FEHR PEERS

BOPC Received 3-18-2021

Appendix H: Existing Plus Full Buildout Non-Ballpark Development Plus Midday Game Results

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Pedestrian Peak Interval Operations Summary **3-4 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	1740	4	20	100	B	50	4.5	64	C
Market east side from Embarcadero to 3rd (middle)	Platooned	1721	4	19	100	B	46	4.7	69	C
Market east side from Embarcadero to 3rd (north)	Platooned	1701	4	18	100	B	44	4.9	74	C
Market/3rd Northeast corner	Platooned	619	1	3	167	B	21	4.5	64	C
Market/3rd Southeast corner	Platooned	2156	1	15	50	C	42	2.4	18	E
Market/6th Southwest corner	Platooned	492	2	2	100	B	14	3.5	38	D
MLK east side from Embarcadero to 2nd (north)	Platooned	2006	4	9	100	B	32	4.9	77	C
MLK/2nd Southeast corner	Platooned	2010	2	7	100	B	30	3.9	49	C
MLK/2nd Northeast corner	Platooned	1492	4	3	100	B	21	3.8	45	C
MLK east side from 2rd to 3th (south)	Platooned	1389	4	6	100	B	29	4.4	61	C
MLK east side from 2rd to 3th (middle)	Platooned	1368	4	6	100	B	28	4.6	67	C
MLK east side from 2rd to 3th (north)	Platooned	1360	4	6	100	B	27	4.7	70	C
MLK/3rd Southeast corner	Platooned	1723	2	6	100	B	28	4.5	63	C
MLK/3rd Northeast corner	Platooned	1105	3	3	100	B	20	3.5	37	D
MLK east side from 3rd to 4th (south)	Platooned	1067	3	5	100	B	27	4.2	56	C
MLK east side from 3rd to 4th (middle)	Platooned	1054	4	5	100	B	22	4.6	67	C
MLK east side from 3rd to 4th (north)	Platooned	1053	4	5	100	B	19	4.8	74	C
MLK/4th Southeast corner	Platooned	1158	2	5	100	B	23	4.6	66	C
MLK east side from 4th to 5th (south)	Platooned	931	3	5	100	B	27	4.2	56	C
MLK east side from 4th to 5th (middle)	Platooned	920	4	4	100	B	20	4.8	73	C
MLK east side from 4th to 5th (north)	Platooned	920	4	4	100	B	18	5.1	81	C
MLK/5th Southeast corner	Platooned	1063	1	7	50	C	28	2.5	20	E
MLK/5th Southwest corner	Platooned	570	1	3	100	B	18	3.8	45	C
MLK/5th Northeast corner	Platooned	909	3	4	333	B	32	3.7	42	C
MLK east side from 5th to 6th (south)	Platooned	905	3	3	100	B	25	3.8	44	C
MLK east side from 5th to 6th (middle)	Platooned	895	4	5	100	B	28	4.8	71	C
MLK east side from 5th to 6th (north)	Platooned	883	4	4	100	B	18	5.1	81	C
MLK west side from 5th to 6th (south)	Platooned	456	4	1	100	B	16	3.5	38	D
MLK west side from 5th to 6th (middle)	Platooned	450	4	2	100	B	17	4.1	53	C
MLK west side from 5th to 6th (north)	Platooned	442	4	2	167	B	13	4.3	57	C
MLK/6th Southeast corner	Platooned	929	2	3	83	C	23	1.8	10	F
MLK/6th Southwest corner	Platooned	442	2	1	125	B	15	3.6	40	D
MLK east side from 6th to 7th (south)	Platooned	883	4	6	100	B	30	5.2	83	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Pedestrian Peak Interval Operations Summary **3-4 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
MLK/7th Southeast corner	Platooned	861	1	7	50	C	34	1.8	10	F
MLK east side from 7th to 8th (south)	Platooned	838	4	4	100	B	26	4.7	69	C
MLK east side from 7th to 8th (middle)	Platooned	833	4	4	100	B	23	5.0	80	C
MLK east side from 7th to 8th (north)	Platooned	832	4	4	100	B	20	5.3	88	C
MLK west side from 7th to 8th (south)	Platooned	425	4	2	500	B	16	3.9	48	C
MLK west side from 7th to 8th (middle)	Platooned	418	4	1	125	B	13	4.3	59	C
MLK west side from 7th to 8th (north)	Platooned	416	4	1	200	B	12	4.5	64	C
MLK/8th Southwest corner	Platooned	416	3	1	125	B	12	3.3	34	D
Clay/Embarcadero Southeast corner	Platooned	857	3	2	125	B	17	3.0	29	D
Clay/2nd Southwest corner	Platooned	515	2	2	100	B	9	3.9	47	C
Washington/Embarcadero corner	Platooned	1583	3	3	100	B	18	4.4	62	C
Washington west side from Embarcadero to 2nd (south)	Platooned	1212	4	6	100	B	37	4.3	59	C
Washington west side from Embarcadero to 2nd (middle	Platooned	1199	4	5	100	B	32	4.7	68	C
Washington west side from Embarcadero to 2nd (north)	Platooned	1198	4	5	100	B	30	4.9	74	C
Washington/2nd Northwest corner	Platooned	1145	3	2	500	B	11	5.2	85	C
Washington west side from 2nd to 3rd (south)	Platooned	983	4	4	100	B	20	3.4	36	D
Washington west side from 2nd to 3rd (middle)	Platooned	971	4	4	100	B	18	3.5	38	D
Washington west side from 2nd to 3rd (north)	Platooned	970	4	4	100	B	16	3.7	43	C
Washington/3rd Southwest corner	Platooned	1220	2	6	100	B	19	3.1	30	D
Washington/3rd Northwest corner	Platooned	1150	3	2	100	B	11	5.2	85	C
Washington/4th Northwest corner	Platooned	929	3	2	333	B	22	3.9	48	C
Washington west side from 4th to 5th (south)	Platooned	888	4	4	200	B	27	5.0	77	C
Washington/5th Southeast corner	Platooned	1436	1	11	100	B	34	3.1	31	D
Washington/5th Southwest corner	Platooned	1227	1	6	100	B	22	3.5	38	D
Broadway west side from 2nd to 3rd (south)	Platooned	1466	4	6	100	B	25	4.2	56	C
Broadway west side from 2nd to 3rd (middle)	Platooned	1451	4	6	100	B	22	4.4	62	C
Broadway west side from 2nd to 3rd (north)	Platooned	1450	4	6	100	B	20	4.7	71	C
Broadway west side from 4th to 5th (south)	Platooned	1760	4	6	100	B	27	4.6	66	C
Broadway west side from 4th to 5th (middle)	Platooned	1744	4	7	100	B	27	4.9	75	C
Broadway west side from 4th to 5th (north)	Platooned	1741	4	7	100	B	27	4.9	75	C
Broadway/5th Southwest corner	Platooned	1769	1	15	50	C	52	4.0	50	C
Broadway west side from 5th to 6th (south)	Platooned	1700	4	9	100	B	61	3.6	42	C
Broadway west side from 5th to 6th (middle)	Platooned	1701	4	9	100	B	56	4.1	52	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Pedestrian Peak Interval Operations Summary **3-4 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Broadway west side from 5th to 6th (north)	Platooned	1697	4	7	100	B	40	4.1	53	C
3rd/Adeline Southwest corner	Platooned	659	3	1	100	B	9	3.0	27	D
3rd south side from Filbert to Market (middle5)	Platooned	667	4	4	100	B	24	5.3	90	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Pedestrian Peak Interval Operations Summary **4-5 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	2031	4	24	50	C	113	3.0	28	D
Market east side from Embarcadero to 3rd (middle)	Platooned	2030	4	23	100	B	95	3.3	34	D
Market east side from Embarcadero to 3rd (north)	Platooned	2044	4	23	53	C	85	3.5	38	D
Market/3rd Northeast corner	Platooned	781	1	4	100	B	27	4.0	49	C
Market/3rd Southwest corner	Platooned	1627	2	5	100	B	32	4.9	77	C
Market/3rd Southeast corner	Platooned	2627	1	21	33	D	77	1.8	10	F
Market west side from 5th to 6th (south)	Platooned	627	4	3	100	B	19	5.1	82	C
Market/6th Southwest corner	Platooned	642	2	3	100	B	17	3.2	33	D
MLK east side from Embarcadero to 2nd (south)	Platooned	2269	4	22	100	B	113	3.7	42	C
MLK east side from Embarcadero to 2nd (north)	Platooned	2269	4	11	100	B	60	3.6	41	C
MLK/2nd Southeast corner	Platooned	2289	2	8	100	B	65	2.7	23	E
MLK/2nd Northeast corner	Platooned	1693	3	4	100	B	26	3.3	35	D
MLK east side from 2rd to 3th (south)	Platooned	1586	4	7	100	B	40	3.8	44	C
MLK east side from 2rd to 3th (middle)	Platooned	1584	4	7	100	B	37	4.0	50	C
MLK east side from 2rd to 3th (north)	Platooned	1584	4	7	100	B	36	4.1	52	C
MLK/3rd Southeast corner	Platooned	1984	2	7	100	B	32	4.2	55	C
MLK/3rd Northeast corner	Platooned	1287	3	3	100	B	22	3.3	33	D
MLK east side from 3rd to 4th (south)	Platooned	1243	3	6	50	C	33	3.8	46	C
MLK east side from 3rd to 4th (middle)	Platooned	1243	4	6	100	B	27	4.1	54	C
MLK east side from 3rd to 4th (north)	Platooned	1243	4	6	100	B	25	4.3	57	C
MLK/4th Southeast corner	Platooned	1353	2	5	100	B	23	4.5	64	C
MLK/4th Northwest corner	Platooned	587	4	1	500	B	11	4.7	70	C
MLK east side from 4th to 5th (south)	Platooned	1101	3	6	50	C	30	4.1	52	C
MLK east side from 4th to 5th (middle)	Platooned	1102	4	5	100	B	24	4.5	63	C
MLK east side from 4th to 5th (north)	Platooned	1102	4	5	100	B	22	4.5	64	C
MLK/5th Southeast corner	Platooned	1247	1	8	48	C	36	2.2	15	E
MLK/5th Southwest corner	Platooned	678	1	3	100	B	21	3.5	39	D
MLK/5th Northeast corner	Platooned	1106	3	4	100	B	35	3.5	38	D
MLK/5th Northwest corner	Platooned	579	3	2	111	B	24	4.7	70	C
MLK east side from 5th to 6th (south)	Platooned	1097	3	4	77	C	28	3.5	40	D
MLK east side from 5th to 6th (middle)	Platooned	1103	3	7	100	B	31	4.5	64	C
MLK east side from 5th to 6th (north)	Platooned	1103	4	5	100	B	20	4.9	74	C
MLK west side from 5th to 6th (south)	Platooned	577	4	2	100	B	18	3.3	33	D

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Pedestrian Peak Interval Operations Summary **4-5 PM**

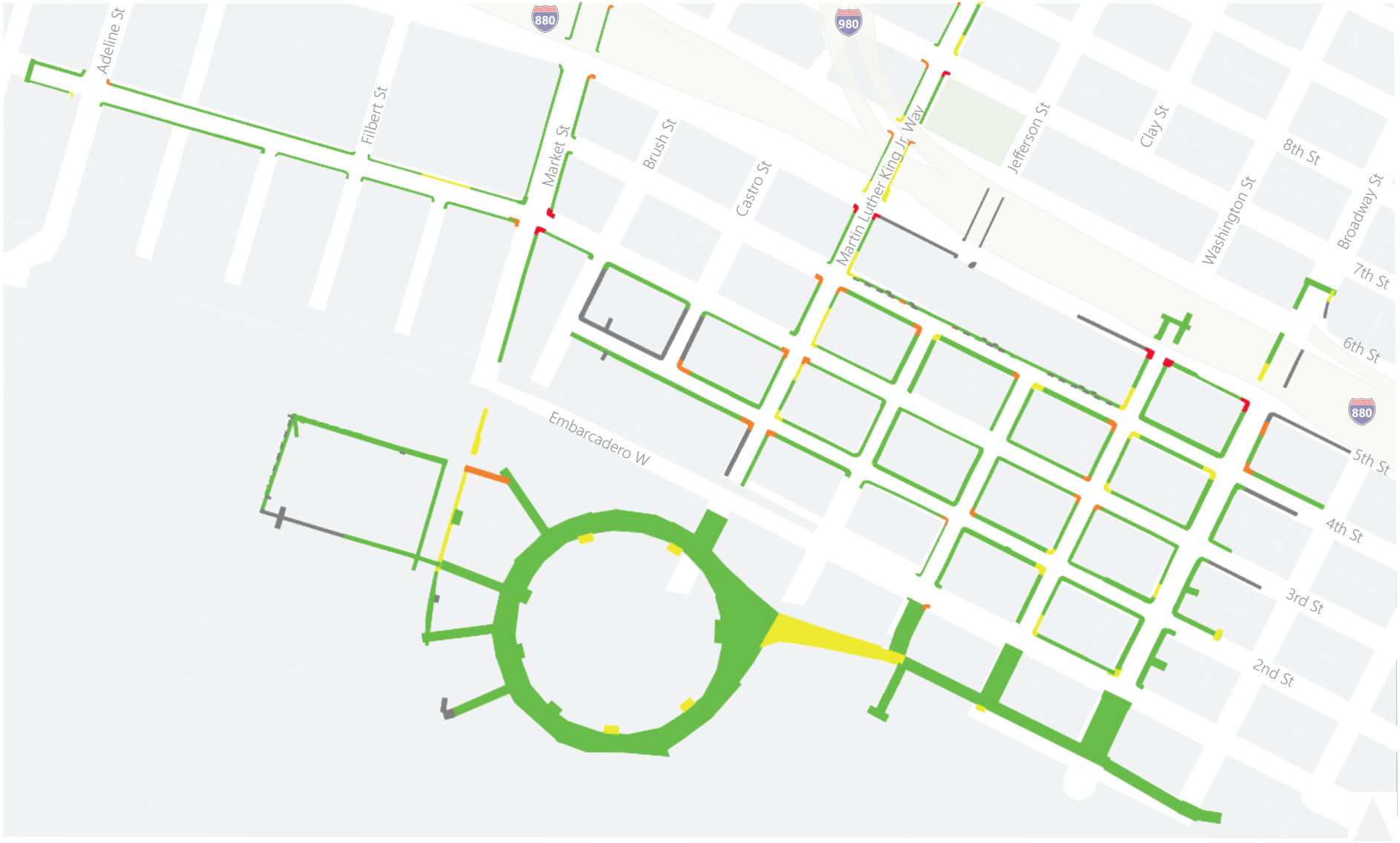
Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
MLK west side from 5th to 6th (middle)	Platooned	581	4	3	100	B	18	4.0	50	C
MLK west side from 5th to 6th (north)	Platooned	581	4	2	100	B	14	4.2	55	C
MLK/6th Southeast corner	Platooned	1142	2	3	63	C	23	1.8	10	F
MLK/6th Southwest corner	Platooned	581	2	2	100	B	15	3.6	40	D
MLK east side from 6th to 7th (south)	Platooned	1102	4	8	100	B	31	5.1	81	C
MLK/7th Southeast corner	Platooned	1110	1	10	33	D	39	1.7	9	F
MLK east side from 7th to 8th (south)	Platooned	1102	4	5	100	B	29	4.5	64	C
MLK east side from 7th to 8th (middle)	Platooned	1103	4	5	100	B	25	4.8	73	C
MLK east side from 7th to 8th (north)	Platooned	1103	4	5	100	B	22	5.1	82	C
MLK west side from 7th to 8th (south)	Platooned	580	4	2	100	B	18	3.7	43	C
MLK west side from 7th to 8th (middle)	Platooned	581	4	2	100	B	15	4.1	54	C
MLK west side from 7th to 8th (north)	Platooned	581	4	2	100	B	12	4.4	62	C
MLK/8th Southwest corner	Platooned	582	3	1	100	B	11	3.5	38	D
Clay/Embarcadero Southeast corner	Platooned	1053	2	3	100	B	32	2.2	15	E
Clay/2nd Southwest corner	Platooned	610	2	2	100	B	11	3.6	40	D
Washington/Embarcadero corner	Platooned	1846	3	3	100	B	19	4.4	61	C
Washington east side from Embarcadero to 2nd (south)	Platooned	1819	4	9	100	B	33	5.3	90	C
Washington west side from Embarcadero to 2nd (south)	Platooned	1412	4	7	100	B	51	3.7	43	C
Washington west side from Embarcadero to 2nd (middle	Platooned	1411	4	6	100	B	43	4.0	51	C
Washington west side from Embarcadero to 2nd (north)	Platooned	1413	4	6	100	B	40	4.2	54	C
Washington/2nd Southwest corner	Platooned	2068	3	6	100	B	27	4.5	63	C
Washington/2nd Northwest corner	Platooned	1401	3	2	100	B	16	4.3	57	C
Washington west side from 2nd to 3rd (south)	Platooned	1206	4	6	100	B	33	2.6	21	E
Washington west side from 2nd to 3rd (middle)	Platooned	1200	4	5	100	B	31	2.7	23	E
Washington west side from 2nd to 3rd (north)	Platooned	1200	4	5	100	B	27	2.9	26	D
Washington/3rd Southwest corner	Platooned	1503	2	7	67	C	24	2.8	24	D
Washington/3rd Northeast corner	Platooned	2012	4	4	100	B	17	5.2	86	C
Washington/3rd Northwest corner	Platooned	1413	3	3	100	B	16	4.3	59	C
Washington west side from 3rd to 4th (south)	Platooned	1160	4	5	100	B	29	4.6	67	C
Washington west side from 3rd to 4th (middle)	Platooned	1158	4	5	100	B	26	4.9	74	C
Washington west side from 3rd to 4th (north)	Platooned	1158	4	5	100	B	25	4.9	75	C
Washington/4th Southwest corner	Platooned	1209	1	8	100	B	32	4.7	70	C
Washington/4th Northwest corner	Platooned	1157	3	3	100	B	28	3.4	37	D

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Pedestrian Peak Interval Operations Summary **4-5 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Washington west side from 4th to 5th (south)	Platooned	1107	3	5	100	B	36	4.3	58	C
Washington/5th Southeast corner	Platooned	1998	1	19	34	D	58	2.4	18	E
Washington/5th Southwest corner	Platooned	1766	1	12	71	C	48	2.3	17	E
Broadway west side from Embarcadero to 2nd (south)	Platooned	1541	4	6	100	B	39	4.7	70	C
Broadway west side from Embarcadero to 2nd (middle)	Platooned	1539	4	7	100	B	39	5.2	86	C
Broadway west side from 2nd to 3rd (south)	Platooned	1819	4	8	91	B	42	3.3	34	D
Broadway west side from 2nd to 3rd (middle)	Platooned	1816	4	7	100	B	34	3.6	41	C
Broadway west side from 2nd to 3rd (north)	Platooned	1814	4	7	100	B	31	3.8	46	C
Broadway/3rd Northwest corner	Platooned	2067	4	5	100	B	29	5.1	82	C
Broadway west side from 4th to 5th (south)	Platooned	2222	4	8	100	B	33	4.1	54	C
Broadway west side from 4th to 5th (middle)	Platooned	2222	4	9	100	B	34	4.3	59	C
Broadway west side from 4th to 5th (north)	Platooned	2222	4	9	100	B	38	4.2	55	C
Broadway/5th Southwest corner	Platooned	2275	1	20	33	D	61	3.7	43	C
Broadway west side from 5th to 6th (south)	Platooned	2199	3	11	100	B	68	3.5	37	D
Broadway west side from 5th to 6th (middle)	Platooned	2203	4	12	100	B	63	3.8	46	C
Broadway west side from 5th to 6th (north)	Platooned	2227	4	9	100	B	45	3.9	47	C
3rd/Adeline Southwest corner	Platooned	971	3	1	100	B	10	2.8	25	D
3rd south side from Filbert to Market (middle4)	Platooned	835	4	4	100	B	22	5.3	89	C
3rd south side from Filbert to Market (middle5)	Platooned	842	4	5	100	B	27	5.0	79	C

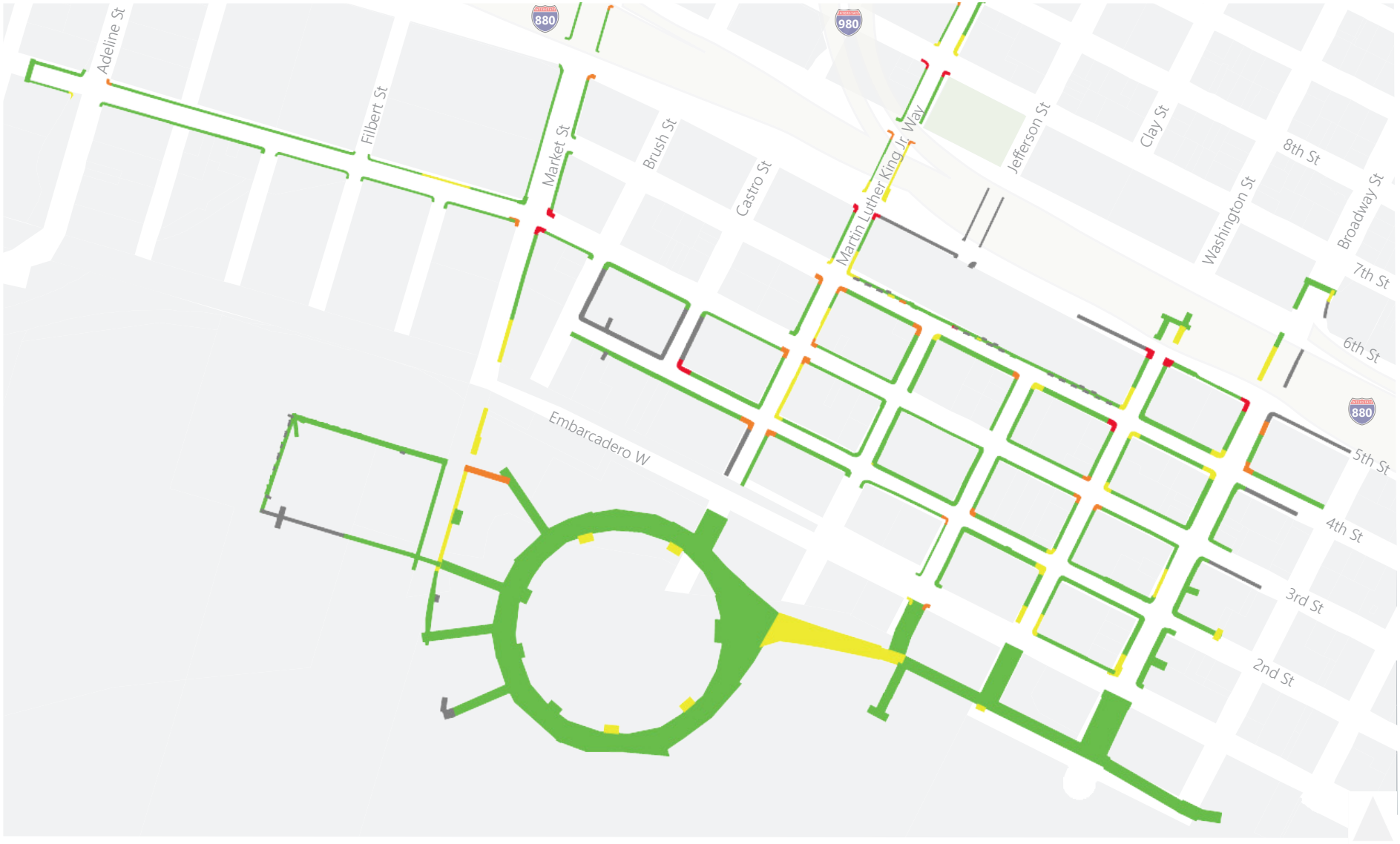
Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Pedestrian Peak Interval Operations Summary **5-6 PM**

Location	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	784	4	8	111	B	43	4.9	75	C
Market east side from Embarcadero to 3rd (middle)	Platooned	815	4	8	333	B	38	5.2	84	C
Market east side from Embarcadero to 3rd (north)	Platooned	828	4	9	100	B	37	5.3	87	C
Market/3rd Southeast corner	Platooned	1165	1	5	100	B	43	2.4	18	E
Market/6th Southwest corner	Platooned	319	2	1	500	B	15	3.4	36	D
MLK/5th Southeast corner	Platooned	365	1	2	333	B	25	2.6	21	E
MLK/6th Southeast corner	Platooned	397	2	1	111	B	17	2.0	13	E
MLK/7th Southeast corner	Platooned	395	1	3	100	B	32	1.8	11	F
Washington/3rd Southwest corner	Platooned	560	1	5	100	B	19	3.1	30	D
Washington/5th Southeast corner	Platooned	771	1	6	100	B	51	2.6	21	E
Washington/5th Southwest corner	Platooned	735	1	4	167	B	33	2.8	25	D
Broadway west side from 2nd to 3rd (south)	Platooned	932	4	4	100	B	28	4.0	50	C
Broadway west side from 2nd to 3rd (middle)	Platooned	933	4	3	100	B	25	4.2	56	C
Broadway west side from 2nd to 3rd (north)	Platooned	933	4	4	100	B	22	4.5	65	C
Broadway west side from 4th to 5th (south)	Platooned	1277	4	4	100	B	27	4.6	65	C
Broadway west side from 4th to 5th (middle)	Platooned	1280	4	5	100	B	30	4.6	66	C
Broadway west side from 4th to 5th (north)	Platooned	1285	4	5	100	B	29	4.8	71	C
Broadway/5th Southwest corner	Platooned	1306	2	10	100	B	51	4.1	52	C
Broadway west side from 5th to 6th (south)	Platooned	1349	4	7	100	B	61	3.6	42	C
Broadway west side from 5th to 6th (middle)	Platooned	1323	4	7	100	B	55	4.1	53	C
Broadway west side from 5th to 6th (north)	Platooned	1314	4	5	100	B	41	4.0	51	C
3rd/Adeline Southwest corner	Platooned	537	3	1	100	B	9	3.0	28	D



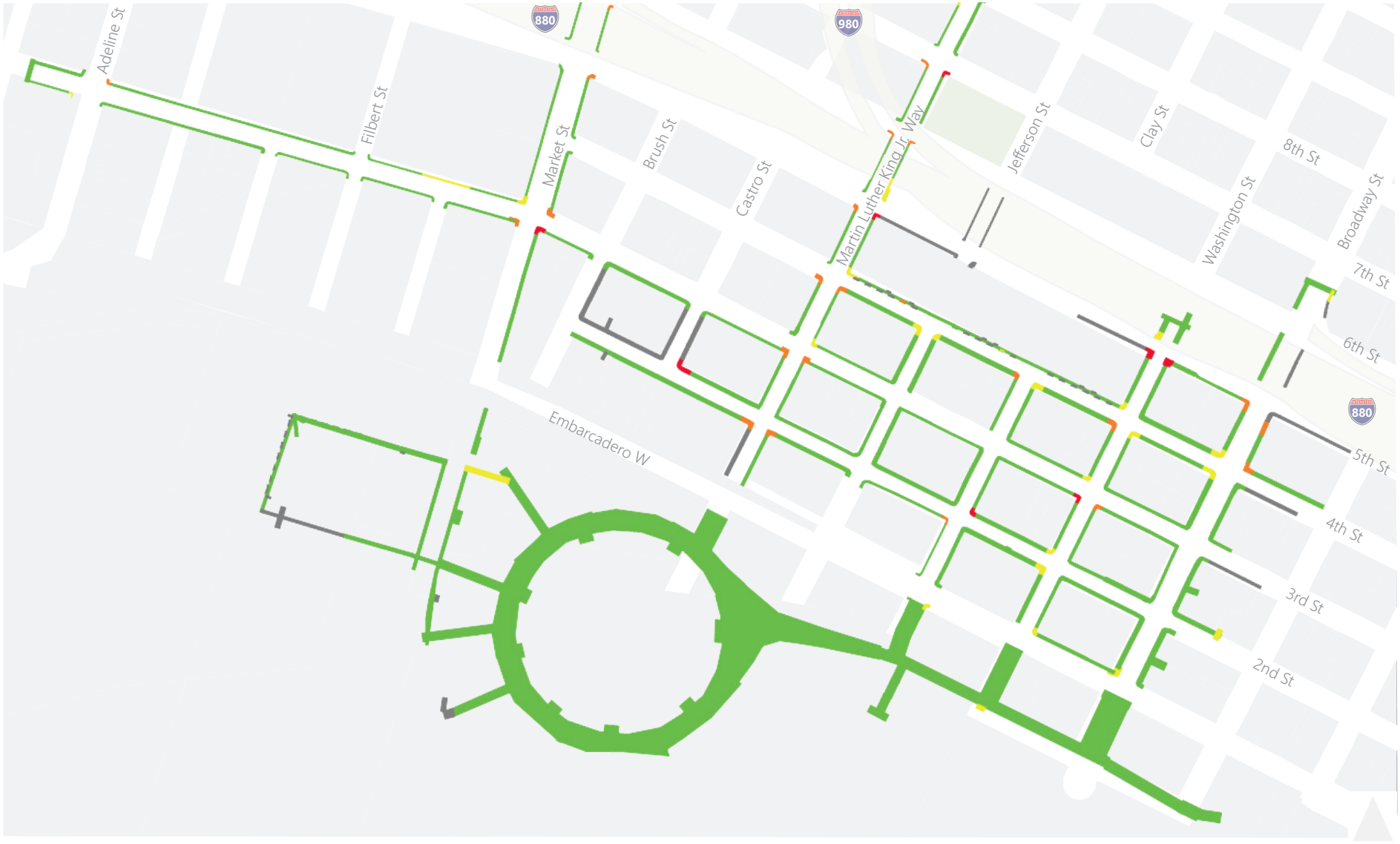
Full Build Out, Midday Ballgame - Average Pedestrian Speeds
3PM - 4PM

Figure I-1



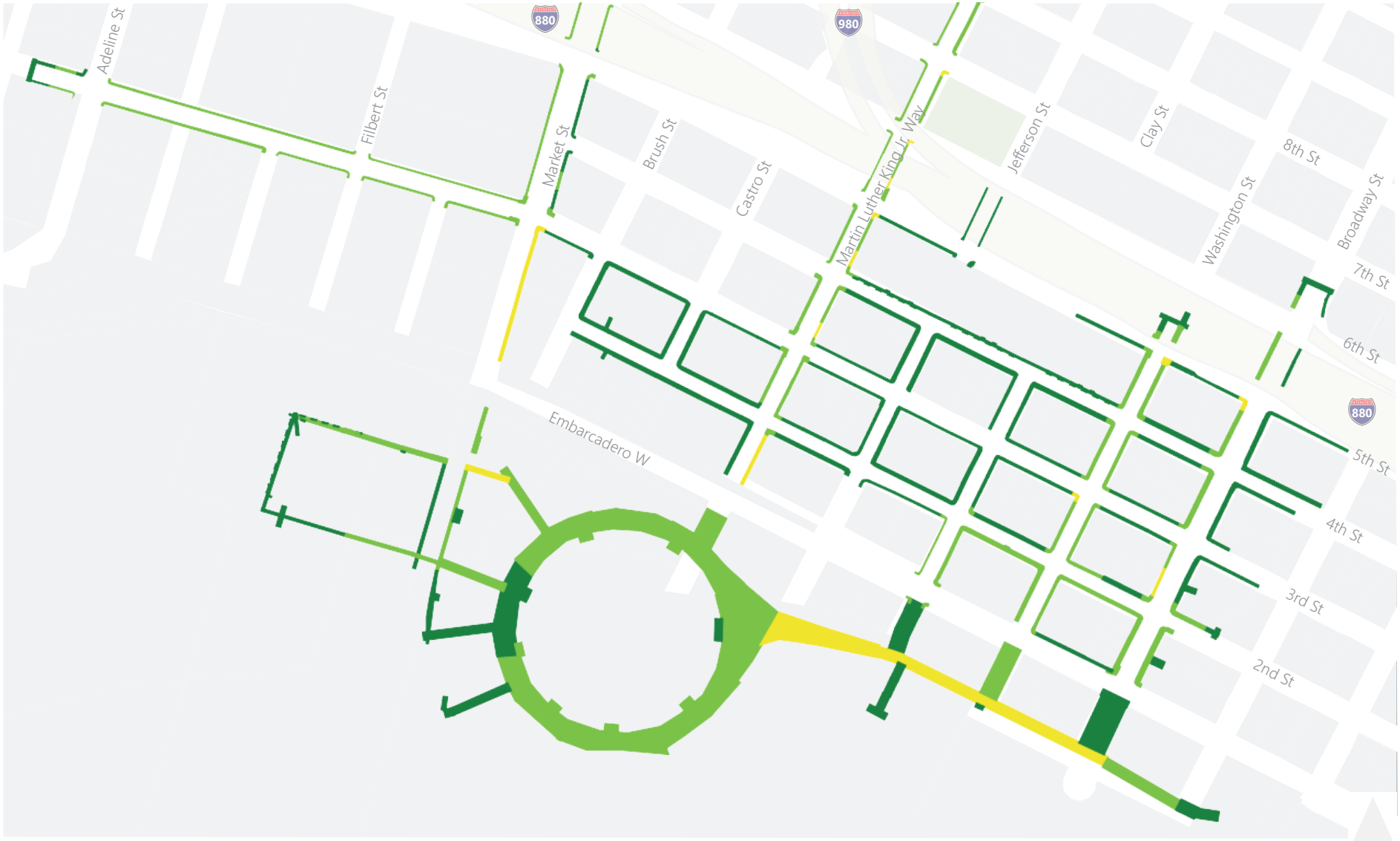
Full Build Out, Midday Ballgame - Average Pedestrian Speeds
4PM - 5PM

Figure I-2



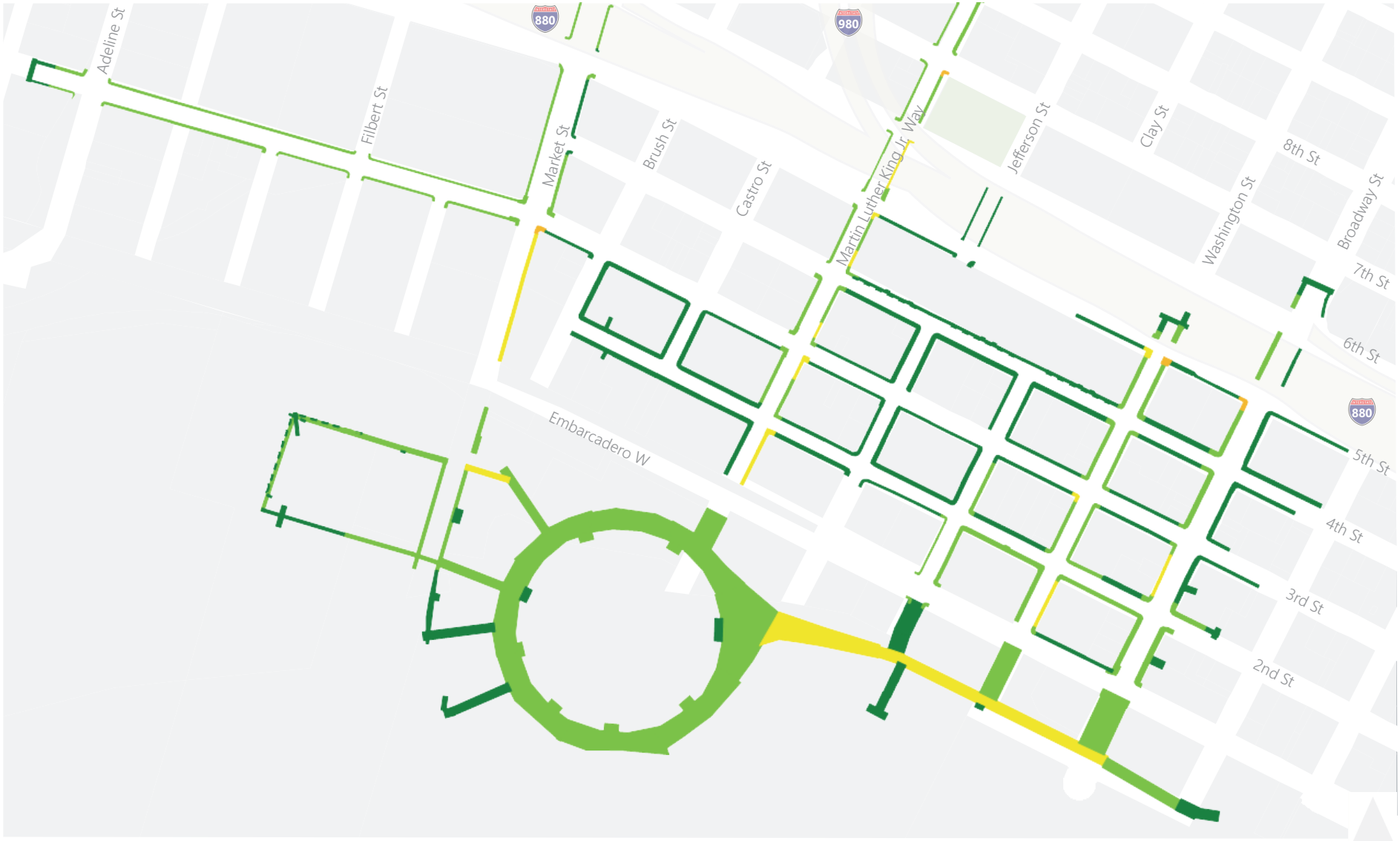
Full Build Out, Midday Ballgame - Average Pedestrian Speeds
5PM - 6PM

