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	2.2	17.3	5.9	14.3
Queue Length 50th (ft)	95	9	31	0	20
Queue Length 95th (ft)	15	15	64	22	40
Internal Link Dist (ft)	1068	698	415		424
Turn Bay Length (ft)				50	
Base Capacity (vph)	1447	1424	560	447	829
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.45	0.18	0.12	0.19

Intersection Summary

Queues  
4: Broadway & 14th St

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	360	722	300	597
v/c Ratio	0.36	0.77	0.20	0.41
Control Delay	19.3	43.4	8.8	11.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.3	43.4	8.8	11.0
Queue Length 50th (ft)	71	172	32	75
Queue Length 95th (ft)	102	227	52	111
Internal Link Dist (ft)	698	320	311	333
Turn Bay Length (ft)				
Base Capacity (vph)	1011	964	1481	1457
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.75	0.20	0.41
<b>Intersection Summary</b>				

Queues  
5: Franklin St & 14th St

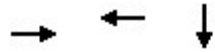


Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	290	816	202	8
v/c Ratio	0.24	0.51	0.13	0.02
Control Delay	3.4	6.1	15.5	5.1
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	3.4	6.2	15.5	5.1
Queue Length 50th (ft)	5	48	20	0
Queue Length 95th (ft)	6	67	35	6
Internal Link Dist (ft)	320	292	298	
Turn Bay Length (ft)				50
Base Capacity (vph)	1208	1591	1603	474
Starvation Cap Reductn	0	157	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.24	0.57	0.13	0.02

Intersection Summary



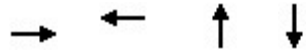
Queues  
6: Webster St & 14th St



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	224	435	310
v/c Ratio	0.14	0.27	0.21
Control Delay	1.1	5.2	14.6
Queue Delay	0.0	0.0	0.0
Total Delay	1.1	5.2	14.6
Queue Length 50th (ft)	2	23	28
Queue Length 95th (ft)	2	32	47
Internal Link Dist (ft)	292	300	323
Turn Bay Length (ft)			
Base Capacity (vph)	1656	1583	1485
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.14	0.27	0.21

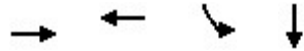
Intersection Summary

Queues  
7: Harrison St & 14th St



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	416	805	640	126
v/c Ratio	0.31	0.57	0.63	0.13
Control Delay	14.5	3.8	20.9	12.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	14.5	3.8	20.9	12.0
Queue Length 50th (ft)	55	10	113	14
Queue Length 95th (ft)	96	23	167	31
Internal Link Dist (ft)	300	1078	292	300
Turn Bay Length (ft)				
Base Capacity (vph)	1331	1406	1017	966
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.57	0.63	0.13
<b>Intersection Summary</b>				

Queues  
8: Madison St & 14th St



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	277	762	55	190
v/c Ratio	0.17	0.47	0.11	0.18
Control Delay	4.5	11.2	17.2	13.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.5	11.2	17.2	13.7
Queue Length 50th (ft)	15	168	16	23
Queue Length 95th (ft)	22	193	40	45
Internal Link Dist (ft)	1078	283		279
Turn Bay Length (ft)			125	
Base Capacity (vph)	1649	1622	512	1045
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.47	0.11	0.18

Intersection Summary



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	244	668	440	443	26
v/c Ratio	0.30	0.63	0.76	0.28	0.03
Control Delay	20.4	22.7	17.2	11.7	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	22.7	17.2	11.7	2.5
Queue Length 50th (ft)	43	134	73	48	0
Queue Length 95th (ft)	31	137	135	108	8
Internal Link Dist (ft)	283	588		380	
Turn Bay Length (ft)			350		150
Base Capacity (vph)	1189	1525	726	1589	790
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.44	0.61	0.28	0.03

Intersection Summary

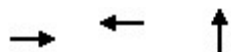
Queues  
1: Brush St & 14th St



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	558	142	47	300	594
v/c Ratio	0.28	0.16	0.10	0.15	0.48
Control Delay	8.0	2.8	10.9	8.2	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	2.8	10.9	8.2	15.3
Queue Length 50th (ft)	38	0	3	12	54
Queue Length 95th (ft)	112	29	37	73	54
Internal Link Dist (ft)	501			413	244
Turn Bay Length (ft)		200	300		
Base Capacity (vph)	2015	870	463	1995	2177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.10	0.15	0.27