Figure I-3



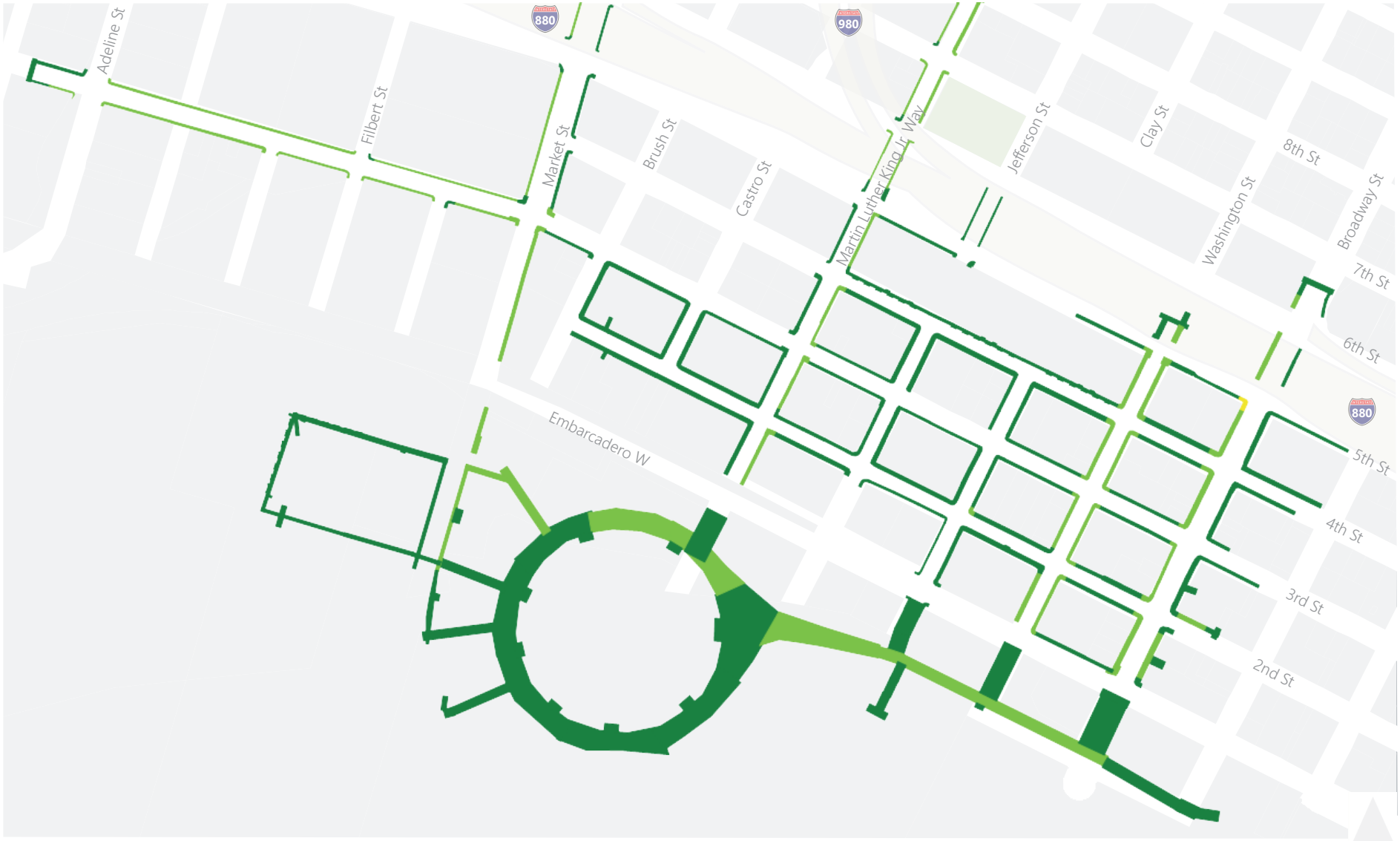
Full Build Out, Evening Ballgame - Average Pedestrian Density
3PM - 4PM

Figure I-4



Full Build Out, Evening Ballgame - Average Pedestrian Density
4PM - 5PM

Figure I-5



Full Build Out, Evening Ballgame - Average Pedestrian Density
5PM - 6PM

Figure I-6

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	37	39	104.1%	41.6	6.2	D
	Through	264	265	100.5%	14.1	1.3	B
	Right Turn	682	675	99.0%	6.8	0.5	A
	Subtotal	983	979	99.6%	10.1	0.6	B
SB	Left Turn						
	Through	52	49	94.4%	15.3	2.6	B
	Right Turn	14	12	85.0%	8.8	2.1	A
	Subtotal	66	61	92.4%	14.1	2.4	B
EB	Left Turn	38	39	101.6%	44.1	3.5	D
	Through	94	87	92.6%	37.2	5.2	D
	Right Turn	57	54	95.1%	1.6	0.6	A
	Subtotal	189	180	95.1%	28.0	3.3	C
WB	Left Turn	399	384	96.2%	38.8	2.7	D
	Through	75	75	100.1%	28.4	3.7	C
	Right Turn	19	20	104.7%	16.9	4.6	B
	Subtotal	493	479	97.1%	36.2	1.8	D
Total		1,731	1,698	98.1%	19.5	0.7	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	18	18	98.3%	29.9	5.8	C
	Through	193	186	96.5%	27.1	2.4	C
	Right Turn	53	52	98.7%	18.3	3.7	B
	Subtotal	264	256	97.1%	25.4	2.5	C
SB	Left Turn	59	57	96.3%	28.3	3.1	C
	Through	165	155	93.9%	16.1	1.8	B
	Right Turn	22	22	100.5%	4.7	1.1	A
	Subtotal	246	234	95.0%	17.9	1.6	B
EB	Left Turn	23	24	103.5%	11.1	3.2	B
	Through	66	75	114.1%	10.3	2.0	B
	Right Turn	9	8	92.2%	5.5	3.1	A
	Subtotal	98	107	109.6%	10.1	1.4	B
WB	Left Turn	42	38	89.8%	11.3	2.7	B
	Through	63	68	108.4%	11.6	2.3	B
	Right Turn	347	324	93.4%	8.5	0.6	A
	Subtotal	452	430	95.1%	9.2	0.6	A
Total		1,060	1,028	96.9%	15.3	0.9	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	321	302	94.1%	42.3	4.8	D
	Through	54	53	97.6%	35.1	3.2	D
	Right Turn	190	177	92.9%	17.4	2.0	B
	Subtotal	565	531	94.1%	33.3	3.5	C
SB	Left Turn	74	74	100.3%	37.1	2.9	D
	Through	44	40	91.8%	40.0	4.8	D
	Right Turn	13	14	106.2%	5.5	0.5	A
	Subtotal	131	128	98.0%	34.7	2.3	C
EB	Left Turn						
	Through	681	672	98.7%	19.5	1.1	B
	Right Turn	95	92	96.4%	3.5	0.4	A
	Subtotal	776	764	98.4%	17.5	0.9	B
WB	Left Turn	110	109	98.8%	88.8	13.1	F
	Through	159	163	102.5%	8.8	2.0	A
	Right Turn	34	31	91.8%	5.4	2.5	A
	Subtotal	303	303	100.0%	37.3	5.7	D
Total		1,775	1,727	97.3%	27.1	1.3	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	308	290	94.3%	78.5	22.1	E
	Through	1,312	1,267	96.5%	11.6	0.6	B
	Right Turn						
	Subtotal	1,620	1,557	96.1%	24.3	4.5	C
SB	Left Turn						
	Through	366	354	96.7%	9.8	1.4	A
	Right Turn	51	48	94.1%	6.7	1.5	A
	Subtotal	417	402	96.4%	9.4	1.2	A
EB	Left Turn						
	Through	216	219	101.3%	49.3	14.6	D
	Right Turn	36	38	104.7%	41.5	14.4	D
	Subtotal	252	256	101.7%	48.1	14.3	D
WB	Left Turn						
	Through	117	116	99.2%	24.7	1.6	C
	Right Turn						
	Subtotal	117	116	99.2%	24.7	1.6	C
Total		2,406	2,331	96.9%	24.4	3.3	C

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,300	1,249	96.1%	2.1	0.6	A
	Right Turn	12	15	128.3%	1.8	0.9	A
	Subtotal	1,312	1,265	96.4%	2.1	0.6	A
SB	Left Turn						
	Through	390	378	96.8%	1.8	0.5	A
	Right Turn						
	Subtotal	390	378	96.8%	1.8	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	27	24	89.6%	24.4	5.7	C
	Through						
	Right Turn	46	44	96.5%	21.0	4.5	C
	Subtotal	73	69	94.0%	22.2	4.4	C
Total		1,775	1,711	96.4%	2.8	0.6	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	895	861	96.2%	9.2	1.3	A
	Right Turn	451	428	94.9%	8.6	1.3	A
	Subtotal	1,346	1,289	95.7%	9.0	1.2	A
SB	Left Turn	85	80	94.6%	49.6	2.6	D
	Through	348	338	97.2%	3.2	0.4	A
	Right Turn						
	Subtotal	433	419	96.7%	12.1	1.0	B
EB	Left Turn	22	23	105.5%	38.4	2.0	D
	Through	654	640	97.9%	34.1	2.1	C
	Right Turn	42	40	94.0%	22.7	4.0	C
	Subtotal	718	703	97.9%	33.6	2.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,497	2,410	96.5%	16.7	0.7	B

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	60	99.5%	7.6	1.0	A
	Through	857	817	95.3%	10.5	1.6	B
	Right Turn						
	Subtotal	917	877	95.6%	10.3	1.5	B
SB	Left Turn						
	Through	337	328	97.3%	24.9	2.5	C
	Right Turn	21	20	93.3%	8.7	2.1	A
	Subtotal	358	348	97.1%	24.0	2.4	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	96	91	94.4%	39.5	2.3	D
	Through	222	223	100.3%	36.3	1.5	D
	Right Turn	226	222	98.2%	22.4	6.0	C
	Subtotal	544	535	98.4%	31.1	2.7	C
Total		1,819	1,759	96.7%	19.3	1.3	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	87	92	105.3%	17.5	1.6	B
	Through	617	580	94.0%	11.8	0.8	B
	Right Turn	379	361	95.2%	8.6	1.1	A
	Subtotal	1,083	1,033	95.3%	11.2	0.9	B
SB	Left Turn	59	60	101.7%	41.6	5.1	D
	Through	129	114	88.0%	14.8	1.8	B
	Right Turn	35	32	92.0%	3.8	0.8	A
	Subtotal	223	206	92.2%	21.0	2.4	C
EB	Left Turn	78	79	101.4%	46.5	4.1	D
	Through	634	636	100.3%	30.3	1.2	C
	Right Turn	45	57	126.4%	25.6	3.8	C
	Subtotal	757	772	102.0%	31.6	1.5	C
WB	Left Turn	184	179	97.2%	50.7	8.9	D
	Through	339	322	95.0%	21.9	1.8	C
	Right Turn	23	24	104.3%	10.8	3.9	B
	Subtotal	546	525	96.2%	31.2	2.7	C
Total		2,609	2,535	97.2%	22.3	0.9	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn	33	33	100.3%	5.1	1.6	A
	Subtotal	33	33	100.3%	5.1	1.6	A
SB	Left Turn	567	539	95.0%	53.6	4.7	D
	Through	122	127	103.8%	39.5	1.4	D
	Right Turn						
	Subtotal	689	665	96.5%	50.9	3.8	D
EB	Left Turn						
	Through	1,140	1,094	95.9%	6.2	1.4	A
	Right Turn	50	50	99.6%	3.7	0.8	A
	Subtotal	1,190	1,143	96.1%	6.1	1.4	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,912	1,842	96.3%	22.3	1.9	C

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	666	685	102.9%	10.3	4.8	B
	Right Turn	10	12	115.0%	2.1	1.5	A
	Subtotal	676	697	103.0%	10.2	4.7	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	23	19	81.3%	41.6	27.4	D
	Through	35	34	96.6%	17.1	2.0	B
	Right Turn						
	Subtotal	58	53	90.5%	26.4	10.9	C
Total		734	749	102.1%	11.3	4.7	B

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	347	345	99.5%	24.1	1.3	C
	Through	585	597	102.1%	20.2	0.9	C
	Right Turn	315	315	100.1%	13.5	1.2	B
	Subtotal	1,247	1,258	100.9%	19.6	0.6	B
EB	Left Turn						
	Through	1,021	993	97.3%	10.1	1.4	B
	Right Turn	51	54	106.1%	8.6	2.5	A
	Subtotal	1,072	1,047	97.7%	10.0	1.5	B
WB	Left Turn	40	55	138.5%	39.7	3.3	D
	Through	231	209	90.5%	15.6	0.9	B
	Right Turn						
	Subtotal	271	265	97.6%	20.7	0.9	C
Total		2,590	2,570	99.2%	15.8	0.6	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	257	256	99.4%	24.5	1.6	C
	Right Turn	134	121	90.6%	20.6	2.6	C
	Subtotal	391	377	96.4%	23.3	1.8	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	250	237	95.0%	24.4	3.3	C
	Through	1,468	1,397	95.2%	21.6	2.8	C
	Right Turn	22	19	84.5%	16.5	5.2	B
	Subtotal	1,740	1,653	95.0%	22.0	2.8	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,131	2,030	95.3%	22.2	2.5	C

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	59	48	81.9%	26.7	2.7	C
	Through	568	540	95.1%	22.0	1.0	C
	Right Turn	26	30	113.5%	27.0	4.6	C
	Subtotal	653	618	94.6%	22.6	1.0	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	505	486	96.3%	19.9	0.8	B
	Through	863	856	99.1%	15.9	2.8	B
	Right Turn						
	Subtotal	1,368	1,342	98.1%	17.3	1.8	B
WB	Left Turn						
	Through	212	222	104.5%	20.2	0.9	C
	Right Turn	7	6	91.4%	10.3	2.4	B
	Subtotal	219	228	104.1%	19.9	0.8	B
Total		2,240	2,188	97.7%	19.1	1.0	B

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	593	523	88.1%	2.8	1.4	A
	Right Turn						
	Subtotal	593	523	88.1%	2.8	1.4	A
SB	Left Turn						
	Through	658	596	90.6%	5.9	0.2	A
	Right Turn						
	Subtotal	658	596	90.6%	5.9	0.2	A
EB	Left Turn						
	Through	33	31	93.9%	38.1	4.1	D
	Right Turn						
	Subtotal	33	31	93.9%	38.1	4.1	D
WB	Left Turn						
	Through	39	40	103.6%	34.4	6.4	C
	Right Turn	25	22	89.6%	21.5	6.4	C
	Subtotal	64	63	98.1%	30.1	5.0	C
Total		1,348	1,213	90.0%	6.6	0.9	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	618	543	87.8%	7.0	2.3	A
	Right Turn						
	Subtotal	618	543	87.8%	7.0	2.3	A
SB	Left Turn						
	Through	658	598	90.9%	1.7	0.1	A
	Right Turn						
	Subtotal	658	598	90.9%	1.7	0.1	A
EB	Left Turn						
	Through	110	107	97.6%	12.9	1.4	B
	Right Turn						
	Subtotal	110	107	97.6%	12.9	1.4	B
WB	Left Turn						
	Through	106	96	90.3%	26.4	4.0	C
	Right Turn	33	31	95.2%	22.2	10.8	C
	Subtotal	139	127	91.4%	25.3	5.3	C
Total		1,525	1,375	90.2%	6.8	1.2	A

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	651	572	87.8%	16.5	2.8	B
	Right Turn						
	Subtotal	651	572	87.8%	16.5	2.8	B
SB	Left Turn						
	Through	658	601	91.3%	8.7	0.4	A
	Right Turn						
	Subtotal	658	601	91.3%	8.7	0.4	A
EB	Left Turn						
	Through	37	34	91.9%	33.1	2.8	C
	Right Turn						
	Subtotal	37	34	91.9%	33.1	2.8	C
WB	Left Turn						
	Through	210	186	88.5%	25.7	1.6	C
	Right Turn						
	Subtotal	210	186	88.5%	25.7	1.6	C
Total		1,556	1,392	89.5%	14.7	1.2	B

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	472	398	84.4%	22.2	1.3	C
	Right Turn	179	171	95.3%	13.2	1.5	B
	Subtotal	651	569	87.4%	19.5	0.7	B
SB	Left Turn	36	36	99.4%	43.6	6.5	D
	Through	543	494	91.0%	14.5	1.5	B
	Right Turn						
	Subtotal	579	530	91.6%	16.4	1.6	B
EB	Left Turn	56	55	98.6%	31.7	2.8	C
	Through	1,431	1,351	94.4%	30.1	1.6	C
	Right Turn	115	111	96.1%	31.1	2.8	C
	Subtotal	1,602	1,517	94.7%	30.3	1.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,832	2,615	92.4%	25.1	1.1	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	6	76.3%	11.2	3.0	B
	Through						
	Right Turn	6	3	48.3%	8.3	1.7	A
	Subtotal	14	9	64.3%	10.4	2.3	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	31	27	88.4%	18.8	1.0	B
	Right Turn	6	7	110.0%	7.5	3.2	A
	Subtotal	37	34	91.9%	16.6	1.3	B
WB	Left Turn	7	7	92.9%	9.0	1.7	A
	Through	202	167	82.8%	9.2	1.0	A
	Right Turn						
	Subtotal	209	174	83.1%	9.3	0.9	A
Total		260	217	83.3%	10.5	0.8	B

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **3 PM to 4 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn Through Right Turn	516	519	100.5%	26.8	1.4	C
	Subtotal	516	519	100.5%	26.8	1.4	C
SB	Left Turn Through Right Turn	312	319	102.3%	7.9	1.0	A
	Subtotal	312	319	102.3%	7.9	1.0	A
EB	Left Turn Through Right Turn	567	500	88.2%	18.4	1.1	B
	Subtotal	567	500	88.2%	18.4	1.1	B
WB	Left Turn Through Right Turn	625	578	92.5%	9.6	1.0	A
	Subtotal	625	578	92.5%	9.6	1.0	A
Total		2,020	1,916	94.9%	16.3	0.7	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	14	100.0%	9.5	2.5	A
	Through						
	Right Turn	9	9	98.9%	7.3	3.5	A
	Subtotal	23	23	99.6%	8.8	2.5	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	31	25	81.0%	16.1	1.0	B
	Right Turn	6	5	85.0%	17.4	3.4	B
	Subtotal	37	30	81.6%	16.2	0.9	B
WB	Left Turn	13	13	96.9%	11.6	2.0	B
	Through	195	159	81.7%	14.4	1.4	B
	Right Turn						
	Subtotal	208	172	82.6%	14.2	1.3	B
Total		268	225	84.0%	13.9	1.1	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	9	8	93.3%	12.1	5.0	B
	Through	90	87	96.3%	5.7	1.1	A
	Right Turn	12	11	90.8%	9.4	3.6	A
	Subtotal	111	106	95.5%	6.6	1.3	A
SB	Left Turn	15	11	74.0%	23.9	6.1	C
	Through	111	102	91.5%	9.8	2.2	A
	Right Turn	150	129	85.9%	13.9	2.9	B
	Subtotal	276	242	87.5%	12.6	2.8	B
EB	Left Turn	15	14	94.0%	24.0	3.4	C
	Through	22	17	78.2%	24.8	4.8	C
	Right Turn	3	3	86.7%	6.8	7.5	A
	Subtotal	40	34	84.8%	23.1	2.4	C
WB	Left Turn	16	19	117.5%	4.2	1.7	A
	Through	49	42	86.5%	5.8	1.0	A
	Right Turn	23	24	105.7%	14.8	2.6	B
	Subtotal	88	86	97.2%	8.1	1.6	A
Total		515	467	90.7%	11.2	1.5	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	194	192	99.0%	43.0	2.4	D
	Right Turn	275	270	98.2%	39.1	3.1	D
	Subtotal	469	462	98.5%	40.7	2.7	D
SB	Left Turn	480	480	100.1%	40.9	1.3	D
	Through	236	230	97.6%	25.0	2.0	C
	Right Turn						
	Subtotal	716	711	99.3%	35.8	1.1	D
EB	Left Turn	797	783	98.2%	33.6	2.7	C
	Through	690	616	89.3%	23.1	1.2	C
	Right Turn	47	49	103.6%	19.7	2.5	B
	Subtotal	1,534	1,448	94.4%	28.7	1.6	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,719	2,621	96.4%	32.7	1.2	C

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	39	39	99.2%	30.6	3.0	C
	Through	166	165	99.3%	17.5	2.1	B
	Right Turn						
	Subtotal	205	204	99.3%	20.0	2.0	C
SB	Left Turn						
	Through	555	550	99.1%	16.4	2.9	B
	Right Turn	22	21	95.5%	30.2	6.5	C
	Subtotal	577	571	99.0%	16.9	3.0	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	162	162	100.2%	47.3	2.4	D
	Through	145	140	96.3%	36.9	1.7	D
	Right Turn	517	513	99.3%	4.5	0.4	A
	Subtotal	824	815	98.9%	18.5	0.8	B
Total		1,606	1,590	99.0%	18.1	1.0	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	516	516	99.9%	11.0	2.1	B
	Right Turn						
	Subtotal	516	516	99.9%	11.0	2.1	B
SB	Left Turn						
	Through	312	319	102.3%	15.0	2.1	B
	Right Turn	90	70	77.7%	18.8	3.2	B
	Subtotal	402	389	96.8%	15.7	2.3	B
EB	Left Turn	1,104	1,055	95.6%	20.7	3.1	C
	Through						
	Right Turn						
	Subtotal	1,104	1,055	95.6%	20.7	3.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,022	1,960	96.9%	17.2	2.2	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	658	596	90.5%	6.0	0.4	A
	Subtotal	658	596	90.5%	6.0	0.4	A
EB	Left Turn	593	524	88.3%	6.0	1.2	A
	Through						
	Right Turn						
	Subtotal	593	524	88.3%	6.0	1.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,251	1,119	89.5%	6.0	0.6	A

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	72	61	84.4%	44.0	2.9	D
	Through	456	392	85.9%	1.6	0.4	A
	Right Turn						
	Subtotal	528	453	85.7%	7.3	0.5	A
SB	Left Turn						
	Through	512	468	91.5%	4.9	0.7	A
	Right Turn	12	11	87.5%	3.6	2.5	A
	Subtotal	524	479	91.4%	4.9	0.7	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	67	64	96.0%	43.9	2.9	D
	Through	120	115	95.8%	37.6	1.9	D
	Right Turn	19	21	107.9%	23.7	4.1	C
	Subtotal	206	200	97.0%	38.2	1.0	D
Total		1,258	1,131	89.9%	11.7	0.4	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	424	364	85.8%	6.7	0.6	A
	Right Turn	51	48	93.7%	6.7	1.4	A
	Subtotal	475	411	86.6%	6.7	0.5	A
SB	Left Turn	55	56	102.4%	45.4	5.9	D
	Through	468	423	90.5%	6.1	0.7	A
	Right Turn						
	Subtotal	523	480	91.7%	10.7	1.0	B
EB	Left Turn	13	21	161.5%	27.6	7.5	C
	Through	820	807	98.4%	25.8	1.8	C
	Right Turn	56	58	102.7%	21.0	4.7	C
	Subtotal	889	885	99.6%	25.5	1.9	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,887	1,777	94.1%	17.2	0.8	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	39	38	96.9%	9.2	1.7	A
	Through	398	344	86.5%	2.1	0.3	A
	Right Turn						
	Subtotal	437	382	87.4%	2.8	0.3	A
SB	Left Turn						
	Through	491	446	90.9%	4.5	0.4	A
	Right Turn	48	59	121.9%	6.6	1.7	A
	Subtotal	539	505	93.7%	4.7	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	207	203	98.0%	35.0	1.4	D
	Through	230	228	99.0%	35.4	1.6	D
	Right Turn	25	26	103.6%	27.4	5.0	C
	Subtotal	462	457	98.8%	34.8	1.2	C
Total		1,438	1,343	93.4%	14.4	0.4	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,475	1,409	95.5%	5.6	4.4	A
	Right Turn	20	19	93.0%	3.0	1.3	A
	Subtotal	1,495	1,427	95.5%	5.6	4.4	A
NE	Left Turn	64	63	97.7%	44.1	3.0	D
	Through						
	Right Turn	37	35	94.1%	40.9	4.5	D
	Subtotal	101	97	96.3%	43.0	2.8	D
EB	Left Turn	168	159	94.5%	27.8	4.5	C
	Through	444	436	98.2%	28.2	1.3	C
	Right Turn						
	Subtotal	612	595	97.1%	28.1	1.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,208	2,119	96.0%	13.6	3.3	B

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,440	1,354	94.0%	11.0	4.7	B
	Through	267	264	98.8%	8.7	4.4	A
	Right Turn						
	Subtotal	1,707	1,617	94.8%	10.6	4.6	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	407	350	85.9%	34.7	2.3	C
	Right Turn	682	646	94.7%	38.3	3.6	D
	Subtotal	1,089	996	91.4%	37.0	3.0	D
Total		2,796	2,613	93.5%	20.7	3.7	C

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,194	1,197	100.3%	1.4	0.4	A
	Through						
	Right Turn	35	32	91.1%	2.0	0.6	A
	Subtotal	1,229	1,229	100.0%	1.4	0.4	A
SB	Left Turn						
	Through	386	389	100.7%	0.4	0.1	A
	Right Turn	26	28	106.2%	4.8	0.3	A
	Subtotal	412	416	101.1%	0.7	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	269	259	96.1%	19.5	0.9	B
	Through	181	136	74.9%	52.4	1.7	D
	Right Turn						
	Subtotal	450	394	87.6%	30.8	0.5	C
Total		2,091	2,040	97.6%	7.0	0.3	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	675	666	98.7%	5.9	0.5	A
	Through	1,147	1,148	100.1%	6.3	0.5	A
	Right Turn	27	25	90.7%	5.5	0.9	A
	Subtotal	1,849	1,839	99.4%	6.1	0.4	A
EB	Left Turn						
	Through	298	289	96.8%	39.0	2.0	D
	Right Turn	184	168	91.5%	35.8	2.9	D
	Subtotal	482	457	94.8%	37.8	1.8	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,331	2,296	98.5%	12.4	0.7	B

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	70	70	99.7%	16.6	2.2	B
	Right Turn	58	56	95.9%	11.9	2.5	B
	Subtotal	128	125	98.0%	14.5	1.6	B
SB	Left Turn	30	35	116.0%	31.0	5.1	C
	Through	63	54	85.7%	23.2	3.3	C
	Right Turn						
	Subtotal	93	89	95.5%	26.3	3.2	C
EB	Left Turn	16	16	100.0%	23.7	5.1	C
	Through	1,446	1,356	93.8%	23.9	2.0	C
	Right Turn	213	196	92.0%	24.1	2.6	C
	Subtotal	1,675	1,568	93.6%	23.9	1.9	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,896	1,782	94.0%	23.4	1.8	C

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	56	49	86.6%	42.6	4.3	D
	Through	546	537	98.3%	18.2	0.9	B
	Right Turn	798	806	101.0%	10.0	1.3	A
	Subtotal	1,400	1,391	99.4%	14.3	0.8	B
SB	Left Turn						
	Through	57	52	91.9%	16.5	2.8	B
	Right Turn	20	20	101.5%	9.7	2.0	A
	Subtotal	77	73	94.4%	14.5	2.2	B
EB	Left Turn	49	48	98.4%	43.9	3.0	D
	Through	102	99	97.4%	42.6	3.6	D
	Right Turn	81	75	93.0%	1.9	0.6	A
	Subtotal	232	223	96.0%	29.2	2.8	C
WB	Left Turn	454	423	93.2%	40.0	3.9	D
	Through	95	93	97.5%	32.4	3.9	C
	Right Turn	21	21	98.6%	15.9	4.4	B
	Subtotal	570	536	94.1%	37.8	3.5	D
Total		2,279	2,223	97.5%	21.5	1.3	C

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	31	30	96.5%	39.0	2.8	D
	Through	323	313	96.8%	49.2	10.2	D
	Right Turn	82	80	97.6%	45.8	13.8	D
	Subtotal	436	423	96.9%	47.8	10.0	D
SB	Left Turn	76	77	100.8%	35.3	2.5	D
	Through	177	168	94.9%	19.7	2.6	B
	Right Turn	17	17	98.2%	6.2	2.0	A
	Subtotal	270	261	96.8%	23.4	2.0	C
EB	Left Turn	27	26	94.4%	17.0	4.1	B
	Through	103	112	108.7%	16.1	1.7	B
	Right Turn	13	13	100.8%	8.8	4.4	A
	Subtotal	143	151	105.3%	15.6	1.6	B
WB	Left Turn	68	57	84.4%	20.8	3.1	C
	Through	77	77	99.5%	20.3	3.7	C
	Right Turn	372	352	94.7%	12.5	2.5	B
	Subtotal	517	486	94.0%	14.7	2.2	B
Total		1,366	1,321	96.7%	27.1	3.3	C

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	339	318	93.8%	52.0	3.7	D
	Through	78	82	104.7%	40.1	5.4	D
	Right Turn	295	277	93.9%	27.4	2.8	C
	Subtotal	712	677	95.1%	40.5	2.6	D
SB	Left Turn	89	88	99.1%	47.0	3.4	D
	Through	50	46	91.4%	42.7	5.2	D
	Right Turn	13	13	102.3%	5.9	1.6	A
	Subtotal	152	147	96.8%	41.9	2.6	D
EB	Left Turn						
	Through	781	780	99.8%	25.9	2.0	C
	Right Turn	119	119	100.3%	4.0	0.5	A
	Subtotal	900	899	99.9%	23.0	1.9	C
WB	Left Turn	109	104	95.8%	81.6	16.8	F
	Through	218	207	94.9%	11.3	1.5	B
	Right Turn	40	35	86.3%	8.0	2.7	A
	Subtotal	367	346	94.2%	32.3	5.9	C
Total		2,131	2,069	97.1%	31.6	1.3	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	311	291	93.6%	76.4	19.4	E
	Through	1,485	1,381	93.0%	37.8	5.2	D
	Right Turn						
	Subtotal	1,796	1,672	93.1%	44.7	3.6	D
SB	Left Turn						
	Through	446	434	97.2%	12.4	5.0	B
	Right Turn	54	47	87.6%	6.4	1.6	A
	Subtotal	500	481	96.2%	11.8	4.4	B
EB	Left Turn						
	Through	312	302	96.9%	98.8	45.9	F
	Right Turn	36	34	94.2%	70.3	26.3	E
	Subtotal	348	336	96.6%	95.8	43.3	F
WB	Left Turn						
	Through	180	171	95.2%	27.0	1.7	C
	Right Turn						
	Subtotal	180	171	95.2%	27.0	1.7	C
Total		2,824	2,660	94.2%	44.0	5.3	D

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **4 PM to 5 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,472	1,361	92.4%	11.6	1.6	B
	Right Turn	13	14	110.0%	9.5	3.3	A
	Subtotal	1,485	1,375	92.6%	11.6	1.6	B
SB	Left Turn						
	Through	487	469	96.4%	3.2	2.4	A
	Right Turn						
	Subtotal	487	469	96.4%	3.2	2.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	13	13	101.5%	43.7	21.5	E
	Through						
	Right Turn	49	48	97.1%	43.5	15.0	E
	Subtotal	62	61	98.1%	43.0	14.0	E
Total		2,034	1,905	93.7%	10.5	1.9	B

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,085	1,001	92.3%	31.2	3.0	C
	Right Turn	436	404	92.6%	19.0	1.9	B
	Subtotal	1,521	1,405	92.4%	27.7	2.6	C
SB	Left Turn	123	122	99.2%	54.6	5.5	D
	Through	435	419	96.3%	4.8	1.3	A
	Right Turn						
	Subtotal	558	541	96.9%	16.1	1.8	B
EB	Left Turn	76	75	98.4%	47.3	5.5	D
	Through	812	794	97.7%	42.8	6.5	D
	Right Turn	52	51	97.5%	35.3	6.9	D
	Subtotal	940	919	97.8%	42.8	6.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		3,019	2,865	94.9%	30.4	2.8	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	119	114	95.5%	9.4	1.3	A
	Through	1,042	960	92.1%	19.5	2.4	B
	Right Turn						
	Subtotal	1,161	1,073	92.4%	18.4	2.1	B
SB	Left Turn						
	Through	427	415	97.2%	23.5	2.0	C
	Right Turn	15	16	103.3%	7.3	3.3	A
	Subtotal	442	431	97.4%	23.0	2.1	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	131	128	97.8%	42.3	5.5	D
	Through	233	217	93.1%	35.3	1.5	D
	Right Turn	213	219	102.7%	52.2	18.7	D
	Subtotal	577	564	97.7%	43.7	7.5	D
Total		2,180	2,067	94.8%	26.3	2.8	C

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	96	105	109.5%	19.6	1.8	B
	Through	727	675	92.8%	13.3	1.0	B
	Right Turn	432	398	92.1%	14.4	1.5	B
	Subtotal	1,255	1,178	93.9%	14.3	0.8	B
SB	Left Turn	65	66	100.9%	56.4	8.3	E
	Through	176	158	89.8%	19.8	3.7	B
	Right Turn	45	42	94.2%	4.0	0.5	A
	Subtotal	286	266	93.0%	26.4	2.3	C
EB	Left Turn	91	92	100.9%	58.2	8.0	E
	Through	1,058	1,037	98.0%	40.2	5.3	D
	Right Turn	36	50	138.1%	35.9	7.4	D
	Subtotal	1,185	1,179	99.5%	41.4	5.2	D
WB	Left Turn	230	223	96.8%	62.8	12.4	E
	Through	356	351	98.6%	22.9	2.4	C
	Right Turn	37	38	101.9%	14.5	3.2	B
	Subtotal	623	611	98.1%	36.9	4.3	D
Total		3,349	3,234	96.6%	29.4	2.5	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	62	61	98.2%	3.9	0.6	A
	Subtotal	62	61	98.2%	3.9	0.6	A
SB	Left Turn	613	682	111.2%	39.4	1.5	D
	Through	146	151	103.2%	39.6	1.9	D
	Right Turn						
	Subtotal	759	833	109.7%	39.5	1.3	D
EB	Left Turn						
	Through	1,268	1,223	96.4%	9.6	1.5	A
	Right Turn	103	98	94.7%	8.2	2.2	A
	Subtotal	1,371	1,320	96.3%	9.5	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,192	2,213	101.0%	20.6	1.2	C

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	724	732	101.1%	5.4	4.3	A
	Right Turn	7	7	104.3%	1.3	1.6	A
	Subtotal	731	739	101.1%	5.4	4.2	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	35	31	87.1%	50.2	10.7	D
	Through	34	32	94.4%	37.6	3.4	D
	Right Turn						
	Subtotal	69	63	90.7%	44.2	5.3	D
Total		800	802	100.2%	8.4	4.3	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	421	422	100.2%	21.4	0.8	C
	Through	600	598	99.7%	16.8	0.9	B
	Right Turn	354	350	98.9%	12.5	0.9	B
	Subtotal	1,375	1,370	99.7%	17.1	0.6	B
EB	Left Turn						
	Through	1,478	1,421	96.1%	20.3	2.2	C
	Right Turn	77	71	91.8%	16.9	3.1	B
	Subtotal	1,555	1,492	95.9%	20.2	2.2	C
WB	Left Turn	54	62	114.4%	69.7	8.0	E
	Through	269	264	98.1%	17.5	0.9	B
	Right Turn						
	Subtotal	323	326	100.8%	27.5	1.8	C
Total		3,253	3,188	98.0%	19.6	0.9	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	291	308	105.9%	32.1	1.8	C
	Right Turn	160	130	81.3%	28.8	2.6	C
	Subtotal	451	438	97.2%	31.1	1.9	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	206	197	95.7%	14.6	1.1	B
	Through	1,715	1,740	101.5%	13.6	1.4	B
	Right Turn	22	23	102.7%	10.2	4.3	B
	Subtotal	1,943	1,960	100.9%	13.6	1.4	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,394	2,398	100.2%	16.8	1.3	B

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn	71	64	90.4%	18.3	1.7	B
	Through	572	575	100.5%	19.3	1.0	B
	Right Turn	34	44	127.9%	19.9	5.2	B
	Subtotal	677	682	100.8%	19.2	1.1	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	611	584	95.5%	23.0	1.1	C
	Through	1,288	1,252	97.2%	17.9	2.5	B
	Right Turn						
	Subtotal	1,899	1,835	96.6%	19.5	1.7	B
WB	Left Turn						
	Through	252	263	104.5%	20.8	1.0	C
	Right Turn	6	7	108.3%	10.7	2.9	B
	Subtotal	258	270	104.6%	20.5	1.0	C
Total		2,834	2,787	98.4%	19.5	1.2	B

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	739	604	81.7%	22.2	2.2	C
	Right Turn						
	Subtotal	739	604	81.7%	22.2	2.2	C
SB	Left Turn						
	Through	778	722	92.9%	9.6	0.6	A
	Right Turn						
	Subtotal	778	722	92.9%	9.6	0.6	A
EB	Left Turn						
	Through	27	26	96.7%	32.3	4.1	C
	Right Turn						
	Subtotal	27	26	96.7%	32.3	4.1	C
WB	Left Turn						
	Through	34	32	92.6%	31.0	3.5	C
	Right Turn	28	27	97.9%	26.7	5.3	C
	Subtotal	62	59	95.0%	29.1	3.6	C
Total		1,606	1,411	87.9%	16.2	0.9	B

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	767	631	82.3%	20.4	1.6	C
	Right Turn						
	Subtotal	767	631	82.3%	20.4	1.6	C
SB	Left Turn						
	Through	778	722	92.9%	4.1	0.8	A
	Right Turn						
	Subtotal	778	722	92.9%	4.1	0.8	A
EB	Left Turn						
	Through	194	182	93.7%	14.3	2.2	B
	Right Turn						
	Subtotal	194	182	93.7%	14.3	2.2	B
WB	Left Turn						
	Through	158	131	83.1%	36.4	6.0	D
	Right Turn	35	28	79.7%	50.8	14.5	D
	Subtotal	193	159	82.5%	38.8	6.9	D
Total		1,932	1,694	87.7%	14.5	1.2	B

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	802	658	82.1%	23.7	1.3	C
	Right Turn						
	Subtotal	802	658	82.1%	23.7	1.3	C
SB	Left Turn						
	Through	778	723	93.0%	8.3	0.8	A
	Right Turn						
	Subtotal	778	723	93.0%	8.3	0.8	A
EB	Left Turn	4	4	107.5%	52.4	16.5	D
	Through	57	53	92.3%	36.4	4.4	D
	Right Turn						
	Subtotal	61	57	93.3%	37.4	4.4	D
WB	Left Turn						
	Through	268	322	120.0%	40.8	8.8	D
	Right Turn						
	Subtotal	268	322	120.0%	40.8	8.8	D
Total		1,909	1,760	92.2%	21.0	2.0	C

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	589	476	80.8%	24.6	1.4	C
	Right Turn	217	187	86.1%	15.9	1.6	B
	Subtotal	806	663	82.2%	22.2	0.9	C
SB	Left Turn	20	20	98.0%	52.8	10.3	D
	Through	634	580	91.5%	26.1	1.8	C
	Right Turn						
	Subtotal	654	600	91.7%	27.0	1.8	C
EB	Left Turn	70	69	98.9%	23.1	2.7	C
	Through	1,661	1,671	100.6%	20.9	1.9	C
	Right Turn	144	143	99.0%	27.7	3.9	C
	Subtotal	1,875	1,883	100.4%	21.5	1.9	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		3,335	3,146	94.3%	22.7	1.0	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	11	100.0%	14.0	2.8	B
	Through						
	Right Turn	7	6	80.0%	9.5	1.4	A
	Subtotal	18	17	92.2%	12.4	1.8	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	53	49	91.7%	17.0	1.1	B
	Right Turn	4	4	100.0%	10.4	5.0	B
	Subtotal	57	53	92.3%	16.5	1.3	B
WB	Left Turn	5	5	90.0%	10.6	11.7	B
	Through	257	288	112.2%	13.6	6.3	B
	Right Turn						
	Subtotal	262	293	111.8%	13.6	6.3	B
Total		337	362	107.4%	14.0	5.3	B

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	654	639	97.8%	47.6	12.5	D
	Subtotal	654	639	97.8%	47.6	12.5	D
SB	Left Turn Through Right Turn	389	400	102.9%	10.1	1.0	B
	Subtotal	389	400	102.9%	10.1	1.0	B
EB	Left Turn Through Right Turn	706	608	86.2%	87.4	33.5	F
	Subtotal	706	608	86.2%	87.4	33.5	F
WB	Left Turn Through Right Turn	739	699	94.6%	11.8	0.8	B
	Subtotal	739	699	94.6%	11.8	0.8	B
Total		2,488	2,347	94.3%	40.7	9.4	D

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	14	97.1%	11.8	3.2	B
	Through						
	Right Turn	23	18	80.0%	10.6	1.5	B
	Subtotal	37	32	86.5%	11.0	2.0	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	58	51	88.4%	15.5	0.6	B
	Right Turn	2	2	120.0%	14.8	5.5	B
	Subtotal	60	54	89.5%	15.5	0.5	B
WB	Left Turn	9	10	107.8%	14.4	5.5	B
	Through	248	278	111.9%	17.8	3.1	B
	Right Turn						
	Subtotal	257	287	111.8%	17.7	3.1	B
Total		354	373	105.3%	16.8	2.3	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	5	90.0%	13.2	5.4	B
	Through	140	135	96.1%	6.2	1.7	A
	Right Turn	8	9	117.5%	13.6	4.2	B
	Subtotal	153	148	97.0%	6.9	1.8	A
SB	Left Turn	32	27	84.7%	35.4	6.9	D
	Through	140	136	96.9%	19.1	4.2	B
	Right Turn	203	250	123.1%	19.3	3.5	B
	Subtotal	375	413	110.0%	20.3	3.9	C
EB	Left Turn	38	33	86.6%	21.6	2.3	C
	Through	40	34	84.3%	22.7	2.9	C
	Right Turn	3	3	100.0%	13.0	7.3	B
	Subtotal	81	70	85.9%	21.8	1.8	C
WB	Left Turn	14	12	85.0%	3.2	1.8	A
	Through	49	46	94.3%	7.4	1.5	A
	Right Turn	9	12	134.4%	18.4	3.3	B
	Subtotal	72	70	97.5%	8.5	1.5	A
Total		681	701	102.9%	16.4	2.2	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	206	205	99.7%	46.5	2.9	D
	Right Turn	353	346	98.0%	46.0	3.5	D
	Subtotal	559	552	98.7%	46.2	2.9	D
SB	Left Turn	449	449	100.0%	43.7	1.1	D
	Through	237	234	98.5%	24.7	1.7	C
	Right Turn						
	Subtotal	686	683	99.5%	37.2	1.2	D
EB	Left Turn	799	781	97.7%	20.9	1.6	C
	Through	860	802	93.3%	11.2	1.1	B
	Right Turn	40	42	105.3%	10.7	1.5	B
	Subtotal	1,699	1,625	95.7%	15.8	1.3	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,944	2,859	97.1%	26.8	0.8	C

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	41	41	101.0%	28.3	3.6	C
	Through	175	172	98.1%	17.1	1.8	B
	Right Turn						
	Subtotal	216	213	98.6%	19.3	2.1	B
SB	Left Turn						
	Through	531	526	99.1%	14.1	3.1	B
	Right Turn	22	25	114.1%	37.4	8.8	D
	Subtotal	553	551	99.7%	15.2	3.3	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	155	159	102.4%	45.0	2.7	D
	Through	160	156	97.8%	38.8	2.5	D
	Right Turn	494	485	98.2%	4.4	0.3	A
	Subtotal	809	800	98.9%	19.1	0.8	B
Total		1,578	1,565	99.2%	17.8	1.4	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	654	637	97.4%	27.0	5.5	C
	Right Turn						
	Subtotal	654	637	97.4%	27.0	5.5	C
SB	Left Turn						
	Through	389	401	103.1%	22.5	3.1	C
	Right Turn	93	65	70.3%	26.1	6.1	C
	Subtotal	482	466	96.7%	23.0	3.0	C
EB	Left Turn	1,142	1,046	91.6%	135.9	30.4	F
	Through						
	Right Turn						
	Subtotal	1,142	1,046	91.6%	135.9	30.4	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,278	2,149	94.4%	78.9	14.3	E

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	778	722	92.7%	8.5	0.5	A
	Subtotal	778	722	92.7%	8.5	0.5	A
EB	Left Turn	739	610	82.5%	92.5	11.8	F
	Through						
	Right Turn						
	Subtotal	739	610	82.5%	92.5	11.8	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,517	1,331	87.8%	46.9	5.3	D

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	101	93	92.2%	41.8	3.4	D
	Through	558	451	80.8%	1.5	0.3	A
	Right Turn						
	Subtotal	659	544	82.5%	8.4	0.7	A
SB	Left Turn						
	Through	572	522	91.3%	15.6	2.1	B
	Right Turn	32	32	100.0%	12.0	4.2	B
	Subtotal	604	554	91.8%	15.4	2.2	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	82	80	97.1%	73.9	9.8	E
	Through	116	113	97.3%	36.3	2.4	D
	Right Turn	19	19	98.9%	26.7	5.9	C
	Subtotal	217	211	97.4%	49.6	4.2	D
Total		1,480	1,310	88.5%	18.0	1.5	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	523	421	80.4%	7.2	0.6	A
	Right Turn	54	47	87.0%	9.4	2.4	A
	Subtotal	577	468	81.0%	7.4	0.5	A
SB	Left Turn	67	66	99.0%	59.5	9.8	E
	Through	534	485	90.9%	22.2	4.3	C
	Right Turn						
	Subtotal	601	552	91.8%	26.8	4.7	C
EB	Left Turn	14	25	175.0%	20.8	6.8	C
	Through	1,238	1,190	96.1%	20.9	1.1	C
	Right Turn	70	70	100.4%	13.4	4.0	B
	Subtotal	1,322	1,285	97.2%	20.5	1.3	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,500	2,304	92.2%	19.3	1.3	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	47	45	96.4%	16.7	4.3	B
	Through	490	400	81.6%	3.1	0.5	A
	Right Turn						
	Subtotal	537	445	82.9%	4.5	0.7	A
SB	Left Turn						
	Through	564	516	91.5%	21.2	11.7	C
	Right Turn	57	66	116.1%	18.7	7.2	B
	Subtotal	621	582	93.8%	20.9	11.1	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	246	246	100.1%	36.8	2.7	D
	Through	246	241	97.9%	35.0	1.7	C
	Right Turn	24	24	101.3%	26.5	3.1	C
	Subtotal	516	511	99.1%	35.4	1.4	D
Total		1,674	1,539	91.9%	21.0	4.6	C

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,565	1,524	97.4%	22.3	10.0	C
	Right Turn	36	32	89.7%	7.1	2.8	A
	Subtotal	1,601	1,556	97.2%	22.0	9.8	C
NE	Left Turn	82	83	100.7%	53.6	5.2	D
	Through						
	Right Turn	36	34	95.0%	46.5	3.3	D
	Subtotal	118	117	99.0%	51.4	3.9	D
EB	Left Turn	225	211	93.8%	38.3	11.5	D
	Through	548	528	96.3%	27.9	1.2	C
	Right Turn						
	Subtotal	773	739	95.6%	30.9	3.6	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,492	2,412	96.8%	26.2	7.3	C

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,372	1,313	95.7%	29.8	8.0	C
	Through	500	503	100.7%	23.6	7.7	C
	Right Turn						
	Subtotal	1,872	1,817	97.1%	28.1	7.9	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	420	375	89.3%	38.1	6.1	D
	Right Turn	766	748	97.6%	48.0	10.3	D
	Subtotal	1,186	1,123	94.7%	44.8	8.7	D
Total		3,058	2,939	96.1%	34.5	6.9	C

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,464	1,459	99.7%	2.6	0.4	A
	Through						
	Right Turn	33	31	94.5%	2.9	0.7	A
	Subtotal	1,497	1,490	99.5%	2.6	0.4	A
SB	Left Turn						
	Through	412	411	99.7%	0.8	0.1	A
	Right Turn	27	27	99.6%	4.8	0.2	A
	Subtotal	439	438	99.7%	1.1	0.1	A
EB	Left Turn						
	Through						
	Right Turn	2	0	0.0%	0.0	0.0	A
	Subtotal	2	0	0.0%	0.0	0.0	A
WB	Left Turn	270	274	101.4%	17.1	0.9	B
	Through	183	133	72.6%	52.5	1.7	D
	Right Turn						
	Subtotal	453	407	89.8%	28.7	1.1	C
Total		2,391	2,335	97.6%	6.9	0.3	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	738	746	101.0%	6.9	0.4	A
	Through	1,378	1,368	99.3%	8.1	0.3	A
	Right Turn	32	31	96.9%	8.1	1.7	A
	Subtotal	2,148	2,145	99.9%	7.7	0.2	A
EB	Left Turn						
	Through	416	388	93.2%	38.6	1.5	D
	Right Turn	179	179	99.9%	38.3	1.3	D
	Subtotal	595	567	95.2%	38.5	1.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,743	2,712	98.9%	14.1	0.4	B

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	94	90	95.5%	30.8	3.5	C
	Right Turn	93	88	94.2%	20.4	3.3	C
	Subtotal	187	177	94.9%	25.6	3.2	C
SB	Left Turn	57	60	106.0%	44.1	4.5	D
	Through	85	77	90.8%	38.6	4.5	D
	Right Turn						
	Subtotal	142	138	96.9%	41.0	4.1	D
EB	Left Turn	9	10	106.7%	23.3	8.0	C
	Through	1,549	1,476	95.3%	30.2	4.8	C
	Right Turn	290	355	122.3%	42.7	6.9	D
	Subtotal	1,848	1,840	99.6%	32.6	4.6	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,177	2,155	99.0%	32.6	3.9	C

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn	65	64	98.6%	44.2	3.3	D
	Through	561	557	99.3%	18.3	1.4	B
	Right Turn	859	877	102.1%	11.0	1.4	B
	Subtotal	1,485	1,498	100.8%	15.2	0.8	B
SB	Left Turn						
	Through	88	86	97.6%	16.6	1.6	B
	Right Turn	25	25	98.4%	10.8	2.2	B
	Subtotal	113	111	97.8%	15.3	1.4	B
EB	Left Turn	90	87	96.2%	43.4	3.1	D
	Through	146	134	92.1%	42.9	1.7	D
	Right Turn	66	66	100.3%	1.4	0.4	A
	Subtotal	302	287	95.1%	33.5	1.4	C
WB	Left Turn	325	357	109.8%	40.9	3.6	D
	Through	102	100	98.0%	34.8	4.4	C
	Right Turn	21	20	94.8%	23.1	2.5	C
	Subtotal	448	477	106.4%	38.9	3.0	D
Total		2,348	2,372	101.0%	22.2	1.0	C

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn	22	22	99.5%	36.2	4.7	D
	Through	222	225	101.5%	29.3	2.3	C
	Right Turn	48	47	98.5%	23.3	3.1	C
	Subtotal	292	295	100.9%	28.9	2.2	C
SB	Left Turn	98	97	98.8%	30.0	1.8	C
	Through	167	163	97.8%	18.3	1.5	B
	Right Turn	14	15	105.0%	4.8	1.1	A
	Subtotal	279	275	98.5%	21.7	0.8	C
EB	Left Turn	29	30	101.7%	14.1	3.5	B
	Through	119	128	107.6%	13.0	1.6	B
	Right Turn	22	19	86.4%	8.1	2.4	A
	Subtotal	170	177	103.8%	12.6	1.5	B
WB	Left Turn	83	72	86.1%	14.6	2.4	B
	Through	105	113	107.2%	13.6	1.8	B
	Right Turn	257	280	108.8%	9.5	0.9	A
	Subtotal	445	464	104.2%	11.2	1.2	B
Total		1,186	1,209	102.0%	18.1	0.8	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	242	268	110.8%	45.9	3.8	D
	Through	93	93	99.8%	38.2	3.3	D
	Right Turn	169	169	100.0%	23.1	4.4	C
	Subtotal	504	530	105.2%	37.3	2.5	D
SB	Left Turn	91	89	98.0%	43.9	3.4	D
	Through	72	72	100.1%	41.1	2.3	D
	Right Turn	10	10	103.0%	6.4	2.0	A
	Subtotal	173	172	99.2%	40.6	2.2	D
EB	Left Turn						
	Through	874	887	101.5%	26.0	3.4	C
	Right Turn	131	127	97.1%	4.5	0.7	A
	Subtotal	1,005	1,014	100.9%	23.3	3.2	C
WB	Left Turn	89	88	99.2%	68.0	10.5	E
	Through	196	201	102.7%	10.4	2.1	B
	Right Turn	38	40	105.5%	6.4	2.0	A
	Subtotal	323	330	102.0%	25.5	4.0	C
Total		2,005	2,045	102.0%	28.7	1.9	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	182	206	113.0%	48.1	8.7	D
	Through	831	946	113.8%	26.6	5.6	C
	Right Turn						
	Subtotal	1,013	1,152	113.7%	30.5	4.7	C
SB	Left Turn						
	Through	493	492	99.7%	18.1	2.8	B
	Right Turn	51	53	102.9%	5.9	0.7	A
	Subtotal	544	544	100.0%	16.9	2.4	B
EB	Left Turn						
	Through	363	390	107.5%	103.6	42.4	F
	Right Turn	40	40	100.0%	72.0	20.1	E
	Subtotal	403	430	106.7%	100.6	40.0	F
WB	Left Turn						
	Through	200	200	99.8%	24.7	2.0	C
	Right Turn						
	Subtotal	200	200	99.8%	24.7	2.0	C
Total		2,160	2,325	107.7%	40.1	6.9	D

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	825	940	113.9%	9.6	5.1	A
	Right Turn	6	10	166.7%	10.3	10.7	B
	Subtotal	831	950	114.3%	9.6	5.2	A
SB	Left Turn						
	Through	532	538	101.0%	4.5	1.0	A
	Right Turn						
	Subtotal	532	538	101.0%	4.5	1.0	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	12	13	106.7%	22.4	10.4	C
	Through						
	Right Turn	74	74	100.4%	26.5	15.2	D
	Subtotal	86	87	101.3%	25.8	14.3	D
Total		1,449	1,574	108.6%	8.7	3.7	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	585	673	115.0%	26.6	7.3	C
	Right Turn	314	350	111.3%	18.9	11.3	B
	Subtotal	899	1,022	113.7%	23.9	8.4	C
SB	Left Turn	101	107	105.9%	61.8	19.3	E
	Through	468	476	101.6%	4.1	0.4	A
	Right Turn						
	Subtotal	569	583	102.4%	14.7	3.8	B
EB	Left Turn	38	37	97.1%	56.1	25.9	E
	Through	804	817	101.7%	56.5	28.7	E
	Right Turn	64	65	101.3%	50.4	24.8	D
	Subtotal	906	919	101.4%	56.1	28.3	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,374	2,524	106.3%	33.6	14.6	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	83	90	108.9%	12.8	1.4	B
	Through	540	627	116.1%	14.8	3.0	B
	Right Turn						
	Subtotal	623	718	115.2%	14.5	2.7	B
SB	Left Turn						
	Through	437	447	102.3%	19.6	1.9	B
	Right Turn	19	18	94.7%	5.4	1.2	A
	Subtotal	456	465	102.0%	19.1	1.9	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	132	135	101.9%	39.8	2.9	D
	Through	221	220	99.5%	35.9	1.4	D
	Right Turn	234	233	99.7%	34.1	18.1	C
	Subtotal	587	588	100.1%	36.1	7.0	D
Total		1,666	1,771	106.3%	22.9	3.0	C

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	89	106	118.9%	17.9	1.6	B
	Through	521	560	107.4%	13.0	1.4	B
	Right Turn	164	200	122.1%	14.1	3.5	B
	Subtotal	774	866	111.8%	13.9	1.4	B
SB	Left Turn	78	78	99.4%	54.1	12.1	D
	Through	170	151	89.0%	19.0	2.8	B
	Right Turn	67	65	96.4%	5.5	0.8	A
	Subtotal	315	293	93.1%	25.3	3.6	C
EB	Left Turn	127	125	98.7%	101.3	44.2	F
	Through	1,212	1,190	98.2%	78.2	46.3	E
	Right Turn	33	55	165.5%	70.4	44.8	E
	Subtotal	1,372	1,370	99.9%	80.1	46.0	F
WB	Left Turn	253	255	100.7%	52.9	6.0	D
	Through	406	425	104.7%	25.4	2.4	C
	Right Turn	28	27	97.5%	18.1	2.1	B
	Subtotal	687	707	102.9%	35.1	2.8	D
Total		3,148	3,236	102.8%	47.8	19.9	D

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	39	41	104.9%	6.5	2.7	A
	Subtotal	39	41	104.9%	6.5	2.7	A
SB	Left Turn	575	574	99.9%	44.2	0.7	D
	Through	175	179	102.1%	44.9	1.3	D
	Right Turn						
	Subtotal	750	753	100.4%	44.3	0.6	D
EB	Left Turn						
	Through	1,111	1,168	105.1%	12.9	9.5	B
	Right Turn	108	111	102.8%	9.9	6.1	A
	Subtotal	1,219	1,279	104.9%	12.6	9.2	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,008	2,072	103.2%	24.0	5.7	C

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	723	694	95.9%	3.3	0.8	A
	Right Turn	15	15	100.0%	1.1	0.3	A
	Subtotal	738	709	96.0%	3.2	0.8	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	27	26	97.8%	46.2	3.2	D
	Through	20	21	106.5%	37.1	4.5	D
	Right Turn						
	Subtotal	47	48	101.5%	42.2	2.4	D
Total		785	756	96.3%	5.7	0.8	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	452	451	99.8%	23.5	2.1	C
	Through	673	651	96.7%	18.1	0.8	B
	Right Turn	443	443	100.0%	14.7	0.8	B
	Subtotal	1,568	1,545	98.5%	18.7	0.8	B
EB	Left Turn						
	Through	1,410	1,458	103.4%	32.1	7.4	C
	Right Turn	44	34	78.2%	24.7	9.0	C
	Subtotal	1,454	1,493	102.7%	32.0	7.4	C
WB	Left Turn	21	23	111.0%	64.3	4.7	E
	Through	244	263	107.7%	21.8	1.0	C
	Right Turn						
	Subtotal	265	286	108.0%	25.3	1.2	C
Total		3,287	3,324	101.1%	25.2	3.5	C

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	265	321	120.9%	34.3	3.8	C
	Right Turn	118	127	107.2%	31.7	5.9	C
	Subtotal	383	447	116.7%	33.5	4.2	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	180	183	101.4%	20.5	5.6	C
	Through	1,456	1,522	104.5%	16.3	7.1	B
	Right Turn	89	90	100.6%	10.9	7.0	B
	Subtotal	1,725	1,794	104.0%	16.5	6.9	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,108	2,241	106.3%	19.9	6.1	B

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	44	147.3%	36.2	26.4	D
	Through	561	601	107.2%	38.6	22.1	D
	Right Turn	39	48	124.1%	34.0	13.3	C
	Subtotal	630	694	110.1%	38.1	21.7	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	497	534	107.4%	42.1	20.0	D
	Through	1,365	1,377	100.9%	16.9	2.1	B
	Right Turn						
	Subtotal	1,862	1,911	102.6%	23.9	5.8	C
WB	Left Turn						
	Through	235	239	101.8%	21.2	0.9	C
	Right Turn	7	7	98.6%	20.2	6.4	C
	Subtotal	242	246	101.7%	21.2	0.8	C
Total		2,734	2,851	104.3%	27.1	8.9	C

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	400	506	126.6%	29.1	1.9	C
	Right Turn						
	Subtotal	400	506	126.6%	29.1	1.9	C
SB	Left Turn						
	Through	509	519	101.9%	5.8	0.9	A
	Right Turn						
	Subtotal	509	519	101.9%	5.8	0.9	A
EB	Left Turn	2	2	105.0%	34.6	22.4	C
	Through	42	40	94.8%	38.6	7.1	D
	Right Turn						
	Subtotal	44	42	95.2%	38.7	7.2	D
WB	Left Turn						
	Through	44	41	93.6%	38.1	7.6	D
	Right Turn	55	51	92.9%	25.2	5.5	C
	Subtotal	99	92	93.2%	31.1	5.9	C
Total		1,052	1,159	110.2%	19.2	1.3	B

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	457	561	122.8%	25.2	2.1	C
	Right Turn						
	Subtotal	457	561	122.8%	25.2	2.1	C
SB	Left Turn						
	Through	509	517	101.6%	4.0	1.1	A
	Right Turn						
	Subtotal	509	517	101.6%	4.0	1.1	A
EB	Left Turn						
	Through	254	246	96.9%	19.9	2.0	B
	Right Turn						
	Subtotal	254	246	96.9%	19.9	2.0	B
WB	Left Turn						
	Through	216	199	91.9%	55.6	14.2	E
	Right Turn	74	67	90.8%	68.4	17.0	E
	Subtotal	290	266	91.6%	58.9	14.6	E
Total		1,510	1,590	105.3%	23.1	2.7	C

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	531	630	118.7%	23.3	1.4	C
	Right Turn						
	Subtotal	531	630	118.7%	23.3	1.4	C
SB	Left Turn						
	Through	509	515	101.2%	8.3	0.9	A
	Right Turn						
	Subtotal	509	515	101.2%	8.3	0.9	A
EB	Left Turn						
	Through	219	209	95.6%	42.3	6.2	D
	Right Turn						
	Subtotal	219	209	95.6%	42.3	6.2	D
WB	Left Turn						
	Through	137	161	117.4%	40.6	8.5	D
	Right Turn						
	Subtotal	137	161	117.4%	40.6	8.5	D
Total		1,396	1,516	108.6%	22.7	0.8	C

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	451	515	114.2%	26.2	1.6	C
	Right Turn	80	117	145.8%	11.8	2.5	B
	Subtotal	531	632	118.9%	23.5	1.6	C
SB	Left Turn	32	31	95.6%	42.8	8.9	D
	Through	351	355	101.1%	14.9	2.0	B
	Right Turn						
	Subtotal	383	386	100.7%	17.2	2.1	B
EB	Left Turn	99	100	101.2%	33.0	5.1	C
	Through	1,317	1,393	105.8%	28.6	6.0	C
	Right Turn	158	158	99.7%	29.0	5.9	C
	Subtotal	1,574	1,651	104.9%	28.9	5.8	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,488	2,668	107.2%	26.0	3.8	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	17	16	92.9%	11.5	1.3	B
	Through						
	Right Turn	9	8	92.2%	8.3	1.1	A
	Subtotal	26	24	92.7%	10.5	1.0	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	214	205	96.0%	22.1	0.5	C
	Right Turn	5	4	78.0%	18.5	6.9	B
	Subtotal	219	209	95.6%	22.0	0.5	C
WB	Left Turn	4	4	92.5%	14.4	9.0	B
	Through	120	129	107.8%	10.8	1.5	B
	Right Turn						
	Subtotal	124	133	107.3%	11.1	1.4	B
Total		369	366	99.3%	17.3	0.7	B

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	777	776	99.8%	33.8	9.3	C
	Subtotal	777	776	99.8%	33.8	9.3	C
SB	Left Turn Through Right Turn	431	464	107.6%	14.0	1.0	B
	Subtotal	431	464	107.6%	14.0	1.0	B
EB	Left Turn Through Right Turn	362	433	119.5%	227.5	52.9	F
	Subtotal	362	433	119.5%	227.5	52.9	F
WB	Left Turn Through Right Turn	484	499	103.1%	16.6	1.2	B
	Subtotal	484	499	103.1%	16.6	1.2	B
Total		2,054	2,171	105.7%	64.4	12.0	E

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	16	104.0%	8.7	2.3	A
	Through						
	Right Turn	35	34	96.6%	8.9	2.3	A
	Subtotal	50	49	98.8%	8.9	1.8	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	220	209	95.0%	17.3	0.7	B
	Right Turn	3	3	83.3%	14.8	5.4	B
	Subtotal	223	211	94.8%	17.3	0.7	B
WB	Left Turn	8	9	116.3%	20.1	3.4	C
	Through	109	119	109.4%	15.0	1.8	B
	Right Turn						
	Subtotal	117	129	109.8%	15.3	1.8	B
Total		390	389	99.8%	15.5	0.7	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	9	115.0%	14.7	5.6	B
	Through	151	147	97.2%	7.3	1.3	A
	Right Turn	20	19	96.0%	8.3	2.3	A
	Subtotal	179	175	97.8%	7.8	1.3	A
SB	Left Turn	42	44	104.5%	20.3	4.7	C
	Through	188	181	96.5%	12.8	2.1	B
	Right Turn	83	95	114.2%	17.6	3.8	B
	Subtotal	313	320	102.3%	15.3	2.7	B
EB	Left Turn	121	116	95.6%	26.8	2.2	C
	Through	123	117	95.2%	26.1	1.4	C
	Right Turn	11	10	87.3%	22.5	5.4	C
	Subtotal	255	242	95.1%	26.3	1.3	C
WB	Left Turn	9	10	106.7%	4.0	2.1	A
	Through	26	26	98.8%	4.2	1.2	A
	Right Turn	9	8	87.8%	8.8	2.7	A
	Subtotal	44	43	98.2%	4.9	1.4	A
Total		791	781	98.7%	16.4	1.3	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	211	210	99.3%	60.4	4.2	E
	Right Turn	406	407	100.2%	79.4	13.1	E
	Subtotal	617	616	99.9%	73.0	9.7	E
SB	Left Turn	543	544	100.2%	47.8	2.4	D
	Through	250	254	101.5%	23.9	1.7	C
	Right Turn						
	Subtotal	793	798	100.6%	40.2	1.7	D
EB	Left Turn	862	861	99.9%	46.8	3.6	D
	Through	547	594	108.6%	22.8	3.1	C
	Right Turn	39	42	107.2%	21.1	3.5	C
	Subtotal	1,448	1,497	103.4%	36.5	3.3	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,858	2,911	101.9%	45.3	2.9	D

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	42	42	100.7%	34.6	3.0	C
	Through	173	169	97.9%	23.3	2.7	C
	Right Turn						
	Subtotal	215	212	98.4%	25.5	2.8	C
SB	Left Turn						
	Through	615	601	97.8%	33.5	8.7	C
	Right Turn	25	28	110.0%	45.7	12.6	D
	Subtotal	640	629	98.3%	34.1	8.7	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	179	185	103.4%	45.4	2.2	D
	Through	184	184	100.0%	34.0	2.5	C
	Right Turn	571	561	98.3%	5.1	0.3	A
	Subtotal	934	931	99.6%	18.9	0.6	B
Total		1,789	1,771	99.0%	25.1	3.4	C

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	777	784	100.9%	10.9	2.1	B
	Right Turn						
	Subtotal	777	784	100.9%	10.9	2.1	B
SB	Left Turn						
	Through	431	461	107.0%	14.7	1.6	B
	Right Turn	102	76	74.3%	17.0	5.4	B
	Subtotal	533	537	100.8%	14.9	1.2	B
EB	Left Turn	236	348	147.3%	163.8	73.7	F
	Through						
	Right Turn						
	Subtotal	236	348	147.3%	163.8	73.7	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,546	1,668	107.9%	45.1	18.5	D

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	509	520	102.1%	7.1	0.4	A
	Subtotal	509	520	102.1%	7.1	0.4	A
EB	Left Turn	400	500	125.0%	136.8	15.2	F
	Through						
	Right Turn						
	Subtotal	400	500	125.0%	136.8	15.2	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		909	1,020	112.2%	70.7	8.3	E

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	100	111	110.5%	47.9	22.7	D
	Through	450	504	112.0%	1.8	0.5	A
	Right Turn						
	Subtotal	550	615	111.8%	10.1	4.5	B
SB	Left Turn						
	Through	291	290	99.8%	9.3	6.9	A
	Right Turn	23	22	93.5%	9.0	15.8	A
	Subtotal	314	312	99.3%	9.3	7.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	92	92	100.0%	48.4	9.2	D
	Through	109	109	99.8%	46.8	23.1	D
	Right Turn	9	8	92.2%	23.1	5.5	C
	Subtotal	210	209	99.6%	46.8	11.8	D
Total		1,074	1,136	105.7%	16.7	6.5	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	384	436	113.4%	5.9	0.6	A
	Right Turn	75	80	106.3%	5.4	0.6	A
	Subtotal	459	515	112.2%	5.9	0.6	A
SB	Left Turn	65	69	106.8%	44.9	6.0	D
	Through	237	232	98.0%	14.6	6.6	B
	Right Turn						
	Subtotal	302	302	99.9%	21.6	6.3	C
EB	Left Turn	11	21	190.9%	19.8	5.4	B
	Through	1,316	1,327	100.8%	20.4	0.9	C
	Right Turn	77	77	99.7%	8.1	4.1	A
	Subtotal	1,404	1,425	101.5%	19.7	0.9	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,165	2,242	103.5%	16.8	1.4	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	61	60	98.2%	12.7	13.0	B
	Through	334	398	119.2%	3.0	0.5	A
	Right Turn						
	Subtotal	395	458	116.0%	4.3	2.0	A
SB	Left Turn						
	Through	260	261	100.5%	8.8	3.3	A
	Right Turn	79	83	105.3%	7.4	3.5	A
	Subtotal	339	345	101.7%	8.4	3.3	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	212	198	93.5%	35.5	2.2	D
	Through	260	260	100.1%	39.4	6.6	D
	Right Turn	27	26	95.2%	25.0	4.7	C
	Subtotal	499	484	97.0%	37.1	3.5	D
Total		1,233	1,287	104.4%	17.7	2.5	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,422	1,467	103.2%	58.8	10.4	E
	Right Turn	72	77	106.3%	15.3	3.3	B
	Subtotal	1,494	1,544	103.3%	56.6	10.0	E
NE	Left Turn	93	92	98.9%	61.4	6.1	E
	Through						
	Right Turn	44	43	98.6%	41.7	4.3	D
	Subtotal	137	135	98.8%	55.0	4.3	E
EB	Left Turn	162	179	110.3%	65.7	12.7	E
	Through	648	663	102.3%	30.2	1.0	C
	Right Turn						
	Subtotal	810	841	103.9%	37.8	3.0	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,441	2,520	103.3%	50.2	6.7	D

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,344	1,348	100.3%	47.5	4.7	D
	Through	333	383	115.0%	42.6	5.9	D
	Right Turn						
	Subtotal	1,677	1,731	103.2%	46.4	4.9	D
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	177	177	100.2%	32.3	5.6	C
	Right Turn	696	723	103.9%	51.9	12.0	D
	Subtotal	873	900	103.1%	48.0	10.4	D
Total		2,550	2,631	103.2%	46.9	5.4	D

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,544	1,519	98.4%	2.1	0.4	A
	Through						
	Right Turn	49	47	96.7%	2.3	0.6	A
	Subtotal	1,593	1,567	98.3%	2.1	0.4	A
SB	Left Turn						
	Through	480	468	97.6%	0.7	0.1	A
	Right Turn	31	31	100.3%	4.8	0.2	A
	Subtotal	511	500	97.7%	0.9	0.1	A
EB	Left Turn						
	Through						
	Right Turn	7	4	57.1%	5.8	0.6	A
	Subtotal	7	4	57.1%	5.8	0.6	A
WB	Left Turn	87	93	106.9%	8.3	0.8	A
	Through	125	117	93.6%	53.9	1.7	D
	Right Turn						
	Subtotal	212	210	99.1%	33.7	1.9	C
Total		2,323	2,280	98.2%	4.8	0.2	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	636	636	99.9%	6.0	0.6	A
	Through	1,449	1,431	98.8%	6.7	0.4	A
	Right Turn	33	31	95.2%	7.2	1.1	A
	Subtotal	2,118	2,098	99.0%	6.5	0.3	A
EB	Left Turn						
	Through	323	359	111.2%	37.9	1.0	D
	Right Turn	62	78	126.5%	34.0	3.7	C
	Subtotal	385	438	113.6%	37.2	1.2	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,503	2,535	101.3%	11.8	0.4	B

Intersection 32 **Washington St/5th St** **0**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	120	115	96.0%	33.6	3.6	C
	Right Turn	161	156	97.1%	25.5	2.7	C
	Subtotal	281	272	96.6%	28.9	2.8	C
SB	Left Turn	65	71	109.8%	41.1	4.8	D
	Through	94	88	93.3%	35.4	2.7	D
	Right Turn						
	Subtotal	159	159	100.1%	37.8	1.9	D
EB	Left Turn	5	5	102.0%	88.5	45.2	F
	Through	1,222	1,289	105.5%	97.2	32.1	F
	Right Turn	219	235	107.3%	77.6	21.3	E
	Subtotal	1,446	1,529	105.8%	94.2	30.2	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,886	1,960	103.9%	80.6	23.5	F