Intersection Summary





Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	716	617	399
v/c Ratio	0.49	0.31	0.46
Control Delay	6.0	4.9	20.2
Queue Delay	0.0	0.0	0.0
Total Delay	6.0	4.9	20.2
Queue Length 50th (ft)	34	0	43
Queue Length 95th (ft)	178	123	53
Internal Link Dist (ft)	413	1068	384
Turn Bay Length (ft)			
Base Capacity (vph)	1450	1982	1570
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.31	0.25
<b>Intersection Summary</b>			

Queues  
3: Clay St & 14th St



Lane Group	EBT	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	598	608	110	42	191
v/c Ratio	0.41	0.47	0.18	0.08	0.19
Control Delay	11.7	11.6	13.9	5.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	11.6	13.9	5.2	11.5
Queue Length 50th (ft)	38	68	26	0	20
Queue Length 95th (ft)	168	106	56	17	40
Internal Link Dist (ft)	1068	698	415		424
Turn Bay Length (ft)				50	
Base Capacity (vph)	1457	1297	628	518	991
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.47	0.18	0.08	0.19

Intersection Summary

Queues  
4: Broadway & 14th St

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	671	440	411	781
v/c Ratio	0.66	0.45	0.28	0.51
Control Delay	22.6	27.5	10.0	12.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.6	27.5	10.0	12.3
Queue Length 50th (ft)	126	97	45	100
Queue Length 95th (ft)	171	126	77	159
Internal Link Dist (ft)	698	320	311	333
Turn Bay Length (ft)				
Base Capacity (vph)	1104	1049	1468	1535
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.61	0.42	0.28	0.51
<b>Intersection Summary</b>				

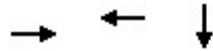
Queues  
5: Franklin St & 14th St



Lane Group	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	587	473	260	24
v/c Ratio	0.44	0.31	0.16	0.05
Control Delay	2.9	2.9	15.0	6.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	2.9	2.9	15.0	6.5
Queue Length 50th (ft)	5	11	26	0
Queue Length 95th (ft)	10	18	43	14
Internal Link Dist (ft)	320	292	298	
Turn Bay Length (ft)				50
Base Capacity (vph)	1343	1540	1647	517
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.31	0.16	0.05

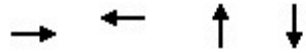
Intersection Summary

Queues  
6: Webster St & 14th St



Lane Group	EBT	WBT	SBT
Lane Group Flow (vph)	544	394	639
v/c Ratio	0.40	0.32	0.32
Control Delay	7.3	12.2	13.2
Queue Delay	0.0	0.0	0.0
Total Delay	7.3	12.2	13.2
Queue Length 50th (ft)	18	47	61
Queue Length 95th (ft)	58	87	86
Internal Link Dist (ft)	292	300	323
Turn Bay Length (ft)			
Base Capacity (vph)	1350	1220	1975
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.40	0.32	0.32
<b>Intersection Summary</b>			

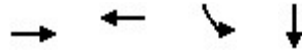
Queues  
7: Harrison St & 14th St



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	562	347	534	276
v/c Ratio	0.47	0.27	0.46	0.28
Control Delay	21.4	7.7	16.0	12.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.4	7.7	16.0	12.4
Queue Length 50th (ft)	118	17	82	33
Queue Length 95th (ft)	135	50	123	59
Internal Link Dist (ft)	300	1078	292	300
Turn Bay Length (ft)				
Base Capacity (vph)	1203	1291	1149	985
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.27	0.46	0.28
<b>Intersection Summary</b>				



Queues  
8: Madison St & 14th St



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	561	304	182	324
v/c Ratio	0.40	0.25	0.26	0.24
Control Delay	22.6	15.8	14.1	12.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.6	15.8	14.1	12.1
Queue Length 50th (ft)	116	60	48	40
Queue Length 95th (ft)	166	87	89	65
Internal Link Dist (ft)	1078	283		279
Turn Bay Length (ft)			125	
Base Capacity (vph)	1406	1236	699	1357
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.25	0.26	0.24