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **6 PM to 7 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	48	96.4%	37.5	3.1	D
	Through	336	346	102.9%	14.3	1.2	B
	Right Turn	728	731	100.5%	7.4	0.5	A
	Subtotal	1,114	1,125	101.0%	10.8	0.3	B
SB	Left Turn						
	Through	41	39	94.9%	15.6	3.3	B
	Right Turn	14	14	101.4%	8.3	1.6	A
	Subtotal	55	53	96.5%	13.7	2.4	B
EB	Left Turn	79	80	100.6%	40.6	3.8	D
	Through	132	117	88.9%	40.9	2.6	D
	Right Turn	52	54	103.7%	1.0	0.5	A
	Subtotal	263	251	95.3%	32.2	1.2	C
WB	Left Turn	212	225	106.3%	38.1	2.1	D
	Through	86	91	105.5%	32.3	2.4	C
	Right Turn	25	27	108.8%	18.5	4.2	B
	Subtotal	323	343	106.3%	35.1	1.9	D
Total		1,755	1,772	101.0%	18.6	0.6	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	7	94.3%	28.0	9.5	C
	Through	122	116	95.4%	21.6	1.7	C
	Right Turn	8	10	122.5%	14.1	4.4	B
	Subtotal	137	133	96.9%	21.3	1.6	C
SB	Left Turn	70	70	99.9%	22.7	3.3	C
	Through	127	121	95.5%	14.1	1.2	B
	Right Turn	12	11	91.7%	4.7	1.2	A
	Subtotal	209	202	96.7%	16.5	1.4	B
EB	Left Turn	16	16	99.4%	9.2	1.6	A
	Through	78	88	113.3%	8.2	1.8	A
	Right Turn	9	7	72.2%	4.0	2.5	A
	Subtotal	103	111	107.6%	8.1	1.6	A
WB	Left Turn	29	28	94.8%	7.6	1.9	A
	Through	72	80	110.6%	7.1	1.6	A
	Right Turn	126	120	95.6%	4.6	0.9	A
	Subtotal	227	228	100.2%	5.8	1.0	A
Total		676	673	99.6%	12.5	0.7	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	114	120	105.0%	35.1	2.4	D
	Through	63	61	97.1%	33.1	3.2	C
	Right Turn	102	93	91.3%	17.1	2.1	B
	Subtotal	279	274	98.2%	28.5	1.4	C
SB	Left Turn	77	77	99.5%	37.6	3.3	D
	Through	47	46	97.2%	36.1	3.0	D
	Right Turn	11	11	98.2%	5.1	0.7	A
	Subtotal	135	133	98.6%	34.5	2.6	C
EB	Left Turn						
	Through	768	764	99.4%	15.6	0.6	B
	Right Turn	92	89	96.8%	4.7	1.3	A
	Subtotal	860	853	99.2%	14.5	0.6	B
WB	Left Turn	71	68	96.3%	46.6	7.3	D
	Through	198	206	103.9%	7.4	1.9	A
	Right Turn	50	51	101.0%	6.0	1.7	A
	Subtotal	319	325	101.8%	15.5	1.6	B
Total		1,593	1,585	99.5%	18.8	0.6	B

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	64	52	81.4%	41.6	5.3	D
	Through	525	548	104.4%	13.7	1.2	B
	Right Turn						
	Subtotal	589	600	101.9%	16.2	1.0	B
SB	Left Turn						
	Through	464	459	98.8%	25.6	1.4	C
	Right Turn	20	20	101.5%	5.1	1.0	A
	Subtotal	484	479	98.9%	24.8	1.3	C
EB	Left Turn						
	Through	176	191	108.2%	20.5	2.7	C
	Right Turn	36	35	95.8%	13.5	3.8	B
	Subtotal	212	225	106.1%	19.4	2.6	B
WB	Left Turn						
	Through	133	141	106.2%	13.8	2.3	B
	Right Turn						
	Subtotal	133	141	106.2%	13.8	2.3	B
Total		1,418	1,445	101.9%	19.3	0.7	B

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	516	534	103.6%	2.6	0.7	A
	Right Turn	9	16	175.6%	1.7	1.6	A
	Subtotal	525	550	104.8%	2.5	0.7	A
SB	Left Turn						
	Through	481	474	98.6%	5.0	0.6	A
	Right Turn						
	Subtotal	481	474	98.6%	5.0	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	3	2	76.7%	18.6	5.7	C
	Through						
	Right Turn	49	47	96.5%	11.6	1.5	B
	Subtotal	52	50	95.4%	11.9	1.6	B
Total		1,058	1,074	101.5%	4.1	0.4	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	410	427	104.0%	24.8	1.6	C
	Right Turn	155	155	100.1%	17.8	1.4	B
	Subtotal	565	582	103.0%	22.9	1.4	C
SB	Left Turn	114	112	98.3%	50.9	4.1	D
	Through	428	419	97.9%	2.1	0.3	A
	Right Turn						
	Subtotal	542	531	98.0%	12.4	1.2	B
EB	Left Turn	51	50	98.6%	36.1	2.9	D
	Through	683	685	100.3%	33.7	3.6	C
	Right Turn	53	54	101.5%	30.0	5.0	C
	Subtotal	787	789	100.2%	33.6	3.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,894	1,902	100.4%	24.4	1.5	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	104	106	101.6%	33.7	2.8	C
	Through	357	372	104.1%	4.0	0.6	A
	Right Turn						
	Subtotal	461	478	103.6%	10.6	1.0	B
SB	Left Turn						
	Through	416	408	98.0%	6.1	1.8	A
	Right Turn	10	12	119.0%	3.7	1.5	A
	Subtotal	426	420	98.5%	6.1	1.8	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	126	124	98.1%	39.7	3.4	D
	Through	205	206	100.3%	35.4	2.4	D
	Right Turn	191	192	100.3%	8.1	0.7	A
	Subtotal	522	521	99.8%	26.4	1.6	C
Total		1,409	1,418	100.6%	15.1	0.9	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	84	99	118.2%	18.7	2.1	B
	Through	286	284	99.4%	11.8	1.2	B
	Right Turn	178	182	102.4%	3.3	0.4	A
	Subtotal	548	566	103.2%	10.3	0.8	B
SB	Left Turn	35	38	107.1%	29.4	4.9	C
	Through	161	142	88.3%	15.4	1.6	B
	Right Turn	54	53	98.9%	4.5	0.7	A
	Subtotal	250	233	93.2%	15.2	1.2	B
EB	Left Turn	82	79	96.5%	44.6	2.6	D
	Through	805	811	100.8%	30.4	1.2	C
	Right Turn	30	42	141.3%	25.6	2.9	C
	Subtotal	917	933	101.7%	31.4	1.1	C
WB	Left Turn	235	235	99.8%	39.1	2.4	D
	Through	284	286	100.6%	19.3	0.9	B
	Right Turn	22	22	101.4%	11.7	2.7	B
	Subtotal	541	543	100.3%	27.6	1.3	C
Total		2,256	2,274	100.8%	23.6	0.6	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	16	17	105.6%	4.8	0.8	A
	Subtotal	16	17	105.6%	4.8	0.8	A
SB	Left Turn	391	402	102.8%	48.3	0.6	D
	Through	95	102	107.7%	45.8	1.9	D
	Right Turn						
	Subtotal	486	504	103.8%	47.8	0.5	D
EB	Left Turn						
	Through	868	872	100.4%	3.5	0.4	A
	Right Turn	84	81	96.2%	2.7	0.6	A
	Subtotal	952	953	100.1%	3.4	0.4	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,454	1,474	101.4%	18.6	0.5	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	469	478	101.9%	2.6	0.6	A
	Right Turn	9	9	104.4%	1.5	1.2	A
	Subtotal	478	487	102.0%	2.6	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	17	18	104.7%	20.0	4.9	C
	Through	29	32	111.0%	20.2	4.8	C
	Right Turn						
	Subtotal	46	50	108.7%	20.1	3.5	C
Total		524	537	102.6%	4.2	0.7	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	345	345	100.1%	27.5	1.0	C
	Through	453	450	99.3%	22.2	1.3	C
	Right Turn	371	365	98.3%	13.6	0.7	B
	Subtotal	1,169	1,160	99.2%	21.1	0.7	C
EB	Left Turn						
	Through	997	1,016	101.9%	7.3	1.7	A
	Right Turn	21	22	105.7%	3.7	2.7	A
	Subtotal	1,018	1,038	102.0%	7.3	1.7	A
WB	Left Turn	4	15	372.5%	33.2	4.3	C
	Through	170	179	105.0%	15.3	1.0	B
	Right Turn						
	Subtotal	174	193	111.1%	16.7	0.9	B
Total		2,361	2,392	101.3%	14.7	0.6	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	137	196	143.1%	32.6	1.6	C
	Right Turn	43	56	129.1%	23.9	4.1	C
	Subtotal	180	252	139.7%	30.7	1.7	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	89	92	102.9%	7.9	1.1	A
	Through	1,137	1,152	101.3%	5.8	1.3	A
	Right Turn	49	54	109.8%	3.1	1.3	A
	Subtotal	1,275	1,297	101.7%	5.9	1.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,455	1,549	106.4%	9.9	1.6	A

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	9	124.3%	30.2	10.0	C
	Through	311	369	118.5%	19.1	9.0	B
	Right Turn	10	23	230.0%	7.7	3.5	A
	Subtotal	328	400	122.0%	18.7	8.5	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	468	475	101.5%	22.8	7.3	C
	Through	874	894	102.3%	8.3	1.1	A
	Right Turn						
	Subtotal	1,342	1,369	102.0%	13.3	2.6	B
WB	Left Turn						
	Through	167	182	109.2%	21.5	1.3	C
	Right Turn	11	10	89.1%	14.1	7.9	B
	Subtotal	178	192	108.0%	21.2	1.4	C
Total		1,848	1,961	106.1%	15.2	3.5	B

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	210	214	101.9%	3.7	0.4	A
	Right Turn						
	Subtotal	210	214	101.9%	3.7	0.4	A
SB	Left Turn						
	Through	417	420	100.8%	2.4	0.5	A
	Right Turn						
	Subtotal	417	420	100.8%	2.4	0.5	A
EB	Left Turn						
	Through	26	24	93.5%	41.1	5.8	D
	Right Turn						
	Subtotal	26	24	93.5%	41.1	5.8	D
WB	Left Turn						
	Through	41	38	92.9%	36.1	4.5	D
	Right Turn	31	29	92.6%	13.1	3.8	B
	Subtotal	72	67	92.8%	26.0	3.0	C
Total		725	725	100.0%	6.3	0.5	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	241	246	102.0%	6.7	0.8	A
	Right Turn						
	Subtotal	241	246	102.0%	6.7	0.8	A
SB	Left Turn						
	Through	417	422	101.1%	3.5	0.5	A
	Right Turn						
	Subtotal	417	422	101.1%	3.5	0.5	A
EB	Left Turn						
	Through	191	191	99.9%	38.3	2.2	D
	Right Turn						
	Subtotal	191	191	99.9%	38.3	2.2	D
WB	Left Turn						
	Through	158	140	88.3%	23.3	1.6	C
	Right Turn	34	27	78.5%	16.3	4.0	B
	Subtotal	192	166	86.6%	22.2	1.9	C
Total		1,041	1,025	98.4%	13.8	0.9	B

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	275	275	100.1%	4.2	1.1	A
	Right Turn						
	Subtotal	275	275	100.1%	4.2	1.1	A
SB	Left Turn						
	Through	417	421	100.9%	7.4	0.7	A
	Right Turn	1	1	70.0%	3.6	6.0	A
	Subtotal	418	421	100.8%	7.4	0.7	A
EB	Left Turn						
	Through	73	74	100.7%	38.7	1.9	D
	Right Turn						
	Subtotal	73	74	100.7%	38.7	1.9	D
WB	Left Turn						
	Through	54	64	119.1%	29.2	3.7	C
	Right Turn						
	Subtotal	54	64	119.1%	29.2	3.7	C
Total		820	834	101.8%	10.8	0.7	B

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	232	233	100.3%	12.3	1.1	B
	Right Turn	43	45	103.7%	4.1	0.6	A
	Subtotal	275	277	100.8%	11.0	0.9	B
SB	Left Turn	39	36	91.0%	48.2	3.6	D
	Through	265	269	101.5%	12.2	0.8	B
	Right Turn						
	Subtotal	304	305	100.2%	16.4	1.1	B
EB	Left Turn	47	52	109.6%	32.3	3.5	C
	Through	980	1,004	102.5%	29.1	2.1	C
	Right Turn	153	152	99.3%	24.0	3.2	C
	Subtotal	1,180	1,208	102.4%	28.6	2.0	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,759	1,790	101.7%	23.8	1.5	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	96.0%	8.4	1.9	A
	Through						
	Right Turn	7	7	92.9%	6.8	1.3	A
	Subtotal	17	16	94.7%	7.8	1.0	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	70	70	100.3%	22.8	0.9	C
	Right Turn	3	3	110.0%	12.6	7.1	B
	Subtotal	73	74	100.7%	22.4	0.9	C
WB	Left Turn	3	2	80.0%	21.3	11.8	C
	Through	44	53	120.5%	11.6	3.1	B
	Right Turn						
	Subtotal	47	55	117.9%	11.9	3.3	B
Total		137	145	105.8%	16.8	1.5	B

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **6 PM to 7 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn Through Right Turn	524	535	102.1%	10.2	0.5	B
	Subtotal	524	535	102.1%	10.2	0.5	B
SB	Left Turn Through Right Turn	410	428	104.4%	8.3	0.5	A
	Subtotal	410	428	104.4%	8.3	0.5	A
EB	Left Turn Through Right Turn	187	196	104.7%	19.1	1.0	B
	Subtotal	187	196	104.7%	19.1	1.0	B
WB	Left Turn Through Right Turn	396	403	101.7%	22.4	2.0	C
	Subtotal	396	403	101.7%	22.4	2.0	C
Total		1,517	1,562	102.9%	13.9	0.6	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	18	18	98.9%	10.1	2.0	B
	Through						
	Right Turn	25	25	98.4%	8.4	2.7	A
	Subtotal	43	42	98.6%	9.1	2.3	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	71	73	102.7%	16.5	0.5	B
	Right Turn	6	6	103.3%	15.2	1.5	B
	Subtotal	77	79	102.7%	16.4	0.6	B
WB	Left Turn	5	5	96.0%	12.8	5.2	B
	Through	29	37	129.0%	12.3	3.3	B
	Right Turn						
	Subtotal	34	42	124.1%	12.3	2.8	B
Total		154	164	106.3%	13.4	0.8	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	4	4	100.0%	6.0	5.6	A
	Through	170	167	98.5%	4.2	0.7	A
	Right Turn	16	16	96.9%	4.2	1.6	A
	Subtotal	190	187	98.4%	4.2	0.5	A
SB	Left Turn	33	32	96.7%	7.8	2.8	A
	Through	160	166	103.8%	4.4	1.3	A
	Right Turn	8	17	215.0%	3.8	1.5	A
	Subtotal	201	215	107.0%	4.9	1.4	A
EB	Left Turn	51	51	99.4%	26.5	2.6	C
	Through	35	37	104.3%	26.7	3.7	C
	Right Turn	10	11	106.0%	17.3	4.7	B
	Subtotal	96	98	101.9%	25.5	2.4	C
WB	Left Turn	16	17	106.3%	2.6	0.5	A
	Through	22	21	95.5%	2.7	0.6	A
	Right Turn	12	10	83.3%	8.4	1.4	A
	Subtotal	50	48	96.0%	3.8	0.6	A
Total		537	548	102.0%	8.3	0.4	A

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	201	194	96.5%	49.7	5.5	D
	Right Turn	307	313	102.1%	56.8	12.0	E
	Subtotal	508	507	99.9%	54.0	9.1	D
SB	Left Turn	439	448	102.0%	43.5	1.2	D
	Through	307	297	96.9%	25.1	1.3	C
	Right Turn						
	Subtotal	746	745	99.9%	36.2	1.1	D
EB	Left Turn	817	856	104.8%	46.3	7.8	D
	Through	316	350	110.8%	18.5	3.9	B
	Right Turn	45	47	104.0%	18.2	4.5	B
	Subtotal	1,178	1,253	106.3%	37.5	6.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,432	2,505	103.0%	40.5	4.2	D

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	37	93.3%	28.9	3.2	C
	Through	172	171	99.1%	17.7	1.4	B
	Right Turn						
	Subtotal	212	208	98.0%	19.7	1.6	B
SB	Left Turn						
	Through	578	573	99.2%	20.0	5.0	B
	Right Turn	24	24	100.8%	43.4	17.7	D
	Subtotal	602	597	99.2%	20.9	5.4	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	169	168	99.3%	45.2	2.6	D
	Through	161	157	97.2%	39.0	2.5	D
	Right Turn	539	536	99.4%	4.9	0.5	A
	Subtotal	869	860	98.9%	19.0	1.0	B
Total		1,683	1,665	98.9%	19.8	2.3	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	524	532	101.4%	3.6	0.5	A
	Right Turn						
	Subtotal	524	532	101.4%	3.6	0.5	A
SB	Left Turn						
	Through	410	428	104.4%	6.5	0.6	A
	Right Turn	90	63	70.0%	6.5	1.7	A
	Subtotal	500	491	98.2%	6.5	0.7	A
EB	Left Turn	65	60	92.9%	22.5	3.4	C
	Through						
	Right Turn						
	Subtotal	65	60	92.9%	22.5	3.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,089	1,083	99.4%	6.0	0.4	A

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	417	417	100.0%	6.6	0.6	A
	Subtotal	417	417	100.0%	6.6	0.6	A
EB	Left Turn	210	214	101.7%	5.4	1.3	A
	Through						
	Right Turn						
	Subtotal	210	214	101.7%	5.4	1.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		627	631	100.6%	6.2	0.6	A

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	56	61	108.2%	8.9	2.0	A
	Through	223	225	101.0%	3.2	0.7	A
	Right Turn						
	Subtotal	279	286	102.5%	4.4	0.7	A
SB	Left Turn						
	Through	217	221	101.6%	6.0	0.6	A
	Right Turn	9	8	83.3%	5.2	2.8	A
	Subtotal	226	228	100.9%	5.9	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	87	84	96.8%	10.7	1.0	B
	Through	83	83	100.4%	11.6	0.9	B
	Right Turn	19	19	97.4%	5.1	1.5	A
	Subtotal	189	186	98.4%	10.5	0.7	B
Total		694	700	100.9%	6.5	0.5	A

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	215	218	101.2%	12.6	1.0	B
	Right Turn	27	27	101.1%	3.8	0.8	A
	Subtotal	242	245	101.2%	11.6	0.9	B
SB	Left Turn	37	36	97.0%	30.9	4.4	C
	Through	153	154	100.4%	11.9	1.0	B
	Right Turn						
	Subtotal	190	190	99.7%	15.5	1.6	B
EB	Left Turn	11	22	199.1%	9.5	3.1	A
	Through	800	824	103.0%	8.3	1.0	A
	Right Turn	73	75	102.9%	12.9	0.8	B
	Subtotal	884	921	104.2%	8.7	0.9	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,316	1,356	103.0%	10.2	0.5	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	46	41	88.3%	6.3	1.0	A
	Through	180	199	110.7%	4.2	0.7	A
	Right Turn						
	Subtotal	226	240	106.2%	4.6	0.7	A
SB	Left Turn						
	Through	157	156	99.4%	5.0	0.5	A
	Right Turn	45	56	123.6%	3.4	0.9	A
	Subtotal	202	212	104.8%	4.6	0.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	167	169	101.2%	12.9	0.9	B
	Through	171	170	99.6%	13.0	1.5	B
	Right Turn	9	9	102.2%	8.2	2.7	A
	Subtotal	347	349	100.4%	12.9	0.8	B
Total		775	800	103.2%	8.2	0.5	A

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,125	1,227	109.0%	18.6	11.9	B
	Right Turn	38	41	108.4%	8.4	4.4	A
	Subtotal	1,163	1,268	109.0%	18.2	11.6	B
NE	Left Turn	71	69	97.3%	48.0	3.6	D
	Through						
	Right Turn	27	29	106.7%	41.3	3.2	D
	Subtotal	98	98	99.9%	46.1	2.9	D
EB	Left Turn	124	127	102.1%	41.0	6.7	D
	Through	453	466	102.9%	30.9	1.1	C
	Right Turn						
	Subtotal	577	593	102.7%	33.1	1.8	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,838	1,959	106.6%	24.2	8.1	C

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,080	1,188	110.0%	17.3	7.9	B
	Through	240	258	107.5%	17.3	8.0	B
	Right Turn						
	Subtotal	1,320	1,446	109.6%	17.3	7.9	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	97	99	102.3%	31.7	1.8	C
	Right Turn	490	493	100.7%	36.7	1.5	D
	Subtotal	587	593	101.0%	35.9	1.3	D
Total		1,907	2,039	106.9%	22.7	5.7	C

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,233	1,223	99.2%	0.9	0.1	A
	Through						
	Right Turn	40	42	105.8%	1.7	0.3	A
	Subtotal	1,273	1,265	99.4%	0.9	0.1	A
SB	Left Turn						
	Through	334	332	99.3%	0.3	0.0	A
	Right Turn	25	26	102.0%	4.7	0.4	A
	Subtotal	359	357	99.5%	0.6	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	43	44	102.1%	6.4	0.5	A
	Through	92	95	103.5%	54.6	2.0	D
	Right Turn						
	Subtotal	135	139	103.0%	39.4	2.3	D
Total		1,767	1,761	99.7%	3.9	0.2	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	479	483	100.9%	3.7	0.2	A
	Through	1,108	1,102	99.5%	4.3	0.3	A
	Right Turn	23	23	100.4%	4.1	1.2	A
	Subtotal	1,610	1,609	99.9%	4.1	0.2	A
EB	Left Turn						
	Through	208	213	102.5%	39.6	1.1	D
	Right Turn	33	35	104.8%	28.6	3.7	C
	Subtotal	241	248	102.8%	38.1	1.0	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,851	1,857	100.3%	8.7	0.2	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	127	121	95.5%	31.9	1.5	C
	Right Turn	106	105	99.1%	22.0	2.2	C
	Subtotal	233	226	97.1%	27.3	1.7	C
SB	Left Turn	39	44	113.3%	40.1	4.1	D
	Through	90	83	91.7%	32.1	3.1	C
	Right Turn						
	Subtotal	129	127	98.2%	34.8	2.8	C
EB	Left Turn	12	12	100.0%	67.2	33.4	E
	Through	1,033	1,081	104.6%	70.7	36.7	E
	Right Turn	111	132	119.2%	36.8	20.0	D
	Subtotal	1,156	1,225	106.0%	67.0	34.8	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,518	1,578	104.0%	58.8	27.2	E

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **7 PM to 8 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	35	35	101.1%	38.3	4.1	D
	Through	88	88	100.3%	11.7	1.7	B
	Right Turn	570	572	100.4%	5.6	0.5	A
	Subtotal	693	696	100.4%	8.0	0.6	A
SB	Left Turn						
	Through	50	45	89.4%	14.8	2.6	B
	Right Turn	11	11	103.6%	8.0	2.4	A
	Subtotal	61	56	92.0%	13.4	2.3	B
EB	Left Turn	39	41	106.2%	38.2	5.3	D
	Through	149	140	94.0%	31.7	1.9	C
	Right Turn	47	42	89.8%	0.9	0.5	A
	Subtotal	235	224	95.2%	27.0	1.7	C
WB	Left Turn	182	181	99.3%	34.9	1.2	C
	Through	64	63	98.6%	26.9	2.9	C
	Right Turn	16	15	96.3%	12.1	6.0	B
	Subtotal	262	259	99.0%	31.6	1.4	C
Total		1,251	1,235	98.7%	16.7	0.7	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	13	11	87.7%	23.1	4.9	C
	Through	110	105	95.3%	17.6	1.7	B
	Right Turn	5	6	122.0%	10.0	5.1	A
	Subtotal	128	122	95.5%	17.8	1.5	B
SB	Left Turn	56	55	97.9%	18.3	2.1	B
	Through	117	103	87.9%	12.9	1.9	B
	Right Turn	7	7	105.7%	4.8	1.3	A
	Subtotal	180	165	91.7%	14.3	1.5	B
EB	Left Turn	21	20	96.2%	7.0	2.5	A
	Through	39	50	128.5%	8.6	3.4	A
	Right Turn	10	10	95.0%	3.3	0.9	A
	Subtotal	70	80	114.0%	7.5	2.3	A
WB	Left Turn	24	17	72.5%	6.9	1.9	A
	Through	43	54	126.3%	6.7	1.4	A
	Right Turn	100	93	92.8%	3.7	0.2	A
	Subtotal	167	165	98.5%	5.0	0.5	A
Total		545	532	97.6%	11.2	0.8	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	89	83	92.9%	27.4	3.0	C
	Through	39	37	93.6%	27.7	4.7	C
	Right Turn	112	107	95.4%	11.6	1.7	B
	Subtotal	240	226	94.2%	20.0	1.7	B
SB	Left Turn	71	69	97.7%	33.0	3.2	C
	Through	23	21	90.9%	28.1	3.9	C
	Right Turn	15	15	102.0%	5.3	0.4	A
	Subtotal	109	106	96.9%	28.0	2.1	C
EB	Left Turn						
	Through	636	636	99.9%	13.4	1.2	B
	Right Turn	83	77	92.3%	3.4	0.5	A
	Subtotal	719	712	99.1%	12.3	1.1	B
WB	Left Turn	83	77	93.1%	39.5	5.0	D
	Through	158	159	100.6%	6.5	1.1	A
	Right Turn	38	38	98.9%	3.6	0.9	A
	Subtotal	279	274	98.2%	15.5	2.0	B
Total		1,347	1,318	97.8%	15.5	0.8	B

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	43	41	95.3%	37.9	5.1	D
	Through	403	408	101.3%	16.4	1.3	B
	Right Turn						
	Subtotal	446	449	100.8%	18.4	1.3	B
SB	Left Turn						
	Through	356	353	99.2%	31.7	3.6	C
	Right Turn	30	30	99.3%	4.3	0.7	A
	Subtotal	386	383	99.2%	29.5	3.3	C
EB	Left Turn						
	Through	96	104	108.6%	18.4	3.8	B
	Right Turn	29	31	106.6%	14.0	8.1	B
	Subtotal	125	135	108.2%	17.4	4.6	B
WB	Left Turn						
	Through	116	118	101.7%	11.7	1.5	B
	Right Turn						
	Subtotal	116	118	101.7%	11.7	1.5	B
Total		1,073	1,086	101.2%	21.5	1.4	C

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	401	404	100.6%	1.6	0.7	A
	Right Turn	2	3	165.0%	2.4	6.1	A
	Subtotal	403	407	100.9%	1.6	0.7	A
SB	Left Turn						
	Through	383	377	98.4%	4.0	1.8	A
	Right Turn						
	Subtotal	383	377	98.4%	4.0	1.8	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	3	3	83.3%	15.0	14.8	C
	Through						
	Right Turn	32	30	93.8%	8.7	1.1	A
	Subtotal	35	33	92.9%	8.9	1.1	A
Total		821	816	99.4%	3.0	1.0	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	306	315	102.8%	15.5	1.9	B
	Right Turn	127	119	93.9%	11.0	1.2	B
	Subtotal	433	434	100.2%	14.3	1.6	B
SB	Left Turn	140	143	102.1%	20.4	1.5	C
	Through	336	330	98.2%	6.8	0.9	A
	Right Turn						
	Subtotal	476	473	99.3%	10.9	0.7	B
EB	Left Turn	29	30	103.8%	17.2	1.1	B
	Through	525	533	101.4%	16.3	0.6	B
	Right Turn	47	47	99.4%	11.5	1.4	B
	Subtotal	601	609	101.4%	16.0	0.6	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,510	1,516	100.4%	13.9	0.5	B

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	76	79	104.2%	13.4	1.2	B
	Through	259	266	102.8%	5.7	1.0	A
	Right Turn						
	Subtotal	335	345	103.1%	7.4	0.8	A
SB	Left Turn						
	Through	327	318	97.2%	9.7	0.8	A
	Right Turn	12	13	107.5%	4.6	0.8	A
	Subtotal	339	331	97.6%	9.4	0.7	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	149	155	104.1%	21.2	1.4	C
	Through	191	185	96.9%	19.4	1.1	B
	Right Turn	166	160	96.2%	7.6	0.9	A
	Subtotal	506	500	98.8%	16.2	0.7	B
Total		1,180	1,176	99.7%	11.7	0.4	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	57	66	115.6%	17.3	1.7	B
	Through	229	221	96.5%	15.8	1.4	B
	Right Turn	139	138	99.2%	7.2	0.8	A
	Subtotal	425	425	100.0%	13.2	0.8	B
SB	Left Turn	20	19	94.5%	22.2	6.8	C
	Through	125	110	87.8%	15.0	1.7	B
	Right Turn	39	40	103.3%	4.2	0.7	A
	Subtotal	184	169	91.8%	13.3	1.7	B
EB	Left Turn	60	59	98.2%	27.3	3.8	C
	Through	399	413	103.5%	19.9	1.0	B
	Right Turn	29	36	124.5%	12.5	2.6	B
	Subtotal	488	508	104.1%	20.2	1.2	C
WB	Left Turn	185	188	101.4%	20.2	1.3	C
	Through	210	206	98.2%	11.9	1.9	B
	Right Turn	27	25	93.3%	6.1	2.7	A
	Subtotal	422	419	99.3%	15.3	1.3	B
Total		1,519	1,521	100.1%	16.2	0.7	B

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	16	14	88.1%	4.3	0.4	A
	Subtotal	16	14	88.1%	4.3	0.4	A
SB	Left Turn	314	318	101.4%	28.3	1.6	C
	Through	104	109	105.1%	30.4	2.0	C
	Right Turn						
	Subtotal	418	428	102.3%	28.8	1.5	C
EB	Left Turn						
	Through	687	692	100.7%	4.6	0.6	A
	Right Turn	105	101	96.5%	3.8	0.4	A
	Subtotal	792	793	100.1%	4.5	0.6	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,226	1,235	100.7%	12.9	0.5	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	400	401	100.2%	2.1	0.3	A
	Right Turn	8	8	98.8%	1.5	1.1	A
	Subtotal	408	409	100.2%	2.1	0.3	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	18	17	93.9%	12.7	4.0	B
	Through	30	29	97.3%	12.8	3.2	B
	Right Turn						
	Subtotal	48	46	96.0%	12.7	2.7	B
Total		456	455	99.8%	3.2	0.4	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	203	205	101.0%	24.1	1.3	C
	Through	391	379	96.9%	21.8	1.4	C
	Right Turn	280	274	97.9%	10.6	1.1	B
	Subtotal	874	858	98.2%	18.8	1.1	B
EB	Left Turn						
	Through	543	554	102.0%	8.4	1.0	A
	Right Turn	15	17	111.3%	8.5	2.2	A
	Subtotal	558	570	102.2%	8.4	1.0	A
WB	Left Turn	2	12	610.0%	13.1	4.8	B
	Through	142	137	96.7%	7.6	1.7	A
	Right Turn						
	Subtotal	144	150	103.8%	8.0	1.5	A
Total		1,576	1,578	100.1%	14.0	0.8	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	111	120	107.9%	11.1	0.8	B
	Right Turn	21	20	95.2%	7.2	1.3	A
	Subtotal	132	140	105.9%	10.6	0.7	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	54	59	108.9%	4.5	0.4	A
	Through	950	953	100.4%	4.3	0.4	A
	Right Turn	13	13	100.8%	2.7	1.5	A
	Subtotal	1,017	1,025	100.8%	4.3	0.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,149	1,165	101.4%	5.1	0.3	A

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	5	67.1%	36.8	16.6	D
	Through	254	258	101.7%	31.4	1.7	C
	Right Turn	4	15	382.5%	24.3	7.4	C
	Subtotal	265	278	105.0%	31.0	1.7	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	352	357	101.3%	37.2	1.5	D
	Through	394	397	100.8%	10.1	1.4	B
	Right Turn						
	Subtotal	746	754	101.1%	22.9	0.9	C
WB	Left Turn						
	Through	137	143	104.0%	27.6	2.4	C
	Right Turn	3	3	90.0%	9.5	8.6	A
	Subtotal	140	145	103.7%	27.3	2.3	C
Total		1,151	1,177	102.3%	25.4	0.9	C

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	159	161	101.1%	2.6	0.5	A
	Right Turn						
	Subtotal	159	161	101.1%	2.6	0.5	A
SB	Left Turn						
	Through	319	321	100.7%	6.4	1.3	A
	Right Turn						
	Subtotal	319	321	100.7%	6.4	1.3	A
EB	Left Turn	2	2	120.0%	31.0	19.4	C
	Through	22	20	90.0%	38.6	5.2	D
	Right Turn						
	Subtotal	24	22	92.5%	37.8	3.8	D
WB	Left Turn						
	Through	31	29	91.9%	39.1	3.5	D
	Right Turn	25	24	96.4%	12.2	5.4	B
	Subtotal	56	53	93.9%	26.8	4.7	C
Total		558	557	99.8%	8.5	1.1	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	186	186	100.1%	6.3	1.1	A
	Subtotal	186	186	100.1%	6.3	1.1	A
SB	Left Turn Through Right Turn	319	319	99.9%	7.8	1.5	A
	Subtotal	319	319	99.9%	7.8	1.5	A
EB	Left Turn Through Right Turn	95	90	94.8%	34.1	2.6	C
	Subtotal	95	90	94.8%	34.1	2.6	C
WB	Left Turn Through	127	108	85.4%	24.1	3.0	C
	Right Turn	27	23	86.3%	13.7	3.1	B
	Subtotal	154	132	85.5%	22.3	2.8	C
Total		754	727	96.4%	13.4	1.0	B

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	213	208	97.6%	3.8	1.0	A
	Subtotal	213	208	97.6%	3.8	1.0	A
SB	Left Turn Through Right Turn	319	319	99.8%	8.4	1.5	A
	Subtotal	319	319	99.8%	8.4	1.5	A
EB	Left Turn Through Right Turn	22	21	96.4%	39.6	4.4	D
	Subtotal	22	21	96.4%	39.6	4.4	D
WB	Left Turn Through Right Turn	37	39	104.6%	24.4	3.2	C
	Subtotal	37	39	104.6%	24.4	3.2	C
Total		591	586	99.2%	8.9	1.0	A

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	177	171	96.5%	8.1	0.4	A
	Right Turn	36	37	103.9%	3.8	1.0	A
	Subtotal	213	208	97.7%	7.3	0.5	A
SB	Left Turn	19	20	104.2%	47.2	5.4	D
	Through	203	199	98.0%	7.8	1.5	A
	Right Turn						
	Subtotal	222	219	98.6%	11.4	1.5	B
EB	Left Turn	20	21	106.0%	33.2	5.0	C
	Through	835	831	99.5%	32.0	2.0	C
	Right Turn	116	119	102.4%	22.3	3.4	C
	Subtotal	971	971	100.0%	30.8	2.0	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,406	1,398	99.4%	24.3	1.5	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	1	70.0%	3.2	2.8	A
	Through						
	Right Turn	3	4	116.7%	6.1	1.0	A
	Subtotal	4	4	105.0%	6.0	0.8	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	19	19	100.0%	22.0	1.9	C
	Right Turn	3	2	73.3%	7.1	4.1	A
	Subtotal	22	21	96.4%	20.7	2.1	C
WB	Left Turn	1	1	80.0%	6.8	10.3	A
	Through	36	38	105.8%	11.7	2.7	B
	Right Turn						
	Subtotal	37	39	105.1%	11.8	2.6	B
Total		63	64	102.1%	14.4	1.8	B

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**
Volume and Delay by Movement **7 PM to 8 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	394	400	101.5%	13.2	2.6	B
	Subtotal	394	400	101.5%	13.2	2.6	B
SB	Left Turn Through Right Turn	315	336	106.5%	6.2	0.7	A
	Subtotal	315	336	106.5%	6.2	0.7	A
EB	Left Turn Through Right Turn	142	142	99.6%	19.5	1.7	B
	Subtotal	142	142	99.6%	19.5	1.7	B
WB	Left Turn Through Right Turn	303	303	100.0%	25.5	1.5	C
	Subtotal	303	303	100.0%	25.5	1.5	C
Total		1,154	1,180	102.3%	15.1	1.1	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	10	120.0%	9.9	3.9	A
	Through						
	Right Turn	12	13	110.0%	9.4	3.0	A
	Subtotal	20	23	114.0%	9.7	2.5	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	20	21	107.0%	15.6	0.9	B
	Right Turn	2	2	100.0%	11.1	6.6	B
	Subtotal	22	23	106.4%	15.3	0.8	B
WB	Left Turn	5	4	86.0%	6.8	3.0	A
	Through	29	29	101.4%	9.1	2.6	A
	Right Turn						
	Subtotal	34	34	99.1%	8.8	2.3	A
Total		76	80	105.1%	11.0	0.6	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	6	6	105.0%	4.6	3.9	A
	Through	91	88	97.0%	2.4	0.7	A
	Right Turn	16	16	97.5%	2.7	0.7	A
	Subtotal	113	110	97.5%	2.6	0.6	A
SB	Left Turn	1	1	140.0%	4.1	4.6	A
	Through	117	121	103.8%	2.8	0.6	A
	Right Turn	6	7	110.0%	2.4	2.1	A
	Subtotal	124	129	104.4%	2.8	0.6	A
EB	Left Turn	18	19	107.2%	25.4	5.7	C
	Through	9	11	118.9%	25.9	7.5	C
	Right Turn	5	5	98.0%	8.1	3.2	A
	Subtotal	32	35	109.1%	23.4	3.7	C
WB	Left Turn	10	10	95.0%	2.2	0.3	A
	Through	22	21	95.9%	2.4	0.4	A
	Right Turn	13	13	103.1%	7.4	0.9	A
	Subtotal	45	44	97.8%	3.9	0.4	A
Total		314	319	101.4%	5.2	0.7	A