Intersection Summary



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	662	222	146	361	37
v/c Ratio	0.77	0.22	0.29	0.21	0.05
Control Delay	30.0	17.9	4.6	10.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	17.9	4.6	10.1	3.2
Queue Length 50th (ft)	139	37	0	38	0
Queue Length 95th (ft)	200	54	32	76	12
Internal Link Dist (ft)	283	588		380	
Turn Bay Length (ft)			350		150
Base Capacity (vph)	1291	1500	679	1680	784
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.15	0.22	0.21	0.05

Intersection Summary

Queues  
1: Brush St & 14th St

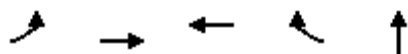


Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	401	76	42	600	1149
v/c Ratio	0.56	0.13	0.15	0.86	0.55
Control Delay	18.5	3.5	14.4	30.9	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	3.5	14.4	30.9	13.9
Queue Length 50th (ft)	124	0	8	164	110
Queue Length 95th (ft)	182	20	m34	385	164
Internal Link Dist (ft)	501			413	244
Turn Bay Length (ft)		200	200		
Base Capacity (vph)	832	674	334	809	2088
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.11	0.13	0.74	0.55

Intersection Summary

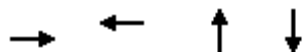
m Volume for 95th percentile queue is metered by upstream signal.

Queues  
2: Castro St & 14th St



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	239	516	508	153	369
v/c Ratio	0.45	0.41	0.46	0.15	0.51
Control Delay	9.9	7.2	7.5	1.5	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	7.2	7.6	1.5	24.2
Queue Length 50th (ft)	38	81	71	0	46
Queue Length 95th (ft)	135	229	209	21	60
Internal Link Dist (ft)		413	469		384
Turn Bay Length (ft)	200			175	
Base Capacity (vph)	533	1269	1093	1038	1268
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	5	0	5
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.41	0.47	0.15	0.29

Intersection Summary

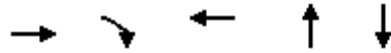


Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	537	647	157	156
v/c Ratio	0.60	0.73	0.36	0.46
Control Delay	13.1	11.2	17.8	24.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.1	11.2	17.8	24.0
Queue Length 50th (ft)	133	192	40	50
Queue Length 95th (ft)	224	m245	88	103
Internal Link Dist (ft)	519	698	415	424
Turn Bay Length (ft)				
Base Capacity (vph)	895	884	433	340
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.73	0.36	0.46

**Intersection Summary**

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

Queues  
4: Broadway & 14th St

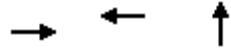


Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	278	82	722	300	597
v/c Ratio	0.30	0.15	0.94	0.32	0.65
Control Delay	9.1	5.0	39.5	18.3	23.2
Queue Delay	0.0	0.0	34.7	0.0	0.0
Total Delay	9.1	5.0	74.2	18.3	23.2
Queue Length 50th (ft)	78	15	323	49	110
Queue Length 95th (ft)	115	m20	m352	80	165
Internal Link Dist (ft)	698		320	311	333
Turn Bay Length (ft)		70			
Base Capacity (vph)	958	581	792	933	915
Starvation Cap Reductn	0	0	117	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.14	1.07	0.32	0.65

Intersection Summary

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





Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	290	816	210
v/c Ratio	0.53	0.94	0.24
Control Delay	17.7	30.0	18.8
Queue Delay	0.0	23.9	0.7
Total Delay	17.7	53.9	19.5
Queue Length 50th (ft)	112	219	34
Queue Length 95th (ft)	205	#549	60
Internal Link Dist (ft)	320	292	298
Turn Bay Length (ft)			
Base Capacity (vph)	547	871	891
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	91	412
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.53	1.05	0.44

**Intersection Summary**

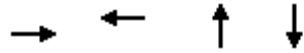
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	SBT
Lane Group Flow (vph)	193	31	435	310
v/c Ratio	0.21	0.04	0.47	0.26
Control Delay	2.7	0.8	4.8	17.4
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	2.7	0.8	5.2	17.4
Queue Length 50th (ft)	7	0	42	31
Queue Length 95th (ft)	25	m0	m47	52
Internal Link Dist (ft)	292		300	323
Turn Bay Length (ft)		80		
Base Capacity (vph)	934	828	917	1205
Starvation Cap Reductn	0	0	172	0
Spillback Cap Reductn	0	0	137	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.04	0.58	0.26

**Intersection Summary**

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



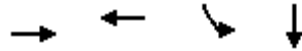
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	416	805	640	126
v/c Ratio	0.51	0.92	0.84	0.18
Control Delay	12.7	18.3	35.3	16.1
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	13.0	18.3	35.3	16.1
Queue Length 50th (ft)	110	22	134	17
Queue Length 95th (ft)	185	m#495	#223	36
Internal Link Dist (ft)	300	1078	292	300
Turn Bay Length (ft)				
Base Capacity (vph)	822	871	763	714
Starvation Cap Reductn	78	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.92	0.84	0.18

**Intersection Summary**

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

Queue shown is maximum after two cycles.

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



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	277	762	55	190
v/c Ratio	0.30	0.81	0.14	0.22
Control Delay	4.2	17.5	20.5	16.3
Queue Delay	0.0	50.3	0.0	0.0
Total Delay	4.2	67.8	20.5	16.3
Queue Length 50th (ft)	20	330	18	25
Queue Length 95th (ft)	m33	m#428	44	50
Internal Link Dist (ft)	1078	283		279
Turn Bay Length (ft)			125	
Base Capacity (vph)	913	937	393	858
Starvation Cap Reductn	0	283	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.30	1.17	0.14	0.22

**Intersection Summary**

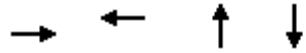
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	244	668	440	443	26
v/c Ratio	0.53	0.88	0.63	0.36	0.04
Control Delay	19.9	32.8	11.2	16.4	2.6
Queue Delay	0.0	51.5	0.0	0.0	0.0
Total Delay	19.9	84.3	11.2	16.4	2.6
Queue Length 50th (ft)	50	238	55	72	0
Queue Length 95th (ft)	141	#426	142	109	8
Internal Link Dist (ft)	283	588		380	
Turn Bay Length (ft)			350		150
Base Capacity (vph)	497	823	731	1214	602
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	290	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	1.25	0.60	0.36	0.04

**Intersection Summary**

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



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	162	162	162	162
v/c Ratio	0.20	0.20	no cap	no cap
Control Delay	7.5	7.5		
Queue Delay	0.0	0.0		
Total Delay	7.5	7.5	Error	Error
Queue Length 50th (ft)	18	18	0	0
Queue Length 95th (ft)	48	48	0	0
Internal Link Dist (ft)	469	519	1	175
Turn Bay Length (ft)				
Base Capacity (vph)	797	797	1	1
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.20	162.00	162.00
<b>Intersection Summary</b>				



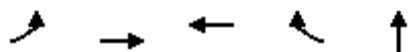
Queues  
1: Brush St & 14th St



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	558	142	47	300	594
v/c Ratio	0.53	0.16	0.12	0.29	0.48
Control Delay	12.7	2.8	9.1	7.8	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.7	2.8	9.1	7.8	15.3
Queue Length 50th (ft)	90	0	2	14	54
Queue Length 95th (ft)	#331	29	30	118	54
Internal Link Dist (ft)	501			413	244
Turn Bay Length (ft)		200	200		
Base Capacity (vph)	1060	870	394	1050	2098
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.16	0.12	0.29	0.28

Intersection Summary

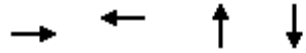
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	NBT
Lane Group Flow (vph)	229	487	274	343	399
v/c Ratio	0.33	0.41	0.26	0.33	0.46
Control Delay	5.2	4.9	6.0	3.4	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	4.9	6.0	3.4	20.2
Queue Length 50th (ft)	16	34	8	0	43
Queue Length 95th (ft)	44	81	m133	m94	53
Internal Link Dist (ft)		413	1068		384
Turn Bay Length (ft)	200			175	
Base Capacity (vph)	684	1187	1042	1053	1566
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.41	0.26	0.33	0.25

**Intersection Summary**

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

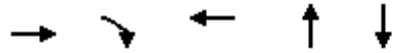


Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	598	608	152	191
v/c Ratio	0.70	0.78	0.27	0.42
Control Delay	16.3	21.4	13.0	17.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.3	21.4	13.0	17.5
Queue Length 50th (ft)	62	162	30	47
Queue Length 95th (ft)	303	#341	68	97
Internal Link Dist (ft)	1068	698	415	424
Turn Bay Length (ft)				
Base Capacity (vph)	857	777	557	458
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	0.78	0.27	0.42