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	178	167	93.9%	31.9	1.2	C
	Right Turn	209	217	103.8%	24.9	1.5	C
	Subtotal	387	384	99.3%	28.0	0.8	C
SB	Left Turn	374	377	100.8%	26.8	1.4	C
	Through	212	212	99.9%	15.8	1.0	B
	Right Turn						
	Subtotal	586	589	100.5%	22.9	1.1	C
EB	Left Turn	592	598	101.0%	37.3	4.7	D
	Through	273	259	94.9%	27.1	1.2	C
	Right Turn	48	48	100.0%	22.0	1.5	C
	Subtotal	913	905	99.1%	33.6	3.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,886	1,878	99.6%	29.1	1.9	C

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	36	32	89.2%	22.1	2.0	C
	Through	155	149	96.0%	11.0	1.0	B
	Right Turn						
	Subtotal	191	181	94.7%	12.9	0.9	B
SB	Left Turn						
	Through	455	453	99.5%	7.0	0.9	A
	Right Turn	19	20	106.3%	13.2	3.2	B
	Subtotal	474	473	99.7%	7.3	0.9	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	132	135	102.3%	32.2	1.8	C
	Through	131	133	101.6%	30.6	1.4	C
	Right Turn	421	410	97.3%	3.9	0.3	A
	Subtotal	684	678	99.1%	14.8	0.8	B
Total		1,349	1,332	98.7%	11.9	0.4	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	394	407	103.2%	10.5	0.9	B
	Right Turn						
	Subtotal	394	407	103.2%	10.5	0.9	B
SB	Left Turn						
	Through	315	336	106.5%	18.2	3.7	B
	Right Turn	70	49	70.4%	16.4	7.3	B
	Subtotal	385	385	99.9%	18.0	2.9	B
EB	Left Turn	52	45	86.5%	39.4	9.8	D
	Through						
	Right Turn						
	Subtotal	52	45	86.5%	39.4	9.8	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		831	837	100.7%	15.5	1.4	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	319	325	101.8%	10.1	1.3	B
	Subtotal	319	325	101.8%	10.1	1.3	B
EB	Left Turn	159	160	100.9%	16.4	3.4	B
	Through						
	Right Turn						
	Subtotal	159	160	100.9%	16.4	3.4	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		478	485	101.5%	12.2	1.4	B

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	43	39	91.6%	6.0	0.8	A
	Through	154	154	99.8%	3.3	0.5	A
	Right Turn						
	Subtotal	197	193	98.0%	3.8	0.5	A
SB	Left Turn						
	Through	155	152	98.3%	4.6	0.7	A
	Right Turn	10	10	99.0%	4.6	1.9	A
	Subtotal	165	162	98.3%	4.6	0.7	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	67	66	97.9%	8.1	1.4	A
	Through	95	91	95.9%	9.5	1.0	A
	Right Turn	2	4	185.0%	5.0	2.4	A
	Subtotal	164	160	97.8%	8.8	0.9	A
Total		526	516	98.0%	5.6	0.5	A

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	138	138	99.9%	8.5	1.5	A
	Right Turn	18	19	107.8%	3.4	0.5	A
	Subtotal	156	157	100.8%	7.8	1.3	A
SB	Left Turn	22	22	101.4%	19.9	4.2	B
	Through	105	101	96.4%	8.1	0.9	A
	Right Turn						
	Subtotal	127	124	97.2%	10.2	0.6	B
EB	Left Turn	3	14	456.7%	10.2	5.0	B
	Through	335	338	100.9%	8.7	1.0	A
	Right Turn	60	60	100.2%	8.3	1.9	A
	Subtotal	398	412	103.4%	8.7	1.0	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		681	692	101.7%	8.7	0.7	A

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	17	110.7%	4.9	1.7	A
	Through	126	136	107.5%	3.7	0.5	A
	Right Turn						
	Subtotal	141	152	107.9%	3.9	0.5	A
SB	Left Turn						
	Through	100	98	98.0%	4.0	0.6	A
	Right Turn	32	40	124.4%	2.6	1.4	A
	Subtotal	132	138	104.4%	3.6	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	137	128	93.1%	10.2	0.8	B
	Through	146	149	101.7%	9.8	1.0	A
	Right Turn	12	12	95.8%	5.7	1.1	A
	Subtotal	295	288	97.5%	9.8	0.6	A
Total		568	578	101.7%	6.8	0.5	A

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	806	809	100.4%	7.3	0.8	A
	Right Turn	19	21	109.5%	5.5	1.0	A
	Subtotal	825	830	100.6%	7.3	0.8	A
NE	Left Turn	73	71	97.0%	16.4	2.4	B
	Through						
	Right Turn	30	29	98.0%	14.8	2.3	B
	Subtotal	103	100	97.3%	15.9	1.6	B
EB	Left Turn	89	91	102.1%	12.8	1.3	B
	Through	259	269	103.8%	13.5	1.0	B
	Right Turn						
	Subtotal	348	360	103.4%	13.3	1.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,276	1,290	101.1%	9.6	0.6	A

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	813	816	100.4%	5.1	0.6	A
	Through	155	157	101.0%	4.7	0.6	A
	Right Turn						
	Subtotal	968	973	100.5%	5.1	0.6	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	77	78	101.8%	36.7	3.5	D
	Right Turn	340	343	100.9%	39.0	0.9	D
	Subtotal	417	421	101.1%	38.5	0.9	D
Total		1,385	1,394	100.7%	15.2	0.4	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	864	865	100.1%	0.6	0.0	A
	Through						
	Right Turn	42	39	93.8%	1.5	0.1	A
	Subtotal	906	904	99.8%	0.7	0.0	A
SB	Left Turn						
	Through	234	235	100.3%	0.2	0.0	A
	Right Turn	14	12	85.7%	4.2	0.3	A
	Subtotal	248	247	99.5%	0.4	0.1	A
EB	Left Turn						
	Through						
	Right Turn	1	0	0.0%	0.0	0.0	A
	Subtotal	1	0	0.0%	0.0	0.0	A
WB	Left Turn	51	50	97.3%	5.9	0.4	A
	Through	69	72	104.6%	11.3	1.2	B
	Right Turn						
	Subtotal	120	122	101.5%	9.1	0.8	A
Total		1,275	1,273	99.8%	1.4	0.1	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	309	318	102.9%	3.9	0.5	A
	Through	820	815	99.4%	4.6	0.2	A
	Right Turn	21	23	110.5%	3.7	0.7	A
	Subtotal	1,150	1,157	100.6%	4.4	0.3	A
EB	Left Turn						
	Through	139	141	101.4%	13.6	1.1	B
	Right Turn	41	40	96.3%	8.6	1.4	A
	Subtotal	180	181	100.3%	12.5	1.1	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,330	1,337	100.5%	5.5	0.2	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	57	57	99.3%	17.1	2.5	B
	Right Turn	65	67	103.7%	7.3	2.2	A
	Subtotal	122	124	101.6%	11.8	2.0	B
SB	Left Turn	34	33	97.1%	21.1	1.9	C
	Through	50	51	101.4%	17.8	1.7	B
	Right Turn						
	Subtotal	84	84	99.6%	19.1	1.2	B
EB	Left Turn	8	9	115.0%	13.2	4.0	B
	Through	814	800	98.3%	11.8	1.7	B
	Right Turn	74	78	105.8%	11.3	2.6	B
	Subtotal	896	888	99.1%	11.8	1.6	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,102	1,096	99.4%	12.3	1.4	B

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	9	2	91	22	NO
	Through	1,000	31	3	320	80	NO
	Right Turn	1,000	31	3	320	80	NO
SB	Left Turn						
	Through	185	3	1	51	14	NO
	Right Turn	185	3	1	53	14	NO
EB	Left Turn	800	9	1	83	20	NO
	Through	800	17	4	122	24	NO
	Right Turn	800	0	0	39	14	NO
WB	Left Turn	580	56	5	230	25	NO
	Through	580	14	2	156	54	NO
	Right Turn	580	11	2	157	54	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	56	7	429	63	NO
	Through	1,000	56	7	429	63	NO
	Right Turn	1,000	58	6	435	63	NO
SB	Left Turn	500	26	2	218	35	NO
	Through	500	26	2	218	35	NO
	Right Turn	500	24	2	222	35	NO
EB	Left Turn	1,000	6	1	129	34	NO
	Through	1,000	6	1	129	34	NO
	Right Turn	1,000	6	1	132	34	NO
WB	Left Turn	1,000	6	2	239	99	NO
	Through	1,000	6	2	239	99	NO
	Right Turn	1,000	13	1	293	35	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	84	16	392	68	MAX
	Through	510	28	6	320	46	NO
	Right Turn						
SB	Left Turn	180	20	2	121	14	NO
	Through	200	21	2	122	14	NO
	Right Turn	200	18	3	126	11	NO
EB	Left Turn						
	Through	600	75	5	322	18	NO
	Right Turn	600	75	5	324	18	NO
WB	Left Turn	400	123	24	454	68	MAX
	Through	1,000	6	2	121	24	NO
	Right Turn	1,000	4	2	122	24	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	400	160	58	498	61	MAX
	Through	500	51	5	496	37	NO
	Right Turn						
SB	Left Turn						
	Through	190	16	3	216	4	MAX
	Right Turn	190	18	3	222	4	MAX
EB	Left Turn						
	Through	1,000	84	32	398	92	NO
	Right Turn	1,000	82	32	398	92	NO
WB	Left Turn						
	Through	200	12	2	204	63	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	6	3	237	60	MAX
	Right Turn	210	8	4	270	60	MAX
SB	Left Turn						
	Through	220	2	1	174	60	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	12	4	183	80	NO
	Through						
	Right Turn	220	12	4	183	80	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	39	8	309	13	MAX
	Right Turn	210	41	8	313	13	MAX
SB	Left Turn	150	24	4	150	37	NO
	Through	150	4	1	115	18	NO
	Right Turn						
EB	Left Turn	1,000	64	4	285	43	NO
	Through	1,000	64	4	285	43	NO
	Right Turn	1,000	64	5	289	43	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	19	3	246	40	MAX
	Through	170	19	3	246	40	MAX
	Right Turn						
SB	Left Turn						
	Through	140	30	3	178	40	MAX
	Right Turn	140	1	0	54	35	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	68	6	282	57	MAX
	Through	800	68	6	282	57	NO
	Right Turn	200	22	10	214	108	MAX

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	19	7	270	11	MAX
	Through	145	71	9	277	9	MAX
	Right Turn	145	71	9	278	9	MAX
SB	Left Turn	80	7	2	82	9	MAX
	Through	240	6	1	68	17	NO
	Right Turn	80	1	0	47	17	NO
EB	Left Turn	160	20	2	136	18	NO
	Through	500	53	3	239	38	NO
	Right Turn	500	55	3	242	38	NO
WB	Left Turn	190	35	6	127	21	NO
	Through	400	30	4	198	22	NO
	Right Turn	400	27	4	199	22	NO

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	1	0	52	22	NO
SB	Left Turn	180	129	10	294	10	MAX
	Through	180	129	10	295	10	MAX
	Right Turn						
EB	Left Turn						
	Through	270	23	5	222	37	NO
	Right Turn	270	18	6	224	44	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	10	7	189	81	NO
	Right Turn	200	9	7	189	81	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	6	4	98	38	NO
	Through	310	3	1	66	14	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	75	3	401	39	NO
	Through	1,000	76	3	401	39	NO
	Right Turn	1,000	74	3	403	39	NO
EB	Left Turn						
	Through	390	34	5	360	39	NO
	Right Turn	390	34	5	360	39	NO
WB	Left Turn	130	11	2	108	23	NO
	Through	380	11	1	119	16	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	79	10	327	13	MAX
	Right Turn	220	84	10	333	13	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	106	16	388	14	MAX
	Through	315	106	16	388	14	MAX
	Right Turn	315	106	16	392	14	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	33	2	146	11	NO
	Through	200	33	2	146	11	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	30	6	364	38	NO
	Right Turn						
WB	Left Turn						
	Through	240	12	1	130	22	NO
	Right Turn	240	7	1	126	25	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	6	5	230	72	MAX
	Right Turn						
SB	Left Turn						
	Through	200	16	1	201	41	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	18	8	216	34	MAX
SB	Left Turn Through Right Turn	200	3	0	93	41	NO
EB	Left Turn Through Right Turn	300	8	1	135	42	NO
WB	Left Turn Through Right Turn	300 300	17 17	4 4	147 147	32 32	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	49	10	263	38	MAX
SB	Left Turn Through Right Turn	200	30	2	241	36	MAX
EB	Left Turn Through Right Turn	300	4	1	70	15	NO
WB	Left Turn Through Right Turn	300	27	3	257	31	NO

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	55	3	229	33	MAX
	Right Turn	200	56	3	231	33	MAX
SB	Left Turn	210	46	6	268	25	MAX
	Through	210	46	6	268	25	MAX
	Right Turn						
EB	Left Turn	300	125	6	403	22	MAX
	Through	300	125	6	403	22	MAX
	Right Turn	300	126	6	404	22	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	24	5	NO
	Through						
	Right Turn	200	0	0	26	5	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	3	0	73	18	NO
	Right Turn	310	3	0	75	18	NO
WB	Left Turn	300	8	1	171	31	NO
	Through	300	8	1	171	31	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	45	3	215	19	NO
SB	Left Turn Through Right Turn	200	9	1	79	11	NO
EB	Left Turn Through Right Turn	600	24	3	307	42	NO
WB	Left Turn Through Right Turn	800	33	4	554	126	NO

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	51	18	NO
	Through						
	Right Turn	200	1	0	51	18	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	2	0	71	18	NO
	Right Turn	300	2	0	71	18	NO
WB	Left Turn	290	14	2	188	38	NO
	Through	290	14	2	188	38	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	1	68	17	NO
	Through	200	2	1	68	17	NO
	Right Turn	200	3	1	69	17	NO
SB	Left Turn	200	17	5	186	38	NO
	Through	200	17	5	186	38	NO
	Right Turn	200	19	5	190	38	NO
EB	Left Turn	290	4	1	65	21	NO
	Through	290	4	1	65	21	NO
	Right Turn	290	5	1	71	21	NO
WB	Left Turn	300	2	1	99	24	NO
	Through	300	3	1	132	22	NO
	Right Turn	300	2	1	92	24	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	76	6	341	62	MAX
	Right Turn	200	76	6	341	62	MAX
SB	Left Turn	200	86	5	290	13	MAX
	Through	200	60	5	287	12	MAX
	Right Turn						
EB	Left Turn	300	111	8	389	9	MAX
	Through	300	111	8	389	9	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	8	2	132	27	NO
	Through	200	13	2	161	17	NO
	Right Turn						
SB	Left Turn						
	Through	200	33	7	249	60	MAX
	Right Turn	200	33	7	249	60	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	45	3	226	34	NO
	Through	1,000	23	2	165	87	NO
	Right Turn	150	1	0	105	29	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	20	4	174	42	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	0	0	NO
	Right Turn	500	0	0	12	16	NO
EB	Left Turn	1,000	60	16	512	103	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	9	1	226	38	NO
EB	Left Turn	600	7	4	331	145	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	15	1	129	37	NO
	Through	200	15	1	129	37	NO
	Right Turn						
SB	Left Turn						
	Through	200	10	2	201	44	MAX
	Right Turn	200	10	2	201	44	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	32	1	159	25	NO
	Through	200	32	1	159	25	NO
	Right Turn	220	30	1	162	25	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	14	2	225	39	MAX
	Right Turn	210	14	2	225	39	MAX
SB	Left Turn	170	23	3	233	54	MAX
	Through	170	23	3	233	54	MAX
	Right Turn						
EB	Left Turn	180	71	6	311	26	MAX
	Through	180	71	6	311	26	MAX
	Right Turn	180	71	6	311	26	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	3	1	121	30	NO
	Through	180	3	1	121	30	NO
	Right Turn						
SB	Left Turn						
	Through	200	9	2	195	22	NO
	Right Turn	200	9	2	195	22	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	28	2	159	24	NO
	Through	300	31	2	159	24	NO
	Right Turn	300	33	2	162	24	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	22	22	255	150	MAX
	Right Turn	180	32	24	289	150	MAX
NE	Left Turn	670	16	2	101	17	NO
	Through						
	Right Turn	670	16	2	101	17	NO
EB	Left Turn	380	43	2	140	16	NO
	Through	380	43	2	140	16	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	44	18	264	67	MAX
	Through	190	44	18	264	67	MAX
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	103	8	402	52	MAX
	Right Turn	250	103	8	402	52	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	2	2	191	94	NO
	Through						
	Right Turn	1,000	1	1	92	75	NO
SB	Left Turn						
	Through	1,000	0	0	96	11	NO
	Right Turn	1,000	1	0	54	5	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	41	3	281	21	NO
	Through	350	19	1	87	13	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **3 PM to 4 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	24	2	213	16	MAX
	Through	200	24	2	213	16	MAX
	Right Turn	200	25	2	218	16	MAX
EB	Left Turn						
	Through	500	63	4	370	48	NO
	Right Turn	500	75	4	401	48	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	8	1	115	24	NO
	Right Turn	200	8	2	117	24	NO
SB	Left Turn	200	11	2	107	19	NO
	Through	200	11	2	107	19	NO
	Right Turn						
EB	Left Turn	800	107	11	506	85	NO
	Through	800	107	11	506	85	NO
	Right Turn	800	106	11	507	85	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	13	2	113	27	NO
	Through	1,000	76	7	640	199	NO
	Right Turn	1,000	76	7	640	199	NO
SB	Left Turn						
	Through	185	4	1	66	23	NO
	Right Turn	185	4	1	67	23	NO
EB	Left Turn	800	11	1	93	24	NO
	Through	800	23	3	150	31	NO
	Right Turn	800	0	0	54	23	NO
WB	Left Turn	580	61	8	268	48	NO
	Through	580	20	3	178	31	NO
	Right Turn	580	17	3	179	31	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	214	56	1,043	264	MAX
	Through	1,000	214	56	1,043	264	MAX
	Right Turn	1,000	217	56	1,049	264	MAX
SB	Left Turn	500	37	3	267	24	NO
	Through	500	37	3	267	24	NO
	Right Turn	500	35	4	271	24	NO
EB	Left Turn	1,000	13	1	166	41	NO
	Through	1,000	13	1	166	41	NO
	Right Turn	1,000	14	2	169	41	NO
WB	Left Turn	1,000	22	6	433	57	NO
	Through	1,000	22	6	433	57	NO
	Right Turn	1,000	20	7	326	86	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	121	16	490	12	MAX
	Through	510	85	12	469	25	NO
	Right Turn						
SB	Left Turn	180	28	2	159	41	NO
	Through	200	29	2	160	41	NO
	Right Turn	200	25	3	171	42	NO
EB	Left Turn						
	Through	600	114	8	400	64	NO
	Right Turn	600	114	9	402	64	NO
WB	Left Turn	400	98	28	409	96	MAX
	Through	1,000	11	2	161	34	NO
	Right Turn	1,000	9	2	161	34	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	400	155	56	627	44	MAX
	Through	500	229	32	635	39	MAX
	Right Turn						
SB	Left Turn						
	Through	190	20	7	218	3	MAX
	Right Turn	190	22	7	224	3	MAX
EB	Left Turn						
	Through	1,000	238	94	692	29	NO
	Right Turn	1,000	237	94	692	29	NO
WB	Left Turn						
	Through	200	25	3	281	18	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	73	10	305	5	MAX
	Right Turn	210	87	11	338	5	MAX
SB	Left Turn						
	Through	220	12	14	276	67	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	16	9	168	96	NO
	Through						
	Right Turn	220	16	9	168	96	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	135	13	313	11	MAX
	Right Turn	210	139	13	317	11	MAX
SB	Left Turn	100	48	11	244	56	MAX
	Through	150	8	2	188	56	MAX
	Right Turn						
EB	Left Turn	1,000	120	26	457	123	NO
	Through	1,000	120	26	457	123	NO
	Right Turn	1,000	120	27	461	123	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	55	8	292	18	MAX
	Through	170	55	8	292	18	MAX
	Right Turn						
SB	Left Turn						
	Through	140	38	4	252	36	MAX
	Right Turn	140	1	1	67	69	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	78	19	329	68	MAX
	Through	800	78	19	329	68	NO
	Right Turn	200	66	40	304	114	MAX

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	31	6	274	10	MAX
	Through	145	109	11	278	9	MAX
	Right Turn	145	109	11	278	9	MAX
SB	Left Turn	80	13	4	108	34	MAX
	Through	240	10	1	105	14	NO
	Right Turn	80	1	0	57	12	NO
EB	Left Turn	160	29	6	168	39	MAX
	Through	500	113	18	466	114	NO
	Right Turn	500	115	18	469	114	NO
WB	Left Turn	190	51	11	181	59	NO
	Through	400	33	4	194	28	NO
	Right Turn	400	31	4	195	28	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	1	0	40	7	NO
SB	Left Turn	180	118	7	295	20	MAX
	Through	180	118	7	296	20	MAX
	Right Turn						
EB	Left Turn						
	Through	270	39	6	278	42	MAX
	Right Turn	270	36	7	284	42	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	4	5	136	112	NO
	Right Turn	200	3	5	126	122	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	9	5	103	32	NO
	Through	310	6	2	64	14	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	75	4	439	68	NO
	Through	1,000	77	4	439	68	NO
	Right Turn	1,000	76	4	441	68	NO
EB	Left Turn						
	Through	390	96	13	439	24	MAX
	Right Turn	390	96	13	439	24	MAX
WB	Left Turn	130	26	4	155	54	MAX
	Through	380	13	1	121	19	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	168	7	340	0	MAX
	Right Turn	220	174	7	346	0	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	75	9	399	26	MAX
	Through	315	75	9	399	26	MAX
	Right Turn	315	76	9	403	26	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	33	3	144	21	NO
	Through	200	33	3	144	21	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	63	8	461	17	MAX
	Right Turn						
WB	Left Turn						
	Through	240	14	2	121	16	NO
	Right Turn	240	10	1	121	16	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	109	11	362	1	MAX
	Right Turn						
SB	Left Turn						
	Through	200	38	3	268	42	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	77	6	286	10	MAX
SB	Left Turn Through Right Turn	200	14	4	256	44	MAX
EB	Left Turn Through Right Turn	300	15	4	177	42	NO
WB	Left Turn Through Right Turn	300 300	36 36	8 8	260 260	87 87	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	91	5	265	34	MAX
SB	Left Turn Through Right Turn	200	33	4	271	26	MAX
EB	Left Turn Through Right Turn	300	8	1	100	36	NO
WB	Left Turn Through Right Turn	300	78	21	387	37	MAX

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	75	4	256	30	MAX
	Right Turn	200	76	4	257	30	MAX
SB	Left Turn	210	112	7	290	3	MAX
	Through	210	112	7	290	3	MAX
	Right Turn						
EB	Left Turn	300	107	10	395	2	MAX
	Through	300	107	10	395	2	MAX
	Right Turn	300	108	10	396	2	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	31	11	NO
	Through						
	Right Turn	200	1	0	33	11	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	4	0	100	28	NO
	Right Turn	310	4	0	102	28	NO
WB	Left Turn	300	21	12	259	66	NO
	Through	300	21	12	259	66	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	103	31	500	109	NO
SB	Left Turn Through Right Turn	200	15	2	76	9	NO
EB	Left Turn Through Right Turn	600	341	126	1,053	213	MAX
WB	Left Turn Through Right Turn	800	51	6	578	138	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	0	45	9	NO
	Through						
	Right Turn	200	2	0	45	9	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	4	0	95	28	NO
	Right Turn	300	4	0	95	28	NO
WB	Left Turn	290	31	7	256	47	NO
	Through	290	31	7	256	47	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	4	1	96	20	NO
	Through	200	4	1	96	20	NO
	Right Turn	200	4	1	98	20	NO
SB	Left Turn	200	52	12	266	19	MAX
	Through	200	52	12	266	19	MAX
	Right Turn	200	55	12	270	19	MAX
EB	Left Turn	290	8	1	106	34	NO
	Through	290	8	1	106	34	NO
	Right Turn	290	9	1	112	34	NO
WB	Left Turn	300	1	1	93	29	NO
	Through	300	3	2	130	28	NO
	Right Turn	300	2	1	86	29	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	105	9	469	47	MAX
	Right Turn	200	105	9	469	47	MAX
SB	Left Turn	200	82	3	289	7	MAX
	Through	200	54	6	289	8	MAX
	Right Turn						
EB	Left Turn	300	77	6	380	34	MAX
	Through	300	77	6	380	34	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn	200	8	2	130	25	NO
	Through	200	13	2	186	31	NO
	Right Turn						
SB	Left Turn						
	Through	200	28	6	252	66	MAX
	Right Turn	200	28	6	252	66	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	42	3	240	50	NO
	Through	1,000	25	2	147	78	NO
	Right Turn	150	1	1	116	92	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	56	11	221	34	MAX
SB	Left Turn Through	500	0	0	0	0	NO
	Right Turn	500	0	0	13	10	NO
EB	Left Turn Through Right Turn	1,000	660	159	1,657	439	MAX
WB	Left Turn Through Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn						
SB	Left Turn Through						
	Right Turn	450	21	2	221	30	NO
EB	Left Turn Through Right Turn	600	466	59	990	5	MAX
WB	Left Turn Through Right Turn						

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	22	2	151	37	NO
	Through	200	22	2	151	37	NO
	Right Turn						
SB	Left Turn						
	Through	200	45	7	280	34	MAX
	Right Turn	200	45	7	280	34	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	37	4	143	21	NO
	Through	200	37	4	143	21	NO
	Right Turn	220	36	4	146	21	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	17	2	246	34	MAX
	Right Turn	210	17	2	246	34	MAX
SB	Left Turn	170	97	27	298	7	MAX
	Through	170	97	27	298	7	MAX
	Right Turn						
EB	Left Turn	180	84	10	316	15	MAX
	Through	180	84	10	316	15	MAX
	Right Turn	180	84	10	316	15	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	6	2	117	29	NO
	Through	180	6	2	117	29	NO
	Right Turn						
SB	Left Turn						
	Through	200	53	33	245	27	MAX
	Right Turn	200	53	33	245	27	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	32	3	158	11	NO
	Through	300	31	2	158	11	NO
	Right Turn	300	33	2	160	11	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	102	52	539	161	MAX
	Right Turn	180	122	57	573	161	MAX
NE	Left Turn	670	20	1	92	14	NO
	Through						
	Right Turn	670	20	1	92	14	NO
EB	Left Turn	380	51	5	167	21	NO
	Through	380	51	5	167	21	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	127	37	312	20	MAX
	Through	190	127	37	312	20	MAX
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	134	27	414	78	MAX
	Right Turn	250	134	27	414	78	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	7	2	296	54	NO
	Through						
	Right Turn	1,000	2	1	185	54	NO
SB	Left Turn						
	Through	1,000	0	0	94	11	NO
	Right Turn	1,000	1	0	55	11	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	38	3	261	20	NO
	Through	350	19	2	81	14	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **4 PM to 5 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	35	2	230	8	MAX
	Through	200	35	2	230	8	MAX
	Right Turn	200	36	2	234	8	MAX
EB	Left Turn						
	Through	500	80	5	428	81	NO
	Right Turn	500	93	6	459	81	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	25	4	213	49	MAX
	Right Turn	200	25	4	214	49	MAX
SB	Left Turn	200	31	4	200	23	NO
	Through	200	31	4	200	23	NO
	Right Turn						
EB	Left Turn	800	202	35	729	71	NO
	Through	800	202	35	729	71	NO
	Right Turn	800	203	35	730	71	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	15	2	138	23	NO
	Through	1,000	85	6	647	90	NO
	Right Turn	1,000	85	6	647	90	NO
SB	Left Turn						
	Through	185	6	1	72	19	NO
	Right Turn	185	6	1	73	19	NO
EB	Left Turn	800	21	2	162	19	NO
	Through	800	32	2	210	44	NO
	Right Turn	800	0	0	33	11	NO
WB	Left Turn	580	54	7	225	38	NO
	Through	580	22	3	164	15	NO
	Right Turn	580	19	3	165	15	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	59	7	433	116	NO
	Through	1,000	59	7	433	116	NO
	Right Turn	1,000	62	7	439	116	NO
SB	Left Turn	500	31	1	229	27	NO
	Through	500	31	1	229	27	NO
	Right Turn	500	28	2	233	27	NO
EB	Left Turn	1,000	12	2	157	15	NO
	Through	1,000	12	2	157	15	NO
	Right Turn	1,000	13	2	160	15	NO
WB	Left Turn	1,000	15	4	390	102	NO
	Through	1,000	15	4	390	102	NO
	Right Turn	1,000	13	2	281	51	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	78	12	372	65	MAX
	Through	510	38	7	346	70	NO
	Right Turn						
SB	Left Turn	180	29	2	155	30	NO
	Through	200	30	2	156	30	NO
	Right Turn	200	29	3	167	30	NO
EB	Left Turn						
	Through	600	120	11	456	100	NO
	Right Turn	600	121	11	458	100	NO
WB	Left Turn	400	65	16	328	97	NO
	Through	1,000	9	2	154	42	NO
	Right Turn	1,000	8	2	154	42	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	400	58	18	343	129	NO
	Through	500	102	25	567	39	MAX
	Right Turn						
SB	Left Turn						
	Through	190	40	6	220	8	MAX
	Right Turn	190	43	6	226	8	MAX
EB	Left Turn						
	Through	1,000	285	100	670	56	NO
	Right Turn	1,000	284	100	670	56	NO
WB	Left Turn						
	Through	200	25	3	279	12	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	33	20	296	15	MAX
	Right Turn	210	41	25	329	15	MAX
SB	Left Turn						
	Through	220	12	5	296	65	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	10	6	124	67	NO
	Through						
	Right Turn	220	10	6	124	67	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	89	38	306	2	MAX
	Right Turn	210	91	39	310	2	MAX
SB	Left Turn	100	44	14	256	50	MAX
	Through	150	7	1	190	57	MAX
	Right Turn						
EB	Left Turn	1,000	172	129	590	299	NO
	Through	1,000	172	129	590	299	NO
	Right Turn	1,000	173	130	594	299	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	31	7	276	5	MAX
	Through	170	31	7	276	5	MAX
	Right Turn						
SB	Left Turn						
	Through	140	32	3	218	25	MAX
	Right Turn	140	0	0	39	16	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	78	25	328	85	MAX
	Through	800	78	25	328	85	NO
	Right Turn	200	45	39	291	130	MAX

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	24	8	272	9	MAX
	Through	145	74	11	284	16	MAX
	Right Turn	145	75	11	284	16	MAX
SB	Left Turn	80	16	6	113	37	MAX
	Through	240	9	1	84	13	NO
	Right Turn	80	2	0	62	30	NO
EB	Left Turn	160	119	167	538	404	MAX
	Through	500	276	193	807	367	MAX
	Right Turn	500	279	193	810	367	MAX
WB	Left Turn	190	48	6	175	28	NO
	Through	400	43	5	245	24	NO
	Right Turn	400	41	5	246	24	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	1	1	59	10	NO
SB	Left Turn	180	102	4	294	10	MAX
	Through	180	102	4	295	10	MAX
	Right Turn						
EB	Left Turn						
	Through	270	54	44	305	64	MAX
	Right Turn	270	51	45	311	64	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	1	0	52	18	NO
	Right Turn	200	0	0	51	19	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	7	2	92	11	NO
	Through	310	4	1	66	21	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	91	6	467	41	NO
	Through	1,000	92	5	467	41	NO
	Right Turn	1,000	92	5	469	41	NO
EB	Left Turn						
	Through	390	137	34	470	44	MAX
	Right Turn	390	137	34	470	44	MAX
WB	Left Turn	130	8	2	104	17	NO
	Through	380	17	1	141	16	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	183	8	337	4	MAX
	Right Turn	220	189	8	344	4	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	85	37	402	21	MAX
	Through	315	85	37	402	21	MAX
	Right Turn	315	86	38	406	21	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	69	47	238	88	MAX
	Through	200	69	47	238	88	MAX
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	76	12	463	11	MAX
	Right Turn						
WB	Left Turn						
	Through	240	15	1	113	15	NO
	Right Turn						

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	121	10	362	1	MAX
	Right Turn						
SB	Left Turn						
	Through	200	15	3	208	44	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	84	8	284	9	MAX
SB	Left Turn Through Right Turn	200	9	3	197	47	NO
EB	Left Turn Through Right Turn	300	27	4	229	56	NO
WB	Left Turn Through Right Turn	300 300	108 108	35 35	396 396	12 12	MAX MAX

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	89	7	282	21	MAX
SB	Left Turn Through Right Turn	200	23	4	239	39	MAX
EB	Left Turn Through Right Turn	300	48	11	272	11	NO
WB	Left Turn Through Right Turn	300	35	7	294	55	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	85	5	261	20	MAX
	Right Turn	200	86	5	263	20	MAX
SB	Left Turn	210	37	6	270	30	MAX
	Through	210	37	6	270	30	MAX
	Right Turn						
EB	Left Turn	300	123	28	397	29	MAX
	Through	300	123	28	397	29	MAX
	Right Turn	300	124	28	399	29	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	30	10	NO
	Through						
	Right Turn	200	1	0	32	10	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	27	1	223	8	NO
	Right Turn	310	27	1	225	8	NO
WB	Left Turn	300	7	1	172	42	NO
	Through	300	7	1	172	42	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	83	27	528	91	NO
SB	Left Turn Through Right Turn	200	27	3	260	8	MAX
EB	Left Turn Through Right Turn	600	488	93	1,366	165	MAX
WB	Left Turn Through Right Turn	800	55	7	464	102	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	1	66	11	NO
	Through						
	Right Turn	200	2	1	66	11	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	21	1	202	9	NO
	Right Turn	300	21	1	202	9	NO
WB	Left Turn	290	9	2	157	35	NO
	Through	290	9	2	157	35	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	5	1	106	19	NO
	Through	200	5	1	106	19	NO
	Right Turn	200	5	1	108	19	NO
SB	Left Turn	200	29	6	262	31	MAX
	Through	200	29	6	262	31	MAX
	Right Turn	200	30	6	266	31	MAX
EB	Left Turn	290	37	2	248	24	NO
	Through	290	37	2	248	24	NO
	Right Turn	290	39	2	254	24	NO
WB	Left Turn	300	0	0	40	11	NO
	Through	300	1	0	88	11	NO
	Right Turn	300	0	0	33	11	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	195	34	662	111	MAX
	Right Turn	200	195	34	662	111	MAX
SB	Left Turn	200	108	8	295	15	MAX
	Through	200	78	11	290	11	MAX
	Right Turn						
EB	Left Turn	300	171	17	406	14	MAX
	Through	300	171	17	406	14	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	10	3	139	25	NO
	Through	200	19	3	183	34	NO
	Right Turn						
SB	Left Turn						
	Through	200	66	19	354	87	MAX
	Right Turn	200	66	19	354	87	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	46	3	265	32	NO
	Through	1,000	25	3	203	118	NO
	Right Turn	150	1	1	130	44	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	27	6	195	20	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	27	52	NO
	Right Turn	500	0	0	14	18	NO
EB	Left Turn	1,000	161	77	1,646	489	MAX
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	12	1	193	21	NO
EB	Left Turn	600	519	64	993	2	MAX
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	30	11	197	46	NO
	Through	200	30	11	197	46	NO
	Right Turn						
SB	Left Turn						
	Through	200	15	15	224	41	MAX
	Right Turn	200	15	15	224	41	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	38	7	177	43	NO
	Through	200	38	7	177	43	NO
	Right Turn	220	36	8	178	46	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	13	2	232	29	MAX
	Right Turn	210	13	2	232	29	MAX
SB	Left Turn	170	31	11	263	59	MAX
	Through	170	31	11	263	59	MAX
	Right Turn						
EB	Left Turn	180	86	7	312	23	MAX
	Through	180	86	7	312	23	MAX
	Right Turn	180	86	7	312	23	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	6	3	137	14	NO
	Through	180	6	3	137	14	NO
	Right Turn						
SB	Left Turn						
	Through	200	12	5	232	19	MAX
	Right Turn	200	12	5	232	19	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	27	2	153	14	NO
	Through	300	33	3	156	14	NO
	Right Turn	300	35	3	159	14	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	615	236	960	190	AVG
	Right Turn	180	647	238	994	190	AVG
NE	Left Turn	670	22	2	113	16	NO
	Through						
	Right Turn	670	22	2	113	16	NO
EB	Left Turn	380	62	3	207	35	NO
	Through	380	62	3	207	35	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	198	22	331	15	AVG
	Through	190	198	22	331	15	AVG
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	127	28	410	68	MAX
	Right Turn	250	127	28	410	68	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	4	3	271	77	NO
	Through						
	Right Turn	1,000	2	2	188	71	NO
SB	Left Turn						
	Through	1,000	0	0	95	10	NO
	Right Turn	1,000	1	0	55	7	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	6	1	132	20	NO
	Through	350	17	2	81	9	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **5 PM to 6 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	28	2	223	10	MAX
	Through	200	28	2	223	10	MAX
	Right Turn	200	28	2	227	10	MAX
EB	Left Turn						
	Through	500	59	4	343	79	NO
	Right Turn	500	71	4	374	79	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	46	7	285	12	MAX
	Right Turn	200	47	7	286	12	MAX
SB	Left Turn	200	32	2	195	27	NO
	Through	200	32	2	195	27	NO
	Right Turn						
EB	Left Turn	800	490	165	793	66	NO
	Through	800	490	165	793	66	NO
	Right Turn	800	492	165	795	66	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	10	2	99	19	NO
	Through	1,000	39	4	373	59	NO
	Right Turn	1,000	39	3	373	59	NO
SB	Left Turn						
	Through	185	3	1	46	10	NO
	Right Turn	185	2	1	49	8	NO
EB	Left Turn	800	18	2	143	35	NO
	Through	800	26	3	170	42	NO
	Right Turn	800	0	0	25	9	NO
WB	Left Turn	580	33	3	173	26	NO
	Through	580	20	3	184	38	NO
	Right Turn	580	17	3	184	38	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	20	2	210	58	NO
	Through	1,000	20	2	210	58	NO
	Right Turn	1,000	21	2	216	58	NO
SB	Left Turn	500	17	1	190	36	NO
	Through	500	17	1	190	36	NO
	Right Turn	500	14	1	195	36	NO
EB	Left Turn	1,000	4	1	112	36	NO
	Through	1,000	4	1	112	36	NO
	Right Turn	1,000	4	1	115	36	NO
WB	Left Turn	1,000	3	1	158	79	NO
	Through	1,000	3	1	158	79	NO
	Right Turn	1,000	3	1	106	26	NO

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	24	3	222	46	MAX
	Through	510	16	2	168	23	NO
	Right Turn						
SB	Left Turn	180	22	3	144	24	NO
	Through	200	23	3	145	24	NO
	Right Turn	200	18	2	145	26	NO
EB	Left Turn						
	Through	600	72	3	333	22	NO
	Right Turn	600	72	3	335	22	NO
WB	Left Turn	400	32	6	223	41	NO
	Through	1,000	7	2	160	34	NO
	Right Turn	1,000	6	2	160	34	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	400	11	2	96	22	NO
	Through	500	25	2	229	51	NO
	Right Turn						
SB	Left Turn						
	Through	190	61	4	219	2	MAX
	Right Turn	190	64	4	225	2	MAX
EB	Left Turn						
	Through	1,000	25	4	240	34	NO
	Right Turn						
WB	Left Turn						
	Through	200	6	2	149	55	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	1	1	89	32	NO
	Right Turn	210	2	1	122	32	NO
SB	Left Turn						
	Through	220	13	2	239	49	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn	220	2	0	58	14	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	51	5	303	7	MAX
	Right Turn	210	53	5	307	7	MAX
SB	Left Turn	100	40	7	233	61	MAX
	Through	150	3	1	102	58	NO
	Right Turn						
EB	Left Turn	1,000	68	7	325	72	NO
	Through	1,000	68	7	325	72	NO
	Right Turn	1,000	68	8	329	72	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	23	3	161	48	NO
	Through	170	23	3	161	48	NO
	Right Turn						
SB	Left Turn						
	Through	140	8	2	168	46	MAX
	Right Turn	140	0	0	37	18	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	61	4	248	20	MAX
	Through	800	61	4	248	20	NO
	Right Turn	200	4	1	96	23	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	10	2	219	45	MAX
	Through	145	23	4	261	14	MAX
	Right Turn	145	23	4	261	14	MAX
SB	Left Turn	80	3	1	54	15	NO
	Through	240	8	1	84	18	NO
	Right Turn	80	1	0	45	3	NO
EB	Left Turn	160	20	3	146	23	NO
	Through	500	64	3	288	62	NO
	Right Turn	500	66	3	291	62	NO
WB	Left Turn	190	34	3	144	21	NO
	Through	400	25	2	192	27	NO
	Right Turn	400	23	2	192	27	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	0	0	30	11	NO
SB	Left Turn	180	72	3	246	18	MAX
	Through	180	73	3	247	18	MAX
	Right Turn						
EB	Left Turn						
	Through	270	10	1	197	63	NO
	Right Turn	270	7	1	200	62	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	2	0	116	14	NO
	Right Turn	200	1	0	120	11	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	2	1	45	21	NO
	Through	310	3	1	62	13	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	77	4	393	71	NO
	Through	1,000	78	4	394	71	NO
	Right Turn	1,000	77	4	395	71	NO
EB	Left Turn						
	Through	390	23	7	306	86	NO
	Right Turn	390	23	7	306	86	NO
WB	Left Turn	130	3	1	81	19	NO
	Through	380	9	1	116	18	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	66	19	318	13	MAX
	Right Turn	220	71	19	324	13	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	19	4	277	49	NO
	Through	315	19	4	277	49	NO
	Right Turn	315	19	4	281	49	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	18	7	121	69	NO
	Through	200	18	7	121	69	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	19	3	285	110	NO
	Right Turn						
WB	Left Turn						
	Through	240	13	1	102	18	NO
	Right Turn	240	10	1	102	19	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	2	1	161	53	NO
	Right Turn						
SB	Left Turn						
	Through	200	4	1	136	43	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	8	1	163	35	NO
SB	Left Turn Through Right Turn	200	6	1	212	58	MAX
EB	Left Turn Through Right Turn	300	42	5	235	48	NO
WB	Left Turn Through Right Turn	300 300	20 20	2 2	179 179	35 35	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	5	2	171	49	NO
SB	Left Turn Through Right Turn	200	16	2	226	32	MAX
EB	Left Turn Through Right Turn	300	12	1	136	62	NO
WB	Left Turn Through Right Turn	300	10	2	155	65	NO

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	15	2	167	23	NO
	Right Turn	200	16	2	169	23	NO
SB	Left Turn	210	24	2	200	29	NO
	Through	210	24	2	200	29	NO
	Right Turn						
EB	Left Turn	300	88	6	348	41	MAX
	Through	300	88	6	348	41	MAX
	Right Turn	300	89	6	350	41	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	25	12	NO
	Through						
	Right Turn	200	0	0	27	13	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	8	1	135	34	NO
	Right Turn	310	9	1	136	34	NO
WB	Left Turn	300	4	2	132	58	NO
	Through	300	4	2	132	58	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	15	1	159	37	NO
SB	Left Turn Through Right Turn	200	12	1	172	29	NO
EB	Left Turn Through Right Turn	600	18	1	183	41	NO
WB	Left Turn Through Right Turn	800	60	7	460	80	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	1	81	14	NO
	Through						
	Right Turn	200	2	1	81	14	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	6	0	129	24	NO
	Right Turn	300	6	0	129	24	NO
WB	Left Turn	290	2	1	94	41	NO
	Through	290	2	1	94	41	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	3	1	99	26	NO
	Through	200	3	1	99	26	NO
	Right Turn	200	3	1	100	26	NO
SB	Left Turn	200	5	2	141	59	NO
	Through	200	5	2	141	59	NO
	Right Turn	200	5	2	145	59	NO
EB	Left Turn	290	13	1	126	23	NO
	Through	290	13	1	126	23	NO
	Right Turn	290	15	2	132	23	NO
WB	Left Turn	300	0	0	42	13	NO
	Through	300	1	0	89	10	NO
	Right Turn	300	0	0	35	13	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	113	23	528	98	MAX
	Right Turn	200	113	23	528	98	MAX
SB	Left Turn	200	79	4	284	2	MAX
	Through	200	67	6	284	2	MAX
	Right Turn						
EB	Left Turn	300	148	31	400	13	MAX
	Through	300	148	31	400	13	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	7	2	145	25	NO
	Through	200	14	1	176	24	NO
	Right Turn						
SB	Left Turn						
	Through	200	50	16	347	78	MAX
	Right Turn	200	50	16	347	78	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	43	4	236	32	NO
	Through	1,000	26	3	225	173	NO
	Right Turn	150	1	1	136	50	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	6	1	154	13	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	2	5	NO
	Right Turn	500	0	0	6	14	NO
EB	Left Turn	1,000	6	1	69	13	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	10	1	185	21	NO
EB	Left Turn	600	3	2	157	52	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	5	1	131	37	NO
	Through	200	5	1	131	37	NO
	Right Turn						
SB	Left Turn						
	Through	200	5	1	171	50	NO
	Right Turn	200	5	1	171	50	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	8	1	108	12	NO
	Through	200	8	1	108	12	NO
	Right Turn	220	6	0	106	14	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	14	1	194	30	NO
	Right Turn	210	14	1	194	30	NO
SB	Left Turn	170	12	1	134	41	NO
	Through	170	12	1	134	41	NO
	Right Turn						
EB	Left Turn	180	27	3	304	27	MAX
	Through	180	27	3	304	27	MAX
	Right Turn	180	27	3	304	27	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	4	1	173	53	NO
	Through	180	4	1	173	53	NO
	Right Turn						
SB	Left Turn						
	Through	200	3	0	151	42	NO
	Right Turn	200	3	0	152	42	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	7	1	84	10	NO
	Through	300	7	1	82	16	NO
	Right Turn	300	7	1	85	16	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	113	106	605	354	MAX
	Right Turn	180	126	110	639	354	MAX
NE	Left Turn	670	16	1	83	16	NO
	Through						
	Right Turn	670	16	1	83	16	NO
EB	Left Turn	380	47	3	156	17	NO
	Through	380	47	3	156	17	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	61	30	291	64	MAX
	Through	190	61	30	291	64	MAX
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	63	3	250	30	NO
	Right Turn	250	63	3	250	30	NO

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	0	0	59	49	NO
	Through						
	Right Turn	1,000	0	0	24	48	NO
SB	Left Turn						
	Through	1,000	0	0	92	9	NO
	Right Turn	1,000	1	0	49	5	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	2	0	83	14	NO
	Through	350	13	2	82	12	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **6 PM to 7 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	13	1	179	18	NO
	Through	200	13	1	179	18	NO
	Right Turn	200	14	1	184	18	NO
EB	Left Turn						
	Through	500	35	1	160	27	NO
	Right Turn	500	46	1	191	27	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	35	4	263	35	MAX
	Right Turn	200	35	4	264	35	MAX
SB	Left Turn	200	25	2	176	35	NO
	Through	200	25	2	176	35	NO
	Right Turn						
EB	Left Turn	800	260	140	699	179	NO
	Through	800	260	140	699	179	NO
	Right Turn	800	259	141	700	179	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	8	3	84	23	NO
	Through	1,000	14	2	282	126	NO
	Right Turn	1,000	13	2	282	126	NO
SB	Left Turn						
	Through	185	3	1	46	9	NO
	Right Turn	185	2	1	48	9	NO
EB	Left Turn	800	8	2	100	52	NO
	Through	800	25	3	197	31	NO
	Right Turn	800	0	0	26	14	NO
WB	Left Turn	580	27	2	147	23	NO
	Through	580	10	2	124	36	NO
	Right Turn	580	7	2	125	36	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	16	2	193	27	NO
	Through	1,000	16	2	193	27	NO
	Right Turn	1,000	17	2	199	27	NO
SB	Left Turn	500	14	1	172	28	NO
	Through	500	14	1	172	28	NO
	Right Turn	500	11	2	171	26	NO
EB	Left Turn	1,000	3	1	116	35	NO
	Through	1,000	3	1	116	35	NO
	Right Turn	1,000	3	1	119	35	NO
WB	Left Turn	1,000	2	1	103	35	NO
	Through	1,000	2	1	103	35	NO
	Right Turn	1,000	2	0	97	18	NO

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	13	2	128	25	NO
	Through	510	9	2	173	33	NO
	Right Turn						
SB	Left Turn	180	12	2	103	22	NO
	Through	200	13	2	105	22	NO
	Right Turn	200	7	1	103	22	NO
EB	Left Turn						
	Through	600	45	5	306	30	NO
	Right Turn	600	44	5	308	30	NO
WB	Left Turn	400	34	7	267	41	NO
	Through	1,000	4	1	110	23	NO
	Right Turn	1,000	3	1	108	23	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	400	8	1	81	13	NO
	Through	500	24	2	391	99	NO
	Right Turn						
SB	Left Turn						
	Through	190	55	4	216	1	MAX
	Right Turn	190	59	4	223	1	MAX
EB	Left Turn						
	Through	1,000	13	6	156	58	NO
	Right Turn	1,000	11	6	156	58	NO
WB	Left Turn						
	Through	200	4	1	122	21	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	1	1	149	127	NO
	Right Turn	210	1	1	179	131	NO
SB	Left Turn						
	Through	220	8	5	256	98	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn	220	1	0	43	10	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	22	3	287	26	MAX
	Right Turn	210	23	3	291	26	MAX
SB	Left Turn	100	16	3	160	28	MAX
	Through	150	8	1	145	27	NO
	Right Turn						
EB	Left Turn	1,000	23	1	172	23	NO
	Through	1,000	23	1	172	23	NO
	Right Turn	1,000	21	2	175	23	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	9	1	167	47	NO
	Through	170	9	1	167	47	NO
	Right Turn						
SB	Left Turn						
	Through	140	10	1	133	25	NO
	Right Turn	140	0	0	45	12	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	34	2	212	25	MAX
	Through	800	34	2	212	25	NO
	Right Turn	200	3	1	81	28	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	6	1	166	69	MAX
	Through	145	23	3	251	24	MAX
	Right Turn	145	23	3	252	24	MAX
SB	Left Turn	80	1	1	43	9	NO
	Through	240	6	1	60	10	NO
	Right Turn	80	1	0	44	13	NO
EB	Left Turn	160	9	2	84	14	NO
	Through	500	23	1	158	34	NO
	Right Turn	500	23	1	162	34	NO
WB	Left Turn	190	16	1	118	18	NO
	Through	400	11	2	148	13	NO
	Right Turn	400	8	2	147	14	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	0	0	22	2	NO
SB	Left Turn	180	37	2	222	40	MAX
	Through	180	37	2	223	40	MAX
	Right Turn						
EB	Left Turn						
	Through	270	10	1	204	51	NO
	Right Turn	270	8	1	191	37	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	1	0	114	25	NO
	Right Turn	200	1	0	115	25	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	1	0	48	22	NO
	Through	310	2	1	48	19	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	47	4	267	29	NO
	Through	1,000	49	3	268	29	NO
	Right Turn	1,000	47	3	269	29	NO
EB	Left Turn						
	Through	390	15	2	226	30	NO
	Right Turn	390	15	2	226	30	NO
WB	Left Turn	130	1	1	91	16	NO
	Through	380	4	1	95	23	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	7	1	137	37	NO
	Right Turn	220	8	1	143	37	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	10	1	145	23	NO
	Through	315	10	1	145	23	NO
	Right Turn	315	9	1	149	23	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	21	2	135	18	NO
	Through	200	21	2	135	18	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	14	2	154	21	NO
	Right Turn						
WB	Left Turn						
	Through	240	11	1	100	18	NO
	Right Turn	240	7	1	99	19	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	1	0	104	33	NO
	Right Turn						
SB	Left Turn						
	Through	200	10	2	160	14	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	6	1	127	30	NO
SB	Left Turn Through Right Turn	200	13	3	205	40	MAX
EB	Left Turn Through Right Turn	300	16	3	126	20	NO
WB	Left Turn Through Right Turn	300 300	16 16	3 3	127 127	27 27	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	3	1	150	56	NO
SB	Left Turn Through Right Turn	200	14	3	202	40	MAX
EB	Left Turn Through Right Turn	300	3	0	55	10	NO
WB	Left Turn Through Right Turn	300	5	1	58	17	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	7	1	171	43	NO
	Right Turn	200	7	1	172	43	NO
SB	Left Turn	210	12	2	155	43	NO
	Through	210	12	2	155	43	NO
	Right Turn						
EB	Left Turn	300	77	6	331	40	MAX
	Through	300	77	6	331	40	MAX
	Right Turn	300	78	6	333	40	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	11	9	NO
	Through						
	Right Turn	200	0	0	12	11	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	2	0	58	10	NO
	Right Turn	310	2	0	59	10	NO
WB	Left Turn	300	2	1	49	7	NO
	Through	300	2	1	49	7	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	16	4	259	70	NO
SB	Left Turn Through Right Turn	200	7	1	139	15	NO
EB	Left Turn Through Right Turn	600	13	1	123	13	NO
WB	Left Turn Through Right Turn	800	52	4	531	153	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	43	8	NO
	Through						
	Right Turn	200	1	0	43	8	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	2	0	63	16	NO
	Right Turn	300	2	0	63	16	NO
WB	Left Turn	290	1	0	43	12	NO
	Through	290	1	0	43	12	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	61	18	NO
	Through	200	1	0	61	18	NO
	Right Turn	200	1	0	63	18	NO
SB	Left Turn	200	2	0	87	20	NO
	Through	200	2	0	87	20	NO
	Right Turn	200	2	0	92	20	NO
EB	Left Turn	290	4	1	66	18	NO
	Through	290	4	1	66	18	NO
	Right Turn	290	5	1	72	18	NO
WB	Left Turn	300	0	0	42	14	NO
	Through	300	0	0	90	14	NO
	Right Turn	300	0	0	36	14	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	45	2	214	29	MAX
	Right Turn	200	45	2	214	29	MAX
SB	Left Turn	200	39	3	244	43	MAX
	Through	200	24	3	223	47	MAX
	Right Turn						
EB	Left Turn	300	84	13	339	43	MAX
	Through	300	84	13	339	43	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	4	1	101	34	NO
	Through	200	7	1	132	17	NO
	Right Turn						
SB	Left Turn						
	Through	200	11	2	188	51	NO
	Right Turn	200	11	2	188	51	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	24	3	191	41	NO
	Through	1,000	17	1	120	53	NO
	Right Turn	150	0	0	54	28	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	13	1	166	31	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	19	61	NO
	Right Turn	500	0	0	1	5	NO
EB	Left Turn	1,000	8	1	72	24	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	14	3	178	17	NO
EB	Left Turn	600	14	4	304	84	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

Queue Length **7 PM to 8 PM**

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	3	1	117	32	NO
	Through	200	3	1	117	32	NO
	Right Turn						
SB	Left Turn						
	Through	200	3	1	89	14	NO
	Right Turn	200	3	1	89	14	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	5	1	85	17	NO
	Through	200	5	1	85	17	NO
	Right Turn	220	4	1	81	13	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	6	1	138	39	NO
	Right Turn	210	6	1	138	39	NO
SB	Left Turn	170	5	0	77	11	NO
	Through	170	5	0	77	11	NO
	Right Turn						
EB	Left Turn	180	12	1	168	62	NO
	Through	180	12	1	168	62	NO
	Right Turn	180	12	1	168	62	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	2	0	121	21	NO
	Through	180	2	0	121	21	NO
	Right Turn						
SB	Left Turn						
	Through	200	1	0	81	36	NO
	Right Turn	200	1	0	81	36	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	4	0	67	16	NO
	Through	300	5	0	65	20	NO
	Right Turn	300	5	0	68	20	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	13	1	159	23	NO
	Right Turn	180	22	2	193	23	MAX
NE	Left Turn	670	6	1	69	16	NO
	Through						
	Right Turn	670	6	1	69	16	NO
EB	Left Turn	380	13	1	91	13	NO
	Through	380	13	1	91	13	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	13	1	173	28	NO
	Through	190	13	1	173	28	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	47	1	189	22	NO
	Right Turn	250	47	1	189	22	NO

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	0	0	4	14	NO
	Through						
	Right Turn	1,000	0	0	0	0	NO
SB	Left Turn						
	Through	1,000	0	0	88	9	NO
	Right Turn	1,000	0	0	42	10	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	2	0	95	12	NO
	Through	350	1	0	52	10	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Midday Game**

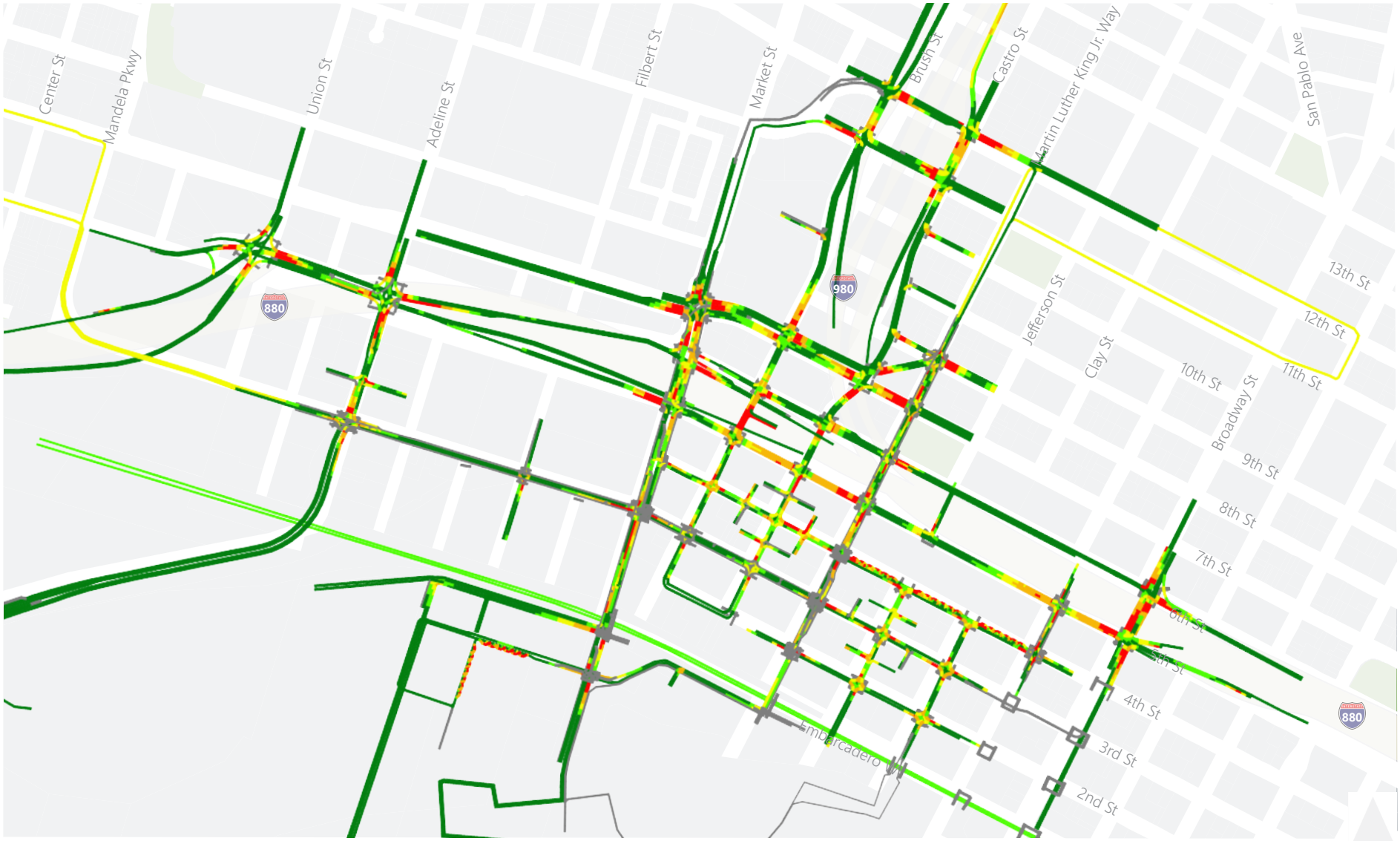
Queue Length **7 PM to 8 PM**

Intersection 31 **Brush St/11th St** **Signal**

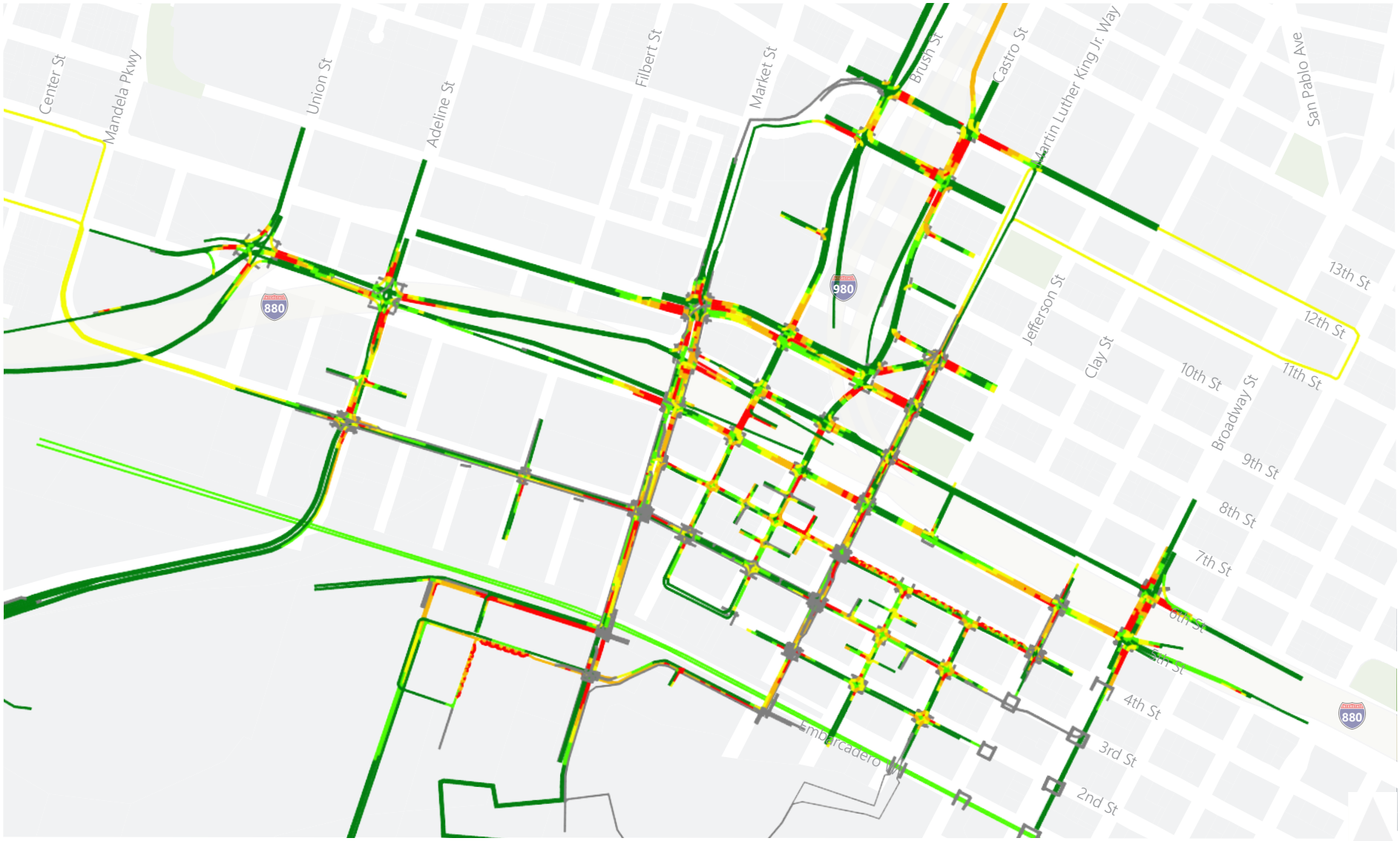
Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	11	1	141	24	NO
	Through	200	11	1	141	24	NO
	Right Turn	200	11	1	144	24	NO
EB	Left Turn						
	Through	500	8	1	87	15	NO
	Right Turn	500	13	1	117	15	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	6	1	115	33	NO
	Right Turn	200	5	2	116	33	NO
SB	Left Turn	200	7	1	86	25	NO
	Through	200	7	1	86	25	NO
	Right Turn						
EB	Left Turn	800	30	4	280	46	NO
	Through	800	30	4	280	46	NO
	Right Turn	800	27	4	281	46	NO
WB	Left Turn						
	Through						
	Right Turn						

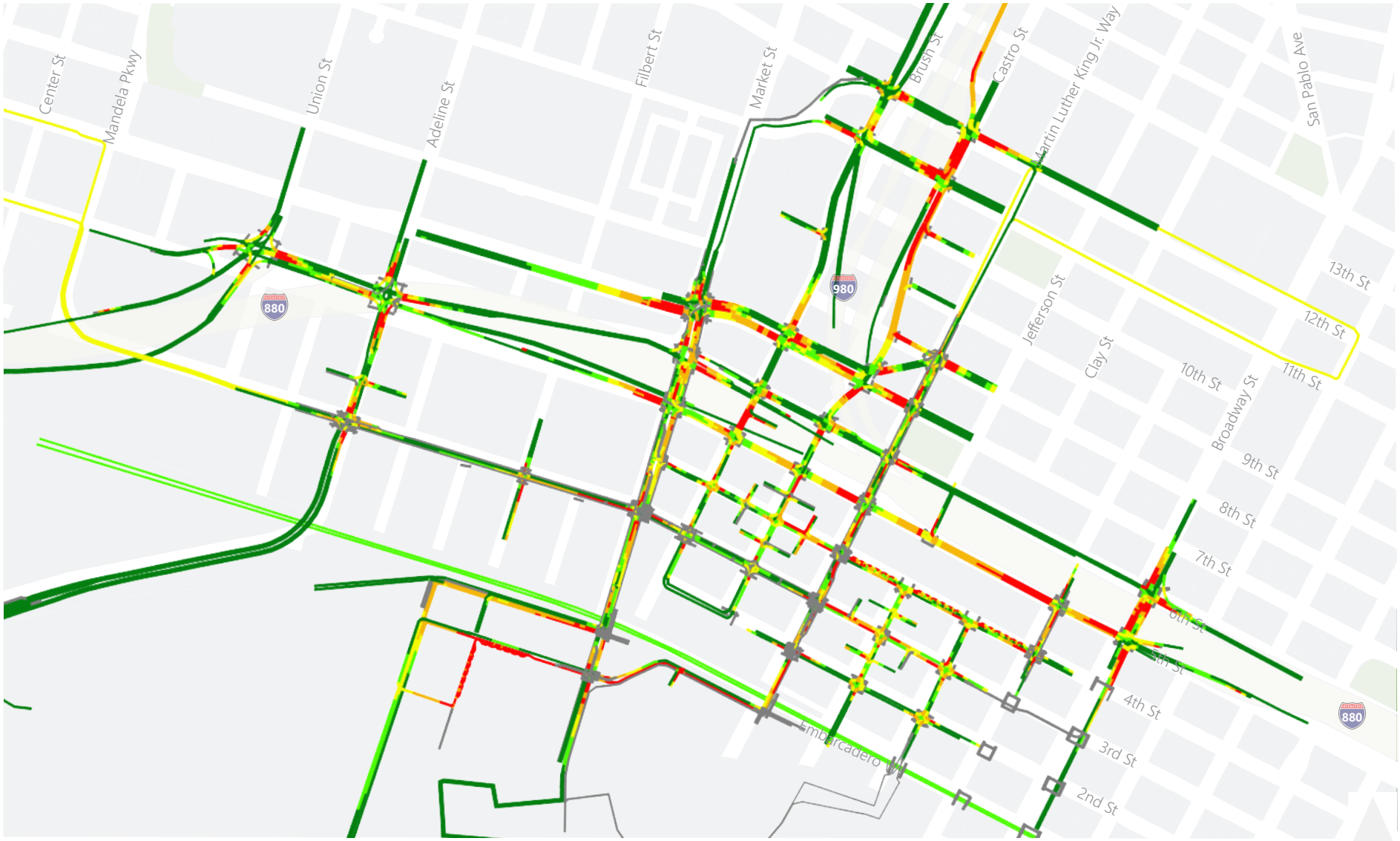


Full Build Out, Midday Ballgame - Average Motor Vehicle Speeds
3PM - 4PM



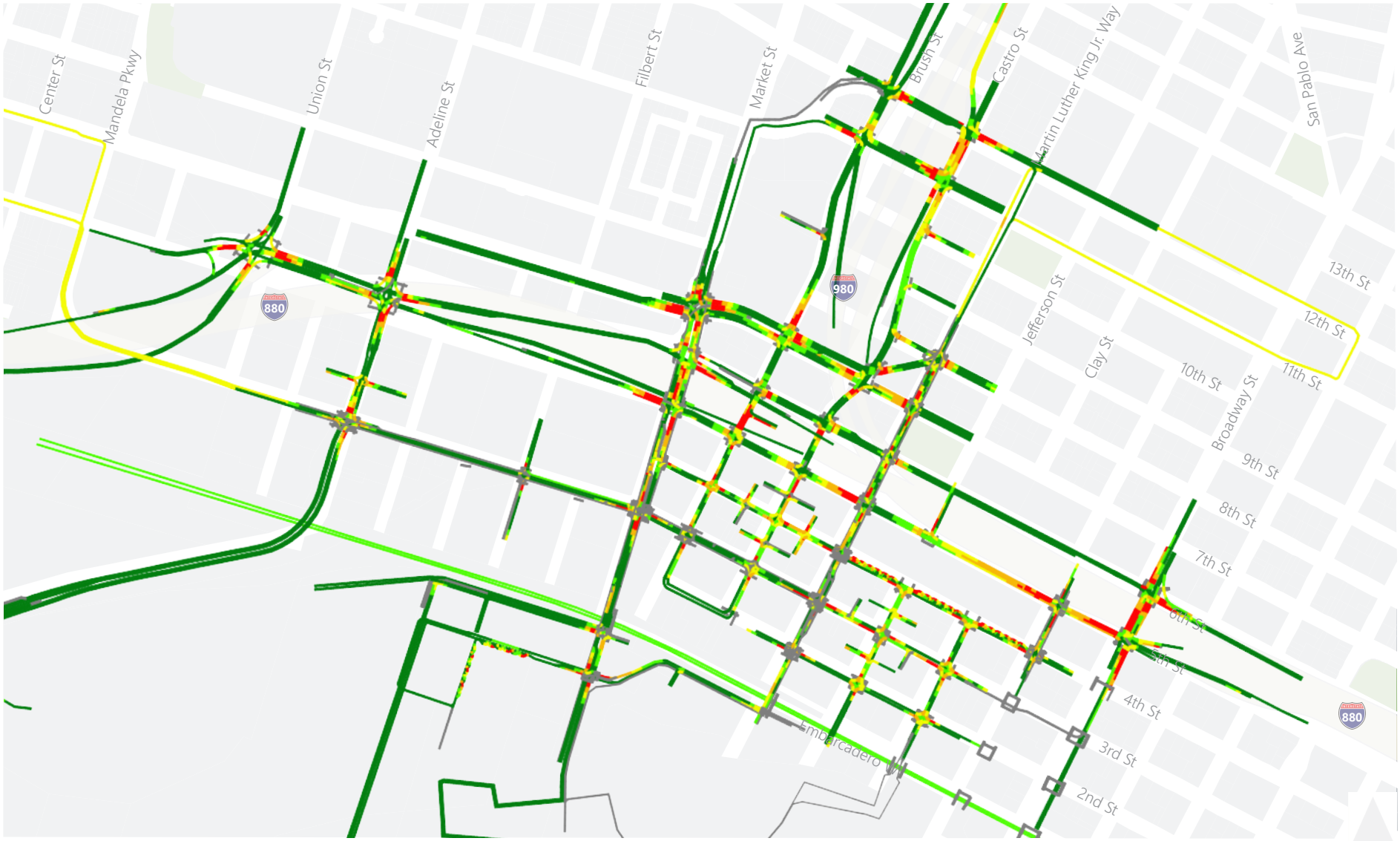
Full Build Out, Midday Ballgame - Average Motor Vehicle Speeds
4PM - 5PM