**Intersection Summary**

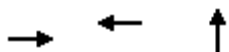
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues  
4: Broadway & 14th St



Lane Group	EBT	EBR	WBT	NBT	SBT
Lane Group Flow (vph)	555	116	440	411	781
v/c Ratio	0.76	0.26	0.73	0.33	0.60
Control Delay	25.2	10.1	32.3	13.7	17.3
Queue Delay	0.6	0.0	0.1	0.0	0.0
Total Delay	25.8	10.1	32.4	13.7	17.3
Queue Length 50th (ft)	195	20	200	55	125
Queue Length 95th (ft)	282	48	270	95	200
Internal Link Dist (ft)	698		320	311	333
Turn Bay Length (ft)					
Base Capacity (vph)	837	502	690	1256	1304
Starvation Cap Reductn	0	0	7	0	0
Spillback Cap Reductn	73	0	0	15	16
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.23	0.64	0.33	0.61

Intersection Summary



Lane Group	EBT	WBT	NBT
Lane Group Flow (vph)	587	473	284
v/c Ratio	0.72	0.55	0.33
Control Delay	15.4	4.7	19.4
Queue Delay	5.6	0.1	0.0
Total Delay	20.9	4.8	19.4
Queue Length 50th (ft)	269	30	46
Queue Length 95th (ft)	368	48	77
Internal Link Dist (ft)	320	292	298
Turn Bay Length (ft)			
Base Capacity (vph)	811	864	862
Starvation Cap Reductn	167	19	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.91	0.56	0.33
<b>Intersection Summary</b>			

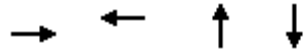


Lane Group	EBT	EBR	WBT	SBT
Lane Group Flow (vph)	461	83	394	639
v/c Ratio	0.51	0.11	0.47	0.47
Control Delay	8.6	3.7	11.7	20.5
Queue Delay	0.4	0.0	0.3	0.0
Total Delay	8.9	3.7	12.0	20.5
Queue Length 50th (ft)	51	0	104	78
Queue Length 95th (ft)	m137	m10	154	109
Internal Link Dist (ft)	292		300	323
Turn Bay Length (ft)		80		
Base Capacity (vph)	898	771	835	1366
Starvation Cap Reductn	119	0	110	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.11	0.54	0.47

**Intersection Summary**

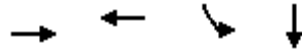
m Volume for 95th percentile queue is metered by upstream signal.





Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	562	347	534	276
v/c Ratio	0.68	0.40	0.70	0.45
Control Delay	21.0	7.2	27.7	21.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.0	7.2	27.7	21.1
Queue Length 50th (ft)	204	38	105	45
Queue Length 95th (ft)	215	57	158	79
Internal Link Dist (ft)	300	1078	292	300
Turn Bay Length (ft)				
Base Capacity (vph)	829	878	767	608
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.40	0.70	0.45
<b>Intersection Summary</b>				

Queues  
8: Madison St & 14th St



Lane Group	EBT	WBT	SBL	SBT
Lane Group Flow (vph)	561	304	182	324
v/c Ratio	0.59	0.35	0.43	0.38
Control Delay	20.2	13.8	24.9	20.6
Queue Delay	0.4	0.0	2.6	0.0
Total Delay	20.6	13.8	27.5	20.6
Queue Length 50th (ft)	197	98	64	54
Queue Length 95th (ft)	282	162	120	88
Internal Link Dist (ft)	1078	283		279
Turn Bay Length (ft)			125	
Base Capacity (vph)	946	880	422	858
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	97	0	144	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.35	0.65	0.38
<b>Intersection Summary</b>				



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	662	222	146	361	37
v/c Ratio	0.96	0.28	0.21	0.30	0.07
Control Delay	47.2	13.1	3.1	16.3	4.4
Queue Delay	4.9	0.0	0.0	0.0	0.0
Total Delay	52.1	13.1	3.1	16.3	4.4
Queue Length 50th (ft)	238	57	0	56	0
Queue Length 95th (ft)	#488	100	28	87	14
Internal Link Dist (ft)	283	588		380	
Turn Bay Length (ft)			350		150
Base Capacity (vph)	703	815	696	1185	543
Starvation Cap Reductn	25	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.27	0.21	0.30	0.07

#### Intersection Summary

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