Figure I-8



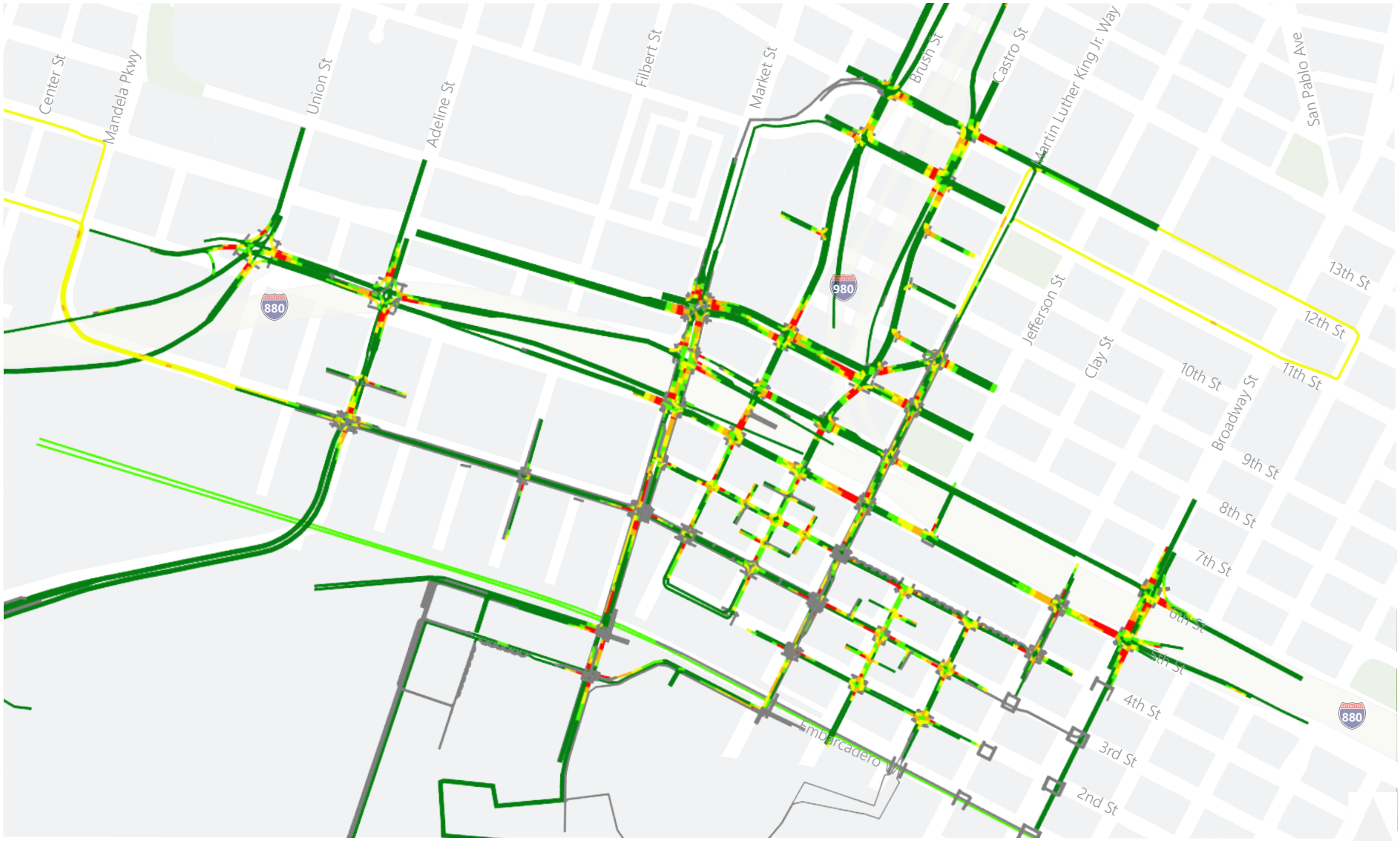
Full Build Out, Midday Ballgame - Average Motor Vehicle Speeds
5PM - 6PM

Figure I-9



Full Build Out, Midday Ballgame - Average Motor Vehicle Speeds
6PM - 7PM

Figure I-10



Full Build Out, Midday Ballgame - Average Motor Vehicle Speeds
7PM - 8PM

Figure I-11

FEHR PEERS

Appendix I:

Existing Plus Full Buildout Non-Ballpark Development Plus Ballgame Lane Configurations and Traffic Controls

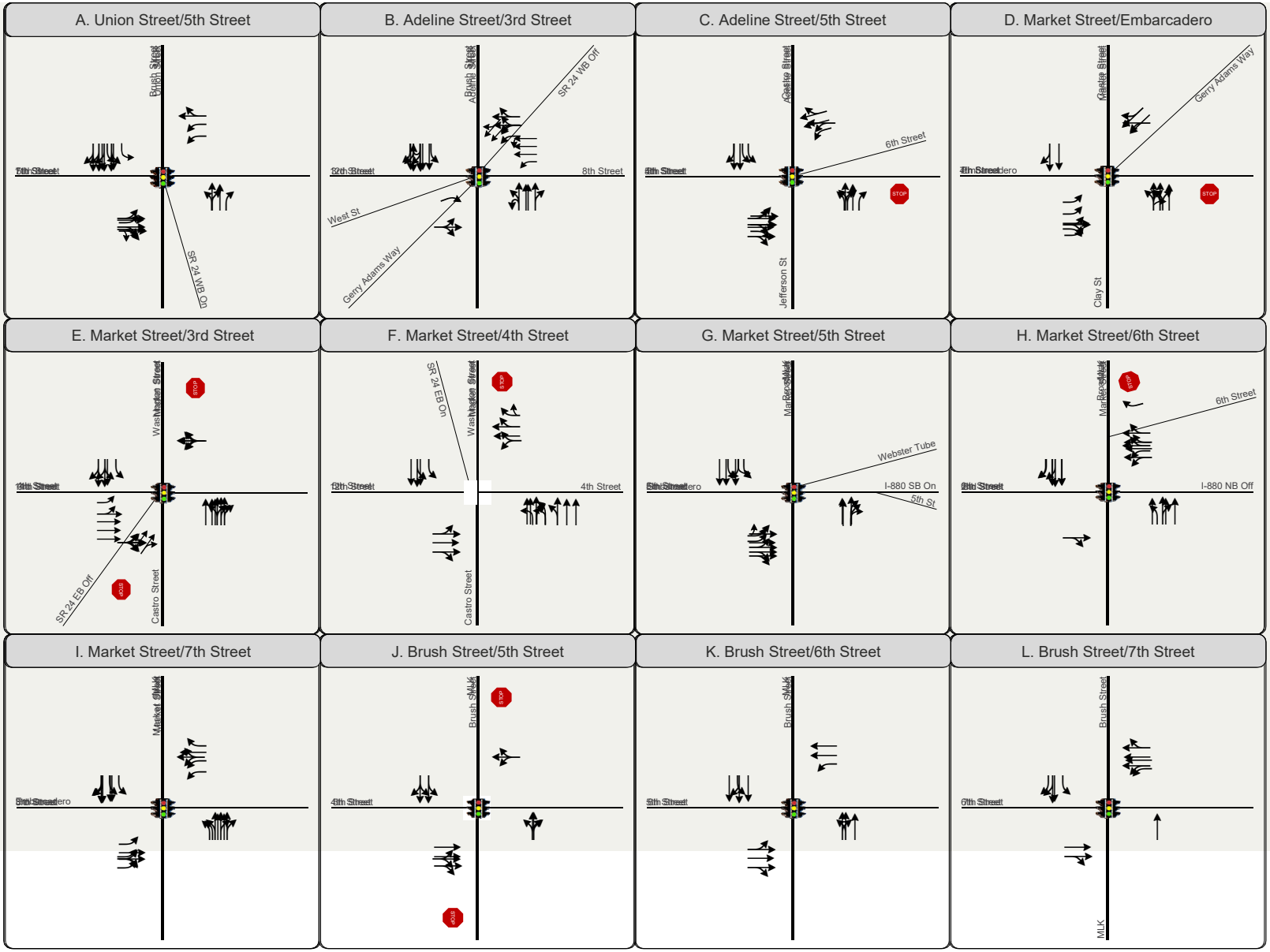


Figure II-3

Existing Plus Full Buildout Non-Ballpark Plus Ballpark Conditions Intersection Lane Configurations and Traffic Controls

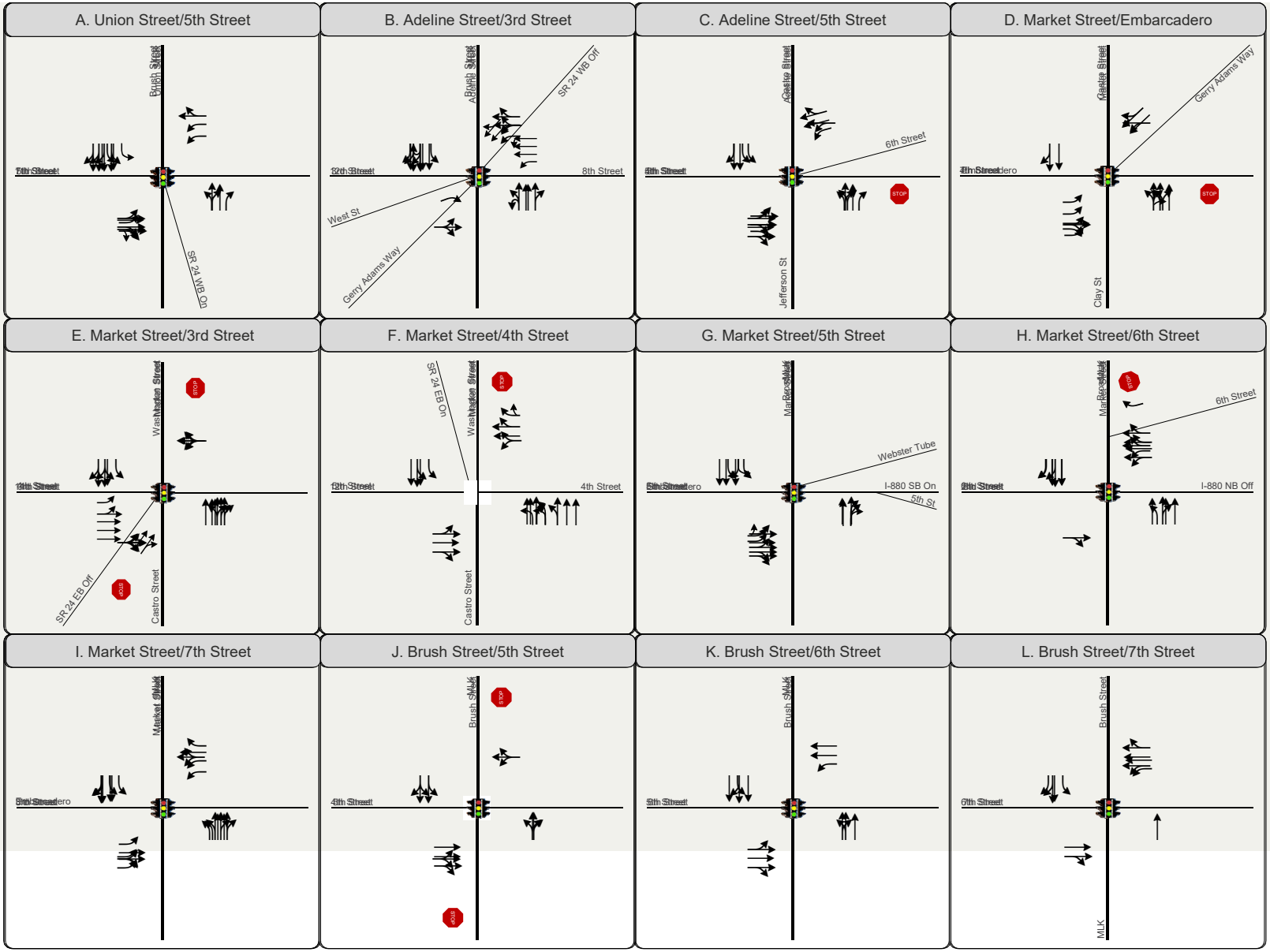


Figure II-3

Existing Plus Full Buildout Non-Ballpark Plus Ballpark Conditions Intersection Lane Configurations and Traffic Controls

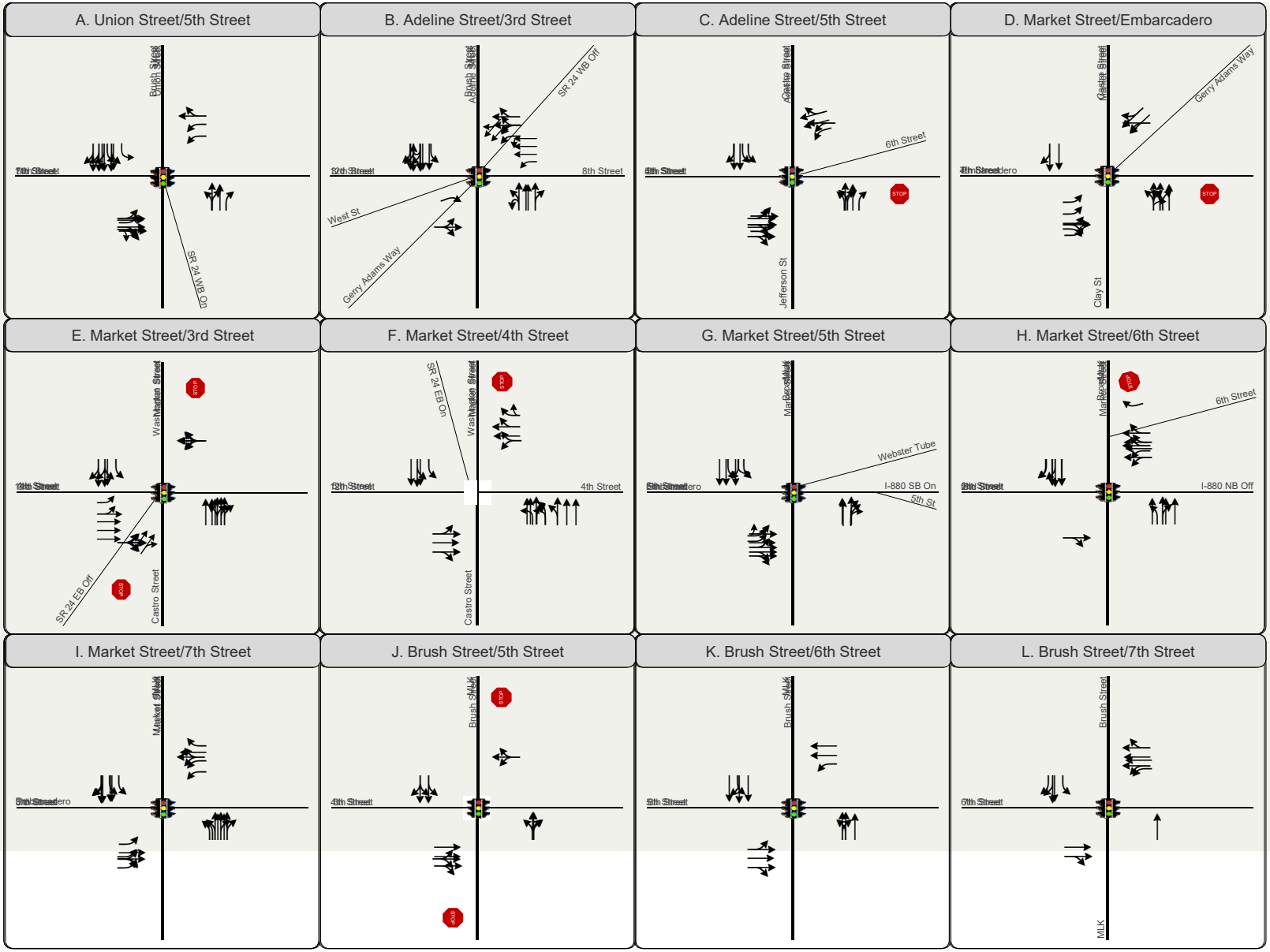


Figure II-3

Existing Plus Full Buildout Non-Ballpark Plus Ballpark Conditions Intersection Lane Configurations and Traffic Controls

FEHR PEERS

Appendix J:

Existing Plus Full Buildout Non-Ballpark Development Plus Evening Game Results

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **4-5 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
MLK east side from Embarcadero to 2nd (south)	Platooned	1004	3.9	9	100	B	37	4.5	63	C
MLK east side from Embarcadero to 2nd (north)	Platooned	990	3.9	5	100	B	27	3.6	40	D
MLK/2nd Northeast corner	Platooned	833	2.9	2	500	B	15	5.1	83	C
MLK east side from 2rd to 3th (north)	Platooned	804	3.9	3	100	B	22	2.7	22	E
MLK/3rd Northeast corner	Platooned	605	1.2	3	100	B	20	2.5	19	E
MLK east side from 3rd to 4th (south)	Platooned	500	4.1	2	100	B	13	3.6	41	C
MLK east side from 4th to 5th (south)	Platooned	464	4.0	2	100	B	16	2.4	18	E
MLK/5th Northeast corner	Platooned	527	1.6	4	100	B	24	3.0	29	D
MLK east side from 5th to 6th (south)	Platooned	477	4.1	1	500	B	9	4.8	73	C
MLK east side from 5th to 6th (middle)	Platooned	480	4.1	2	143	B	15	3.5	39	D
MLK east side from 5th to 6th (north)	Platooned	483	4.0	2	100	B	15	3.2	33	D
MLK/7th Northeast corner	Platooned	515	1.7	2	100	B	11	2.9	27	D
MLK/8th Northeast corner	Platooned	522	1.4	3	100	B	11	3.3	35	D
MLK/8th Northwest corner	Platooned	283	1.3	1	111	B	7	3.1	30	D
Clay/Embarcadero Northeast corner	Platooned	795	2.0	3	125	B	21	3.3	35	D
Clay/2nd Northeast corner	Platooned	369	0.9	3	100	B	9	3.9	49	C
Washington/2nd Northeast corner	Platooned	1023	1.9	4	100	B	16	3.5	39	D
Washington/3rd Northwest corner	Platooned	574	1.6	2	167	B	13	3.5	39	D
Washington/4th Northwest corner	Platooned	490	1.4	3	100	B	13	3.0	29	D
Broadway west side from 2nd to 3rd (south)	Platooned	911	4.1	3	100	B	19	4.5	63	C
Broadway west side from 2nd to 3rd (middle)	Platooned	912	4.1	3	100	B	20	4.2	57	C
Broadway west side from 2nd to 3rd (north)	Platooned	913	4.0	3	100	B	22	4.1	53	C
Broadway west side from 4th to 5th (south)	Platooned	1184	3.9	4	100	B	27	4.0	50	C
Broadway west side from 4th to 5th (middle)	Platooned	1184	3.9	5	100	B	31	4.0	50	C
Broadway west side from 4th to 5th (north)	Platooned	1184	3.8	5	100	B	35	3.8	45	C
Broadway/5th Southwest corner	Platooned	1186	2.8	5	100	B	33	4.4	62	C
Broadway west side from 5th to 6th (south)	Platooned	1214	4.0	6	100	B	33	4.3	57	C
Broadway west side from 5th to 6th (middle)	Platooned	1222	4.0	6	100	B	29	4.8	72	C
Broadway west side from 5th to 6th (north)	Platooned	1222	3.9	5	100	B	31	4.0	49	C
3rd/Adeline Southwest corner	Platooned	485	1.7	1	100	B	6	3.1	31	D

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **5-6 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
MLK east side from Embarcadero to 2nd (south)	Platooned	1395	3.8	13	100	B	46	4.0	51	C
MLK east side from Embarcadero to 2nd (north)	Platooned	1371	3.9	6	100	B	30	3.4	37	D
MLK/2nd Northeast corner	Platooned	1159	2.8	3	100	B	17	4.8	73	C
MLK east side from 2rd to 3th (north)	Platooned	1119	3.8	5	100	B	26	2.5	19	E
MLK/3rd Northeast corner	Platooned	853	1.1	5	71	C	24	2.3	17	E
MLK east side from 3rd to 4th (south)	Platooned	663	4.0	3	100	B	15	3.4	36	D
MLK east side from 4th to 5th (south)	Platooned	611	4.0	3	100	B	17	2.3	17	E
MLK east side from 4th to 5th (north)	Platooned	610	3.7	3	125	B	26	5.1	82	C
MLK/5th Northeast corner	Platooned	666	1.5	6	100	B	26	2.9	26	D
MLK east side from 5th to 6th (south)	Platooned	610	4.1	2	100	B	9	4.7	69	C
MLK east side from 5th to 6th (middle)	Platooned	612	4.1	3	100	B	16	3.4	37	D
MLK east side from 5th to 6th (north)	Platooned	615	4.0	2	100	B	16	3.1	30	D
MLK west side from 5th to 6th (south)	Platooned	351	4.2	1	100	B	8	5.2	85	C
MLK west side from 5th to 6th (middle)	Platooned	352	4.1	2	100	B	12	5.2	87	C
MLK/7th Northeast corner	Platooned	635	1.6	2	100	B	12	2.8	25	D
MLK/7th Northwest corner	Platooned	356	1.3	1	100	B	9	5.3	89	C
MLK/8th Northeast corner	Platooned	630	1.3	3	100	B	12	3.2	31	D
MLK/8th Northwest corner	Platooned	361	1.2	2	100	B	9	2.8	25	D
Clay/Embarcadero Northeast corner	Platooned	1016	1.8	5	100	B	35	2.6	21	E
Clay/2nd Northeast corner	Platooned	489	0.9	3	100	B	10	3.8	45	C
Washington/Embarcadero corner	Platooned	778	2.1	2	100	B	20	4.9	77	C
Washington/2nd Northeast corner	Platooned	1307	1.7	5	100	B	19	3.2	32	D
Washington/3rd Northwest corner	Platooned	745	1.5	3	100	B	18	3.1	30	D
Washington/4th Northwest corner	Platooned	632	1.3	4	100	B	16	2.8	24	D
Broadway west side from 2nd to 3rd (south)	Platooned	1204	4.0	5	100	B	23	4.1	52	C
Broadway west side from 2nd to 3rd (middle)	Platooned	1202	4.0	4	100	B	23	3.9	48	C
Broadway west side from 2nd to 3rd (north)	Platooned	1201	3.9	5	100	B	29	3.6	41	C
Broadway west side from 4th to 5th (south)	Platooned	1518	3.8	5	100	B	31	3.8	44	C
Broadway west side from 4th to 5th (middle)	Platooned	1524	3.8	6	100	B	36	3.7	43	C
Broadway west side from 4th to 5th (north)	Platooned	1545	3.7	6	100	B	42	3.4	37	D
Broadway/5th Southwest corner	Platooned	1554	2.7	6	100	B	41	4.0	51	C
Broadway west side from 5th to 6th (south)	Platooned	1539	3.9	7	100	B	43	3.7	44	C
Broadway west side from 5th to 6th (middle)	Platooned	1520	3.9	8	100	B	37	4.2	56	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Pedestrian Peak Interval Operations Summary **5-6 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Broadway west side from 5th to 6th (north)	Platooned	1512	3.8	6	100	B	37	3.6	41	C
3rd/Adeline Southwest corner	Platooned	591	1.7	1	100	B	7	3.0	29	D

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **6-7 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	1494	4.0	16	100	B	38	4.8	71	C
Market east side from Embarcadero to 3rd (north)	Platooned	1509	3.8	17	100	B	42	4.5	64	C
Market west side from 5th to 6th (north)	Platooned	504	3.9	3	100	B	18	5.3	88	C
MLK east side from Embarcadero to 2nd (south)	Platooned	2380	3.7	24	100	B	66	3.4	36	D
MLK east side from Embarcadero to 2nd (north)	Platooned	2367	3.6	12	91	B	44	2.8	25	D
MLK/2nd Northeast corner	Platooned	2069	2.4	7	100	B	29	3.7	43	C
MLK east side from 2rd to 3th (north)	Platooned	1954	3.5	9	50	C	38	2.0	13	E
MLK/3rd Southeast corner	Platooned	2062	3.3	4	100	B	26	5.1	83	C
MLK/3rd Southwest corner	Platooned	752	0.9	4	100	B	28	4.5	63	C
MLK/3rd Northeast corner	Platooned	1513	1.2	8	50	C	37	1.8	11	F
MLK east side from 3rd to 4th (south)	Platooned	1183	3.8	5	100	B	20	2.9	27	D
MLK east side from 3rd to 4th (north)	Platooned	1189	3.6	6	100	B	27	5.0	80	C
MLK/4th Southeast corner	Platooned	1207	3.5	3	100	B	19	4.9	74	C
MLK/4th Northwest corner	Platooned	657	2.4	2	100	B	15	4.2	57	C
MLK east side from 4th to 5th (south)	Platooned	1082	3.6	5	56	C	29	1.8	10	F
MLK east side from 4th to 5th (middle)	Platooned	1082	3.5	5	100	B	34	5.1	82	C
MLK east side from 4th to 5th (north)	Platooned	1096	3.3	6	100	B	44	3.9	49	C
MLK west side from 4th to 5th (south)	Platooned	648	3.9	3	143	B	20	4.7	69	C
MLK west side from 4th to 5th (middle)	Platooned	647	3.9	3	333	B	23	4.4	61	C
MLK west side from 4th to 5th (north)	Platooned	655	3.7	3	125	B	30	4.1	53	C
MLK/5th Southeast corner	Platooned	1102	3.2	2	100	B	27	3.6	40	D
MLK/5th Northeast corner	Platooned	1193	1.4	11	59	C	50	2.1	14	E
MLK/5th Northwest corner	Platooned	687	1.9	5	100	B	26	4.4	60	C
MLK east side from 5th to 6th (south)	Platooned	1103	3.9	3	100	B	12	4.0	51	C
MLK east side from 5th to 6th (middle)	Platooned	1108	3.9	6	100	B	25	2.8	24	D
MLK east side from 5th to 6th (north)	Platooned	1111	3.7	5	100	B	25	2.4	19	E
MLK west side from 5th to 6th (south)	Platooned	661	4.1	2	100	B	11	4.6	66	C
MLK west side from 5th to 6th (middle)	Platooned	664	4.0	3	100	B	17	4.5	64	C
MLK west side from 5th to 6th (north)	Platooned	666	3.9	3	100	B	18	4.9	75	C
MLK/6th Southeast corner	Platooned	1115	3.5	1	100	B	11	4.6	67	C
MLK/6th Northwest corner	Platooned	667	2.9	2	250	B	18	4.0	50	C
MLK west side from 6th to 7th (north)	Platooned	675	3.8	5	100	B	30	4.9	76	C
MLK/7th Southeast corner	Platooned	1128	3.2	2	100	B	15	4.9	75	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **6-7 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
MLK/7th Northeast corner	Platooned	1182	1.2	6	50	C	23	2.0	13	E
MLK/7th Northwest corner	Platooned	690	1.0	4	50	C	21	3.5	39	D
MLK west side from 7th to 8th (south)	Platooned	681	3.9	2	100	B	13	5.3	88	C
MLK west side from 7th to 8th (middle)	Platooned	686	3.8	2	100	B	14	5.3	88	C
MLK west side from 7th to 8th (north)	Platooned	687	3.6	3	100	B	17	4.8	72	C
MLK/8th Southeast corner	Platooned	1142	3.4	2	100	B	15	4.7	68	C
MLK/8th Southwest corner	Platooned	687	3.4	1	100	B	11	3.9	48	C
MLK/8th Northeast corner	Platooned	1172	1.0	8	48	C	26	2.2	15	E
MLK/8th Northwest corner	Platooned	711	1.0	4	50	C	17	2.0	13	E
Clay/Embarcadero Southeast corner	Platooned	1491	3.5	3	100	B	22	4.6	66	C
Clay/Embarcadero Northeast corner	Platooned	1741	2.0	7	100	B	48	2.2	15	E
Clay/Embarcadero Northwest corner	Platooned	523	1.3	2	100	B	11	4.6	67	C
Clay west side from Embarcadero to 2nd (north)	Platooned	477	4.1	2	100	B	13	5.2	86	C
Clay/2nd Northeast corner	Platooned	918	1.2	5	100	B	14	3.2	32	D
Washington/Embarcadero corner	Platooned	1158	2.1	3	100	B	19	5.1	81	C
Washington/2nd Northeast corner	Platooned	2232	1.3	12	50	C	31	2.5	20	E
Washington/2nd Northwest corner	Platooned	1562	2.0	4	100	B	24	4.6	67	C
Washington/3rd Southeast corner	Platooned	1465	3.5	2	100	B	17	5.3	89	C
Washington/3rd Southwest corner	Platooned	1458	3.7	3	100	B	18	5.3	88	C
Washington/3rd Northwest corner	Platooned	1260	1.3	5	100	B	28	2.4	19	E
Washington west side from 3rd to 4th (north)	Platooned	1050	3.6	5	100	B	33	5.0	80	C
Washington/4th Southeast corner	Platooned	1825	3.6	4	100	B	23	5.2	86	C
Washington/4th Northwest corner	Platooned	1097	1.1	8	50	C	26	2.2	15	E
Washington east side from 4th to 5th (south)	Platooned	1753	3.5	8	100	B	38	5.1	83	C
Washington east side from 4th to 5th (north)	Platooned	1737	3.4	9	100	B	54	4.7	68	C
Washington west side from 4th to 5th (north)	Platooned	1004	3.5	5	100	B	33	5.0	80	C
Washington/5th Southeast corner	Platooned	1749	3.3	4	200	B	33	4.5	64	C
Broadway west side from Embarcadero to 2nd (south)	Platooned	1480	3.7	6	100	B	31	5.3	89	C
Broadway west side from 2nd to 3rd (south)	Platooned	1742	3.8	7	100	B	28	3.7	42	C
Broadway west side from 2nd to 3rd (middle)	Platooned	1747	3.7	7	100	B	30	3.4	37	D
Broadway west side from 2nd to 3rd (north)	Platooned	1754	3.7	7	100	B	36	3.2	33	D
Broadway/3rd Southwest corner	Platooned	1932	3.6	6	100	B	41	4.8	74	C
Broadway west side from 3rd to 4th (north)	Platooned	2052	3.7	9	100	B	53	5.0	77	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Pedestrian Peak Interval Operations Summary **6-7 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Broadway/4th Southwest corner	Platooned	2064	3.5	5	250	B	37	5.1	83	C
Broadway/4th Northwest corner	Platooned	2363	2.1	11	100	B	60	5.2	83	C
Broadway west side from 4th to 5th (south)	Platooned	2270	3.7	8	100	B	40	3.3	34	D
Broadway west side from 4th to 5th (middle)	Platooned	2289	3.6	9	100	B	48	3.2	32	D
Broadway west side from 4th to 5th (north)	Platooned	2290	3.4	10	100	B	59	2.9	27	D
Broadway/5th Southwest corner	Platooned	2278	2.9	9	100	B	54	3.5	38	D
Broadway west side from 5th to 6th (south)	Platooned	2295	3.7	11	100	B	52	3.4	36	D
Broadway west side from 5th to 6th (middle)	Platooned	2300	3.7	12	100	B	52	3.6	40	C
Broadway west side from 5th to 6th (north)	Platooned	2322	3.7	9	100	B	49	3.1	31	D
3rd/Adeline Southwest corner	Platooned	978	1.4	2	50	C	10	2.5	19	E

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **7-8 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	989	4	10	100	B	33	5.1	82	C
Market east side from Embarcadero to 3rd (north)	Platooned	961	4	10	100	B	36	4.9	74	C
MLK east side from Embarcadero to 2nd (south)	Platooned	1653	3	18	100	B	88	2.9	27	D
MLK east side from Embarcadero to 2nd (north)	Platooned	1576	4	8	100	B	41	2.9	26	D
MLK/2nd Northeast corner	Platooned	1322	2	5	100	B	27	3.8	46	C
MLK east side from 2rd to 3th (north)	Platooned	1237	4	6	100	B	35	2.1	14	E
MLK/3rd Northeast corner	Platooned	846	1	4	100	B	31	2.0	13	E
MLK east side from 3rd to 4th (south)	Platooned	688	4	3	100	B	17	3.1	31	D
MLK east side from 3rd to 4th (north)	Platooned	684	4	3	100	B	24	5.3	89	C
MLK/4th Northwest corner	Platooned	377	2	1	250	B	14	4.4	60	C
MLK east side from 4th to 5th (south)	Platooned	614	4	3	100	B	22	2.1	13	E
MLK east side from 4th to 5th (north)	Platooned	611	4	3	100	B	34	4.5	63	C
MLK/5th Northeast corner	Platooned	629	2	5	100	B	35	2.5	20	E
MLK/5th Northwest corner	Platooned	355	2	2	100	B	19	5.1	81	C
MLK east side from 5th to 6th (south)	Platooned	582	4	2	100	B	10	4.5	64	C
MLK east side from 5th to 6th (middle)	Platooned	580	4	3	100	B	19	3.2	32	D
MLK east side from 5th to 6th (north)	Platooned	571	4	2	100	B	18	2.9	27	D
MLK west side from 5th to 6th (south)	Platooned	351	4	1	100	B	9	4.9	75	C
MLK west side from 5th to 6th (middle)	Platooned	349	4	2	100	B	14	4.9	76	C
MLK/7th Northeast corner	Platooned	543	2	2	100	B	20	2.2	15	E
MLK/7th Northwest corner	Platooned	317	1	1	100	B	14	4.3	57	C
MLK/8th Northeast corner	Platooned	500	1	3	100	B	17	2.7	23	D
MLK/8th Northwest corner	Platooned	288	1	1	100	B	10	2.6	21	E
Clay/Embarcadero Northeast corner	Platooned	1001	1	7	100	B	69	1.8	11	F
Clay/Embarcadero Northwest corner	Platooned	410	1	2	100	B	17	3.8	44	C
Clay/2nd Northeast corner	Platooned	492	1	4	100	B	13	3.3	35	D
Washington/Embarcadero corner	Platooned	757	1	3	100	B	34	3.8	46	C
Washington/2nd Northeast corner	Platooned	1216	2	5	100	B	27	2.7	22	E
Washington/3rd Northwest corner	Platooned	673	1	2	100	B	20	2.9	26	D
Washington east side from 3rd to 4th (north)	Platooned	893	4	4	111	B	37	5.3	88	C
Washington/4th Northwest corner	Platooned	541	2	2	111	B	21	2.4	19	E
Broadway/Embarcadero Northwest corner	Platooned	981	2	5	143	B	59	4.8	72	C
Broadway west side from 2nd to 3rd (south)	Platooned	1049	4	4	100	B	23	4.0	51	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Pedestrian Peak Interval Operations Summary **7-8 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Market east side from Embarcadero to 3rd (south)	Platooned	989	4	10	100	B	33	5.1	82	C
Market east side from Embarcadero to 3rd (north)	Platooned	961	4	10	100	B	36	4.9	74	C
MLK east side from Embarcadero to 2nd (south)	Platooned	1653	3	18	100	B	88	2.9	27	D
MLK east side from Embarcadero to 2nd (north)	Platooned	1576	4	8	100	B	41	2.9	26	D
MLK/2nd Northeast corner	Platooned	1322	2	5	100	B	27	3.8	46	C
MLK east side from 2rd to 3th (north)	Platooned	1237	4	6	100	B	35	2.1	14	E
MLK/3rd Northeast corner	Platooned	846	1	4	100	B	31	2.0	13	E
MLK east side from 3rd to 4th (south)	Platooned	688	4	3	100	B	17	3.1	31	D
MLK east side from 3rd to 4th (north)	Platooned	684	4	3	100	B	24	5.3	89	C
MLK/4th Northwest corner	Platooned	377	2	1	250	B	14	4.4	60	C
MLK east side from 4th to 5th (south)	Platooned	614	4	3	100	B	22	2.1	13	E
MLK east side from 4th to 5th (north)	Platooned	611	4	3	100	B	34	4.5	63	C
MLK/5th Northeast corner	Platooned	629	2	5	100	B	35	2.5	20	E
MLK/5th Northwest corner	Platooned	355	2	2	100	B	19	5.1	81	C
MLK east side from 5th to 6th (south)	Platooned	582	4	2	100	B	10	4.5	64	C
MLK east side from 5th to 6th (middle)	Platooned	580	4	3	100	B	19	3.2	32	D
MLK east side from 5th to 6th (north)	Platooned	571	4	2	100	B	18	2.9	27	D
MLK west side from 5th to 6th (south)	Platooned	351	4	1	100	B	9	4.9	75	C
MLK west side from 5th to 6th (middle)	Platooned	349	4	2	100	B	14	4.9	76	C
MLK/7th Northeast corner	Platooned	543	2	2	100	B	20	2.2	15	E
MLK/7th Northwest corner	Platooned	317	1	1	100	B	14	4.3	57	C
MLK/8th Northeast corner	Platooned	500	1	3	100	B	17	2.7	23	D
MLK/8th Northwest corner	Platooned	288	1	1	100	B	10	2.6	21	E
Clay/Embarcadero Northeast corner	Platooned	1001	1	7	100	B	69	1.8	11	F
Clay/Embarcadero Northwest corner	Platooned	410	1	2	100	B	17	3.8	44	C
Clay/2nd Northeast corner	Platooned	492	1	4	100	B	13	3.3	35	D
Washington/Embarcadero corner	Platooned	757	1	3	100	B	34	3.8	46	C
Washington/2nd Northeast corner	Platooned	1216	2	5	100	B	27	2.7	22	E
Washington/3rd Northwest corner	Platooned	673	1	2	100	B	20	2.9	26	D
Washington east side from 3rd to 4th (north)	Platooned	893	4	4	111	B	37	5.3	88	C
Washington/4th Northwest corner	Platooned	541	2	2	111	B	21	2.4	19	E
Broadway/Embarcadero Northwest corner	Platooned	981	2	5	143	B	59	4.8	72	C
Broadway west side from 2nd to 3rd (south)	Platooned	1049	4	4	100	B	23	4.0	51	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Pedestrian Peak Interval Operations Summary **7-8 PM**

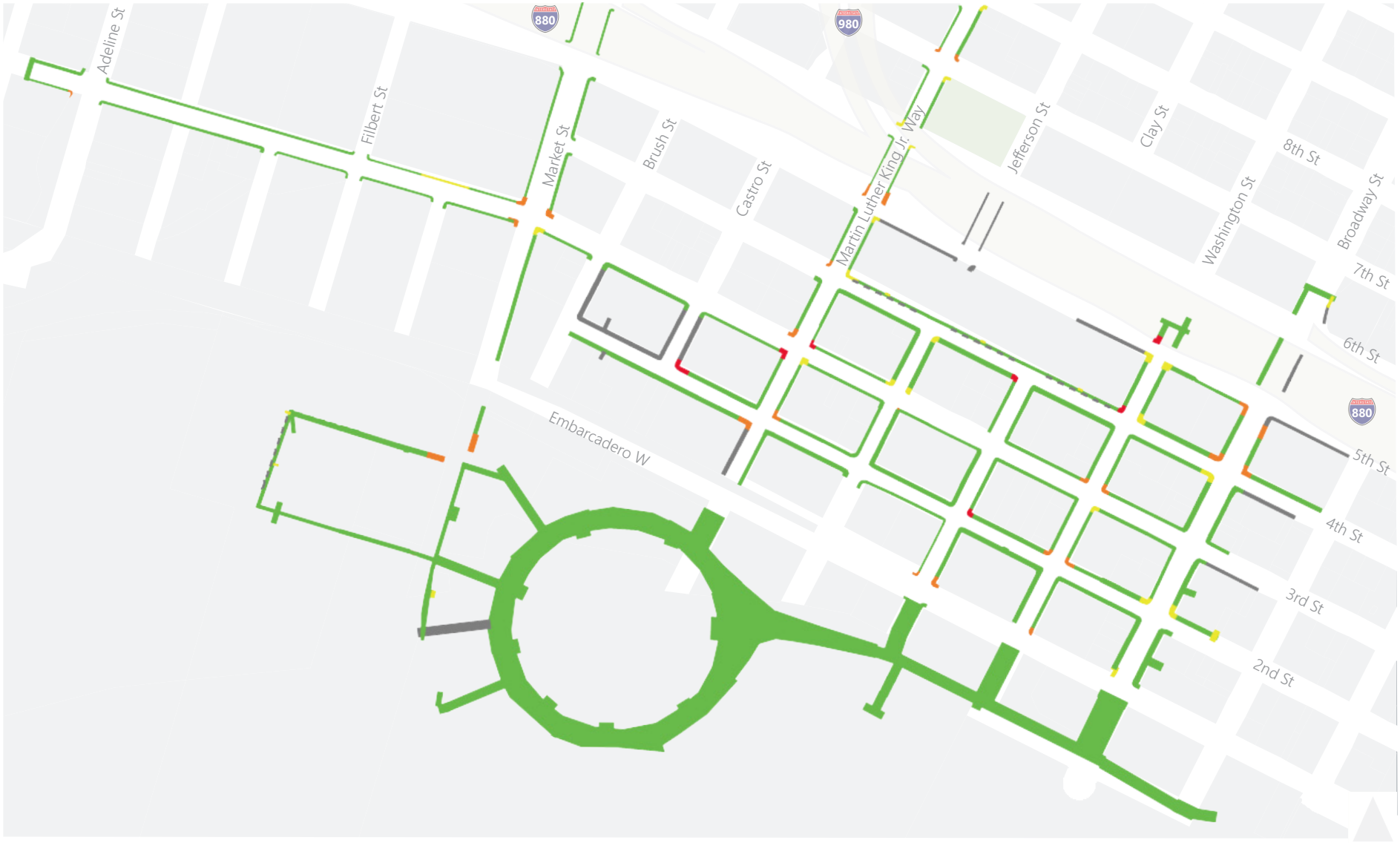
Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Broadway west side from 2nd to 3rd (middle)	Platooned	1044	4	4	100	B	23	3.9	49	C
Broadway west side from 2nd to 3rd (north)	Platooned	1043	4	4	100	B	26	3.8	44	C
Broadway west side from 4th to 5th (south)	Platooned	1240	4	4	100	B	32	3.7	42	C
Broadway west side from 4th to 5th (middle)	Platooned	1219	4	5	100	B	39	3.5	39	D
Broadway west side from 4th to 5th (north)	Platooned	1196	4	5	100	B	41	3.5	38	D
Broadway/5th Southwest corner	Platooned	1195	3	4	100	B	37	4.2	56	C
Broadway west side from 5th to 6th (south)	Platooned	1162	4	5	100	B	34	4.2	56	C
Broadway west side from 5th to 6th (middle)	Platooned	1162	4	6	167	B	37	4.3	57	C
Broadway west side from 5th to 6th (north)	Platooned	1161	4	4	200	B	36	3.6	42	C
3rd/Adeline Southwest corner	Platooned	427	2	1	100	B	6	3.1	31	D

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

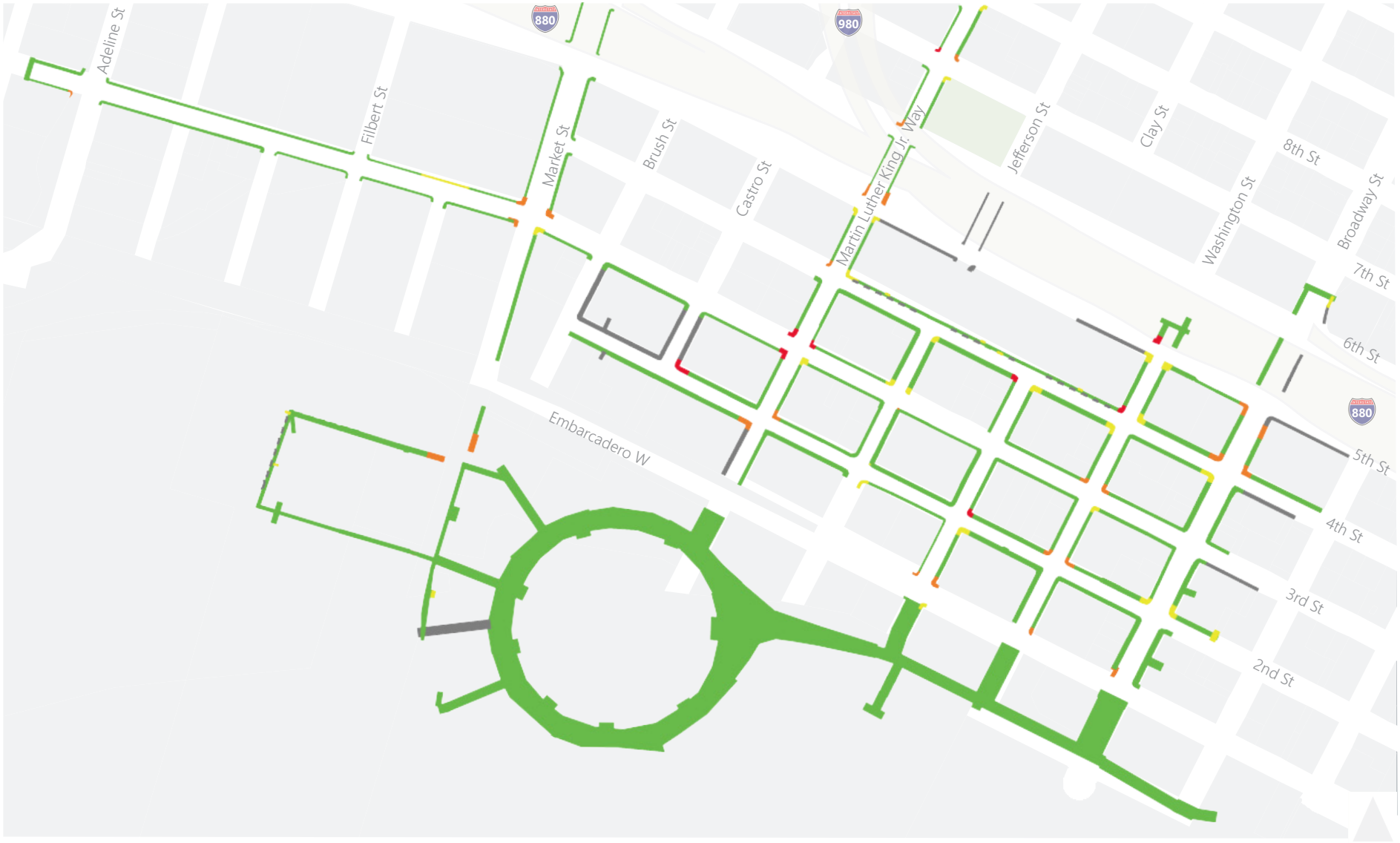
Pedestrian Peak Interval Operations Summary **7-8 PM**

Area	Facility	Flow (Ped/hour)	Speed (ft/s)	Average Peds	Average Space (ft2/ped)	LOS	Maximum Peds	Radius (ft)	Maximum Space (ft2/ped)	LOS
Broadway west side from 2nd to 3rd (middle)	Platooned	1044	4	4	100	B	23	3.9	49	C
Broadway west side from 2nd to 3rd (north)	Platooned	1043	4	4	100	B	26	3.8	44	C
Broadway west side from 4th to 5th (south)	Platooned	1240	4	4	100	B	32	3.7	42	C
Broadway west side from 4th to 5th (middle)	Platooned	1219	4	5	100	B	39	3.5	39	D
Broadway west side from 4th to 5th (north)	Platooned	1196	4	5	100	B	41	3.5	38	D
Broadway/5th Southwest corner	Platooned	1195	3	4	100	B	37	4.2	56	C
Broadway west side from 5th to 6th (south)	Platooned	1162	4	5	100	B	34	4.2	56	C
Broadway west side from 5th to 6th (middle)	Platooned	1162	4	6	167	B	37	4.3	57	C
Broadway west side from 5th to 6th (north)	Platooned	1161	4	4	200	B	36	3.6	42	C
3rd/Adeline Southwest corner	Platooned	427	2	1	100	B	6	3.1	31	D



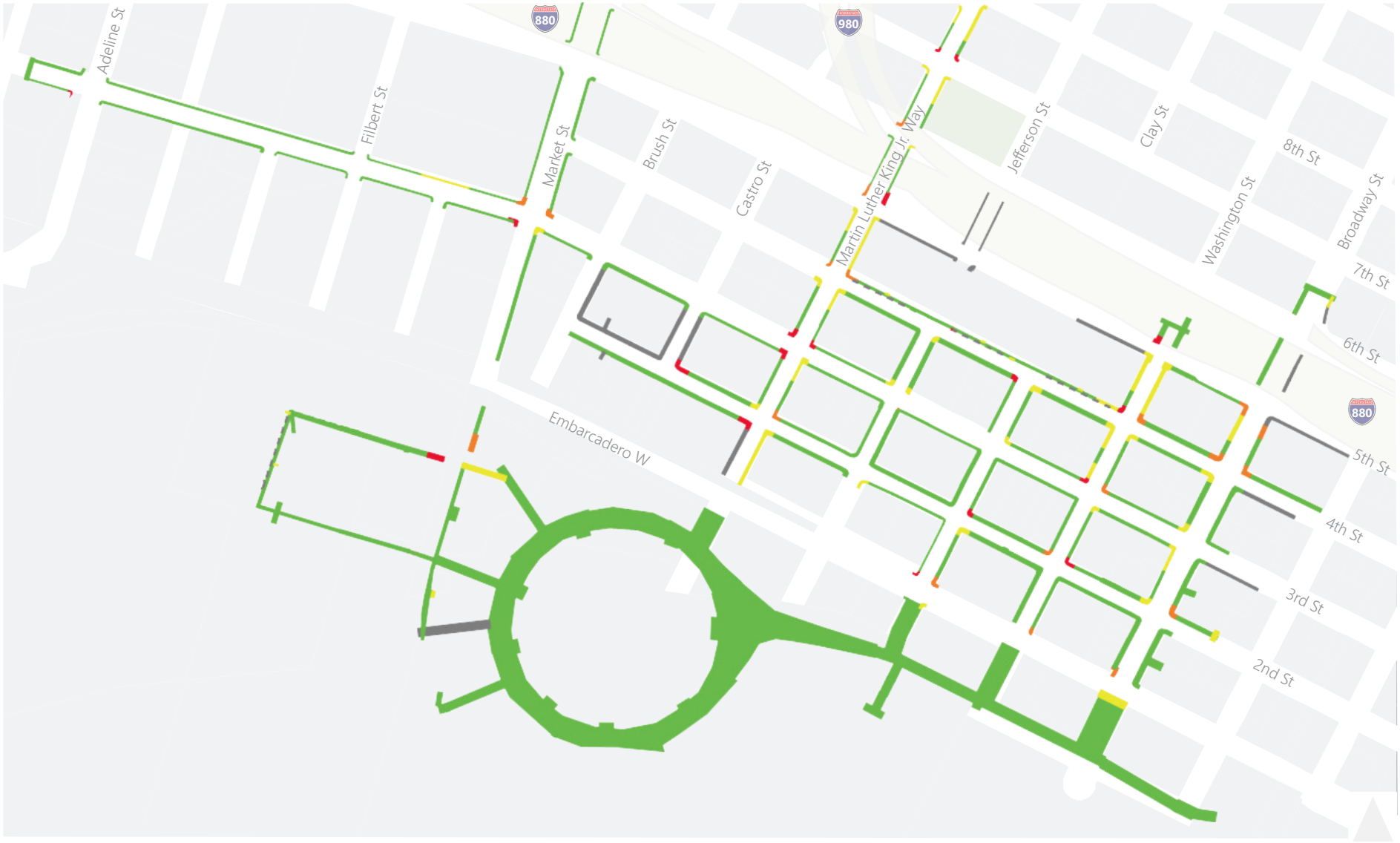
Full Build Out, Evening Ballgame - Average Pedestrian Speeds
4PM - 5PM

Figure J-1



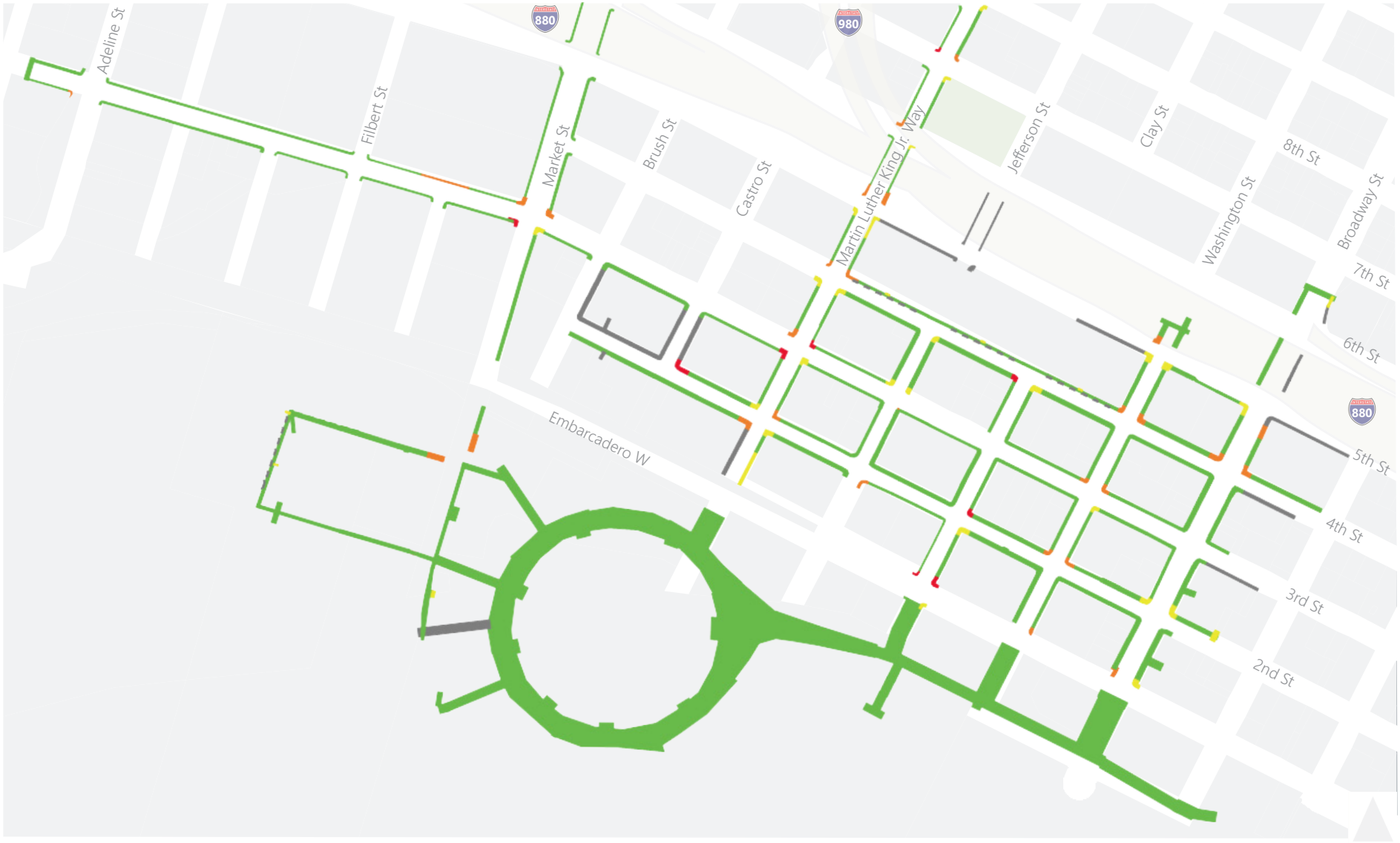
Full Build Out, Evening Ballgame - Average Pedestrian Speeds
5PM - 6PM

Figure J-2

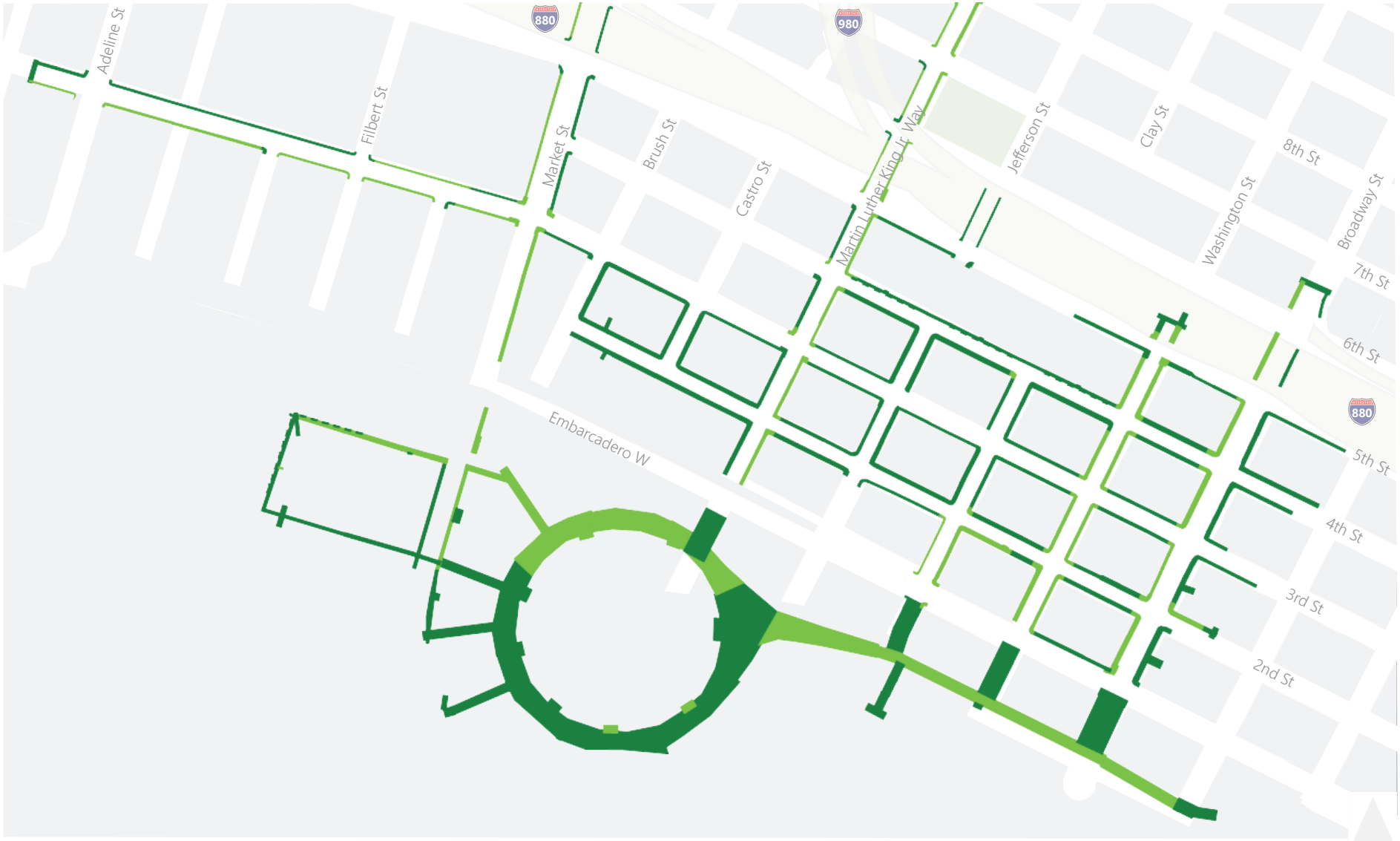


Full Build Out, Evening Ballgame - Average Pedestrian Speeds
6PM - 7PM

Figure J-3

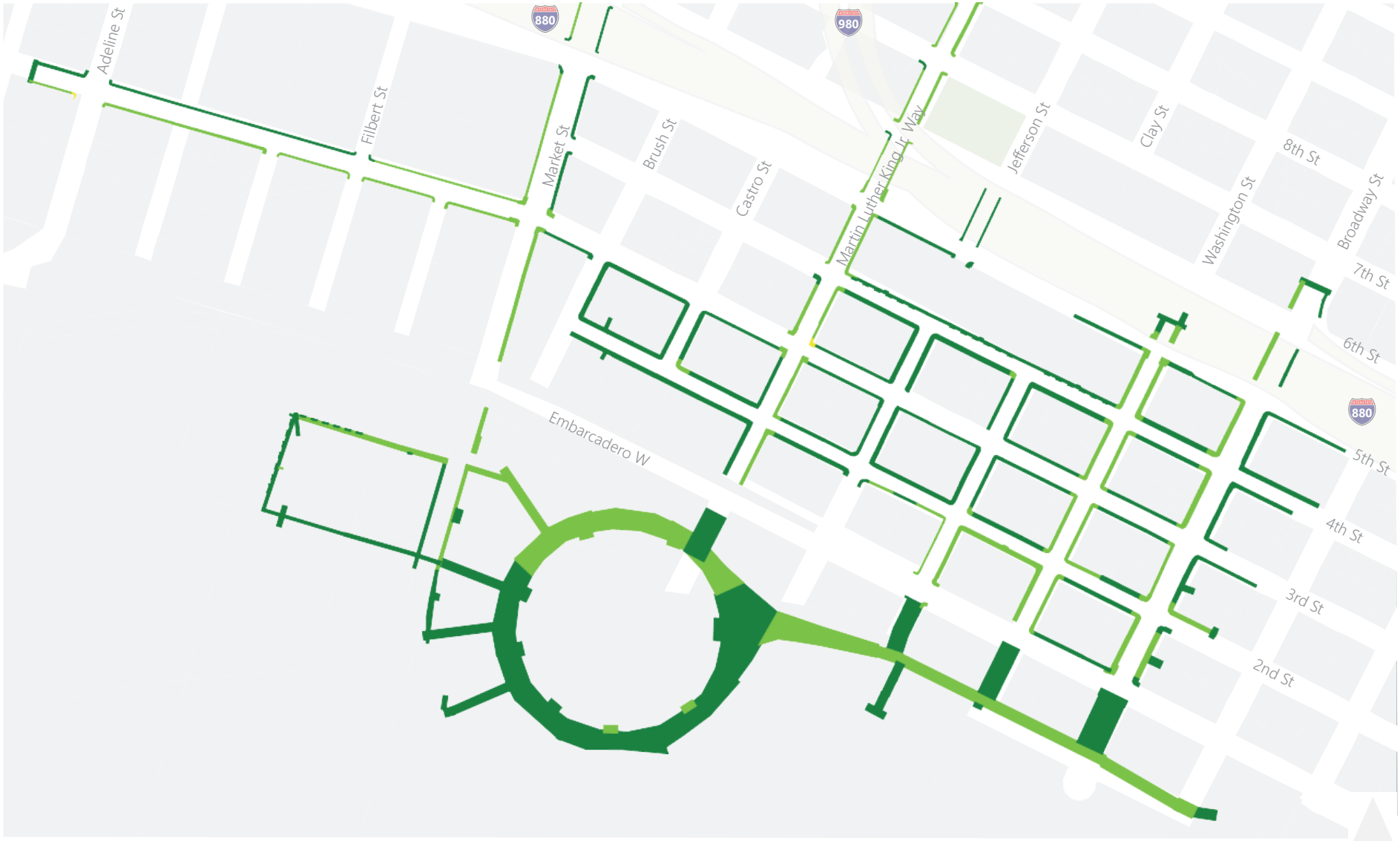


Full Build Out, Evening Ballgame - Average Pedestrian Speeds
7PM - 8PM



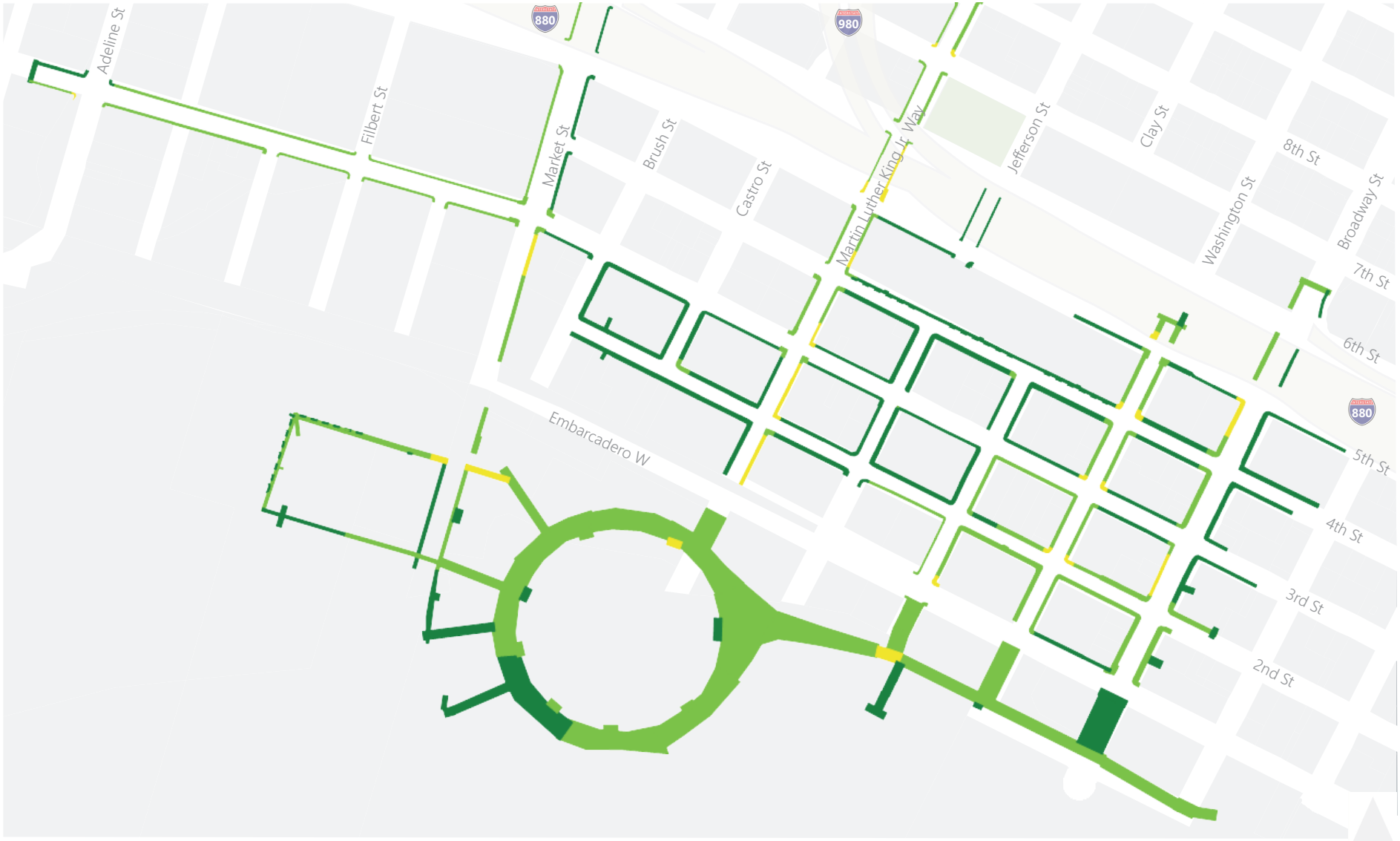
Full Build Out, Evening Ballgame - Average Pedestrian Density
4PM - 5PM

Figure J-5



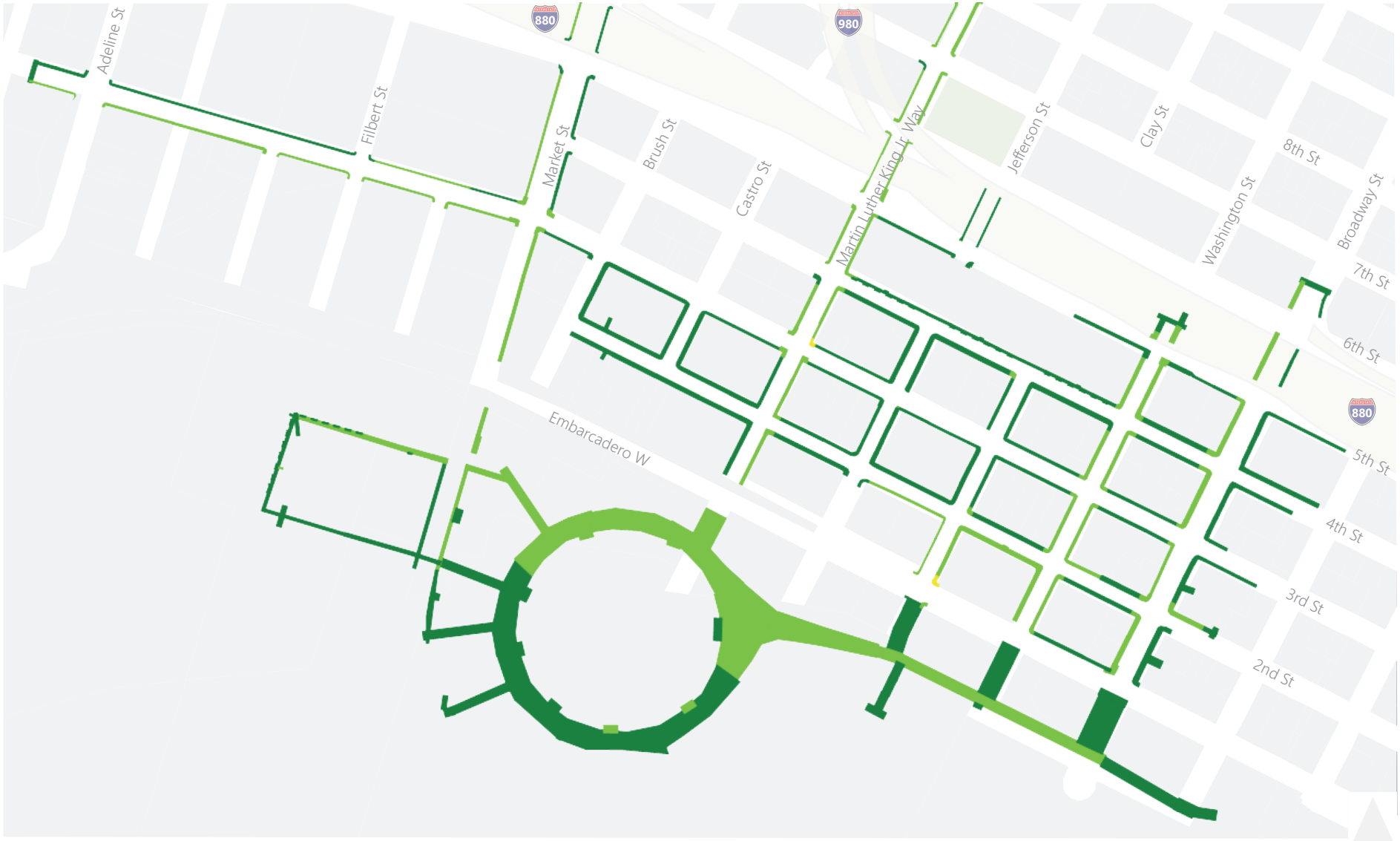
Full Build Out, Evening Ballgame - Average Pedestrian Density
5PM - 6PM

Figure J-6



Full Build Out, Evening Ballgame - Average Pedestrian Density
6PM - 7PM

Figure J-7



Full Build Out, Evening Ballgame - Average Pedestrian Density
7PM - 8PM

Figure J-8

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **3 PM to 4 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	37	36	98.1%	37.1	3.9	D
	Through	264	261	99.0%	13.1	1.6	B
	Right Turn	682	680	99.6%	7.3	0.5	A
	Subtotal	983	977	99.4%	9.9	0.6	A
SB	Left Turn						
	Through	52	49	93.7%	17.2	2.6	B
	Right Turn	14	13	95.0%	10.1	2.9	B
	Subtotal	66	62	93.9%	15.7	2.1	B
EB	Left Turn	38	39	101.8%	36.3	4.2	D
	Through	94	86	91.0%	32.8	3.2	C
	Right Turn	57	56	97.4%	0.9	0.3	A
	Subtotal	189	180	95.1%	23.7	2.2	C
WB	Left Turn	250	241	96.4%	35.2	3.8	D
	Through	75	73	96.9%	31.0	4.1	C
	Right Turn	19	17	88.4%	13.3	2.8	B
	Subtotal	344	330	96.0%	33.2	3.2	C
Total		1,582	1,549	97.9%	16.7	0.8	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	18	17	96.1%	25.7	4.0	C
	Through	193	185	96.0%	24.1	0.7	C
	Right Turn	53	56	105.1%	15.7	1.5	B
	Subtotal	264	258	97.8%	22.4	0.6	C
SB	Left Turn	53	50	93.6%	31.2	3.7	C
	Through	165	157	95.3%	20.1	2.6	C
	Right Turn	22	22	99.1%	5.1	0.8	A
	Subtotal	240	229	95.3%	21.0	2.0	C
EB	Left Turn	23	23	97.8%	11.3	4.6	B
	Through	66	76	114.7%	10.2	2.4	B
	Right Turn	9	10	105.6%	4.3	2.9	A
	Subtotal	98	108	109.9%	10.0	2.3	A
WB	Left Turn	42	37	86.9%	13.5	2.6	B
	Through	63	69	109.2%	12.2	2.0	B
	Right Turn	53	48	91.1%	8.4	1.3	A
	Subtotal	158	154	97.2%	11.4	0.9	B
Total		760	748	98.4%	17.9	0.9	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	63	57	90.6%	32.2	2.5	C
	Through	54	53	97.6%	27.5	2.1	C
	Right Turn	154	148	96.1%	16.9	1.3	B
	Subtotal	271	258	95.1%	22.4	1.1	C
SB	Left Turn	74	75	101.2%	40.3	1.7	D
	Through	44	42	94.5%	30.7	3.6	C
	Right Turn	13	13	99.2%	5.5	0.8	A
	Subtotal	131	129	98.8%	33.7	1.5	C
EB	Left Turn						
	Through	687	679	98.9%	16.3	1.3	B
	Right Turn	89	85	95.1%	3.3	0.3	A
	Subtotal	776	764	98.5%	14.9	1.1	B
WB	Left Turn	110	110	100.2%	68.2	17.5	E
	Through	268	263	97.9%	8.4	1.5	A
	Right Turn	34	34	100.6%	5.6	1.4	A
	Subtotal	412	407	98.8%	24.5	5.1	C
Total		1,590	1,558	98.0%	20.2	1.7	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	707	705	99.7%	13.7	1.4	B
	Right Turn						
	Subtotal	707	705	99.7%	13.7	1.4	B
SB	Left Turn						
	Through	487	484	99.3%	7.8	0.8	A
	Right Turn	51	52	101.0%	6.1	1.1	A
	Subtotal	538	535	99.5%	7.6	0.8	A
EB	Left Turn						
	Through	216	223	103.3%	19.9	1.1	B
	Right Turn	30	29	96.3%	15.3	4.0	B
	Subtotal	246	252	102.4%	19.4	1.2	B
WB	Left Turn						
	Through	131	124	94.7%	19.9	1.3	B
	Right Turn						
	Subtotal	131	124	94.7%	19.9	1.3	B
Total		1,622	1,616	99.7%	13.0	0.7	B

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **3 PM to 4 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	681	682	100.2%	3.6	1.1	A
	Right Turn	26	23	89.2%	1.8	1.3	A
	Subtotal	707	705	99.8%	3.5	1.1	A
SB	Left Turn						
	Through	511	511	99.9%	0.4	0.1	A
	Right Turn						
	Subtotal	511	511	99.9%	0.4	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	27	24	88.1%	13.0	2.1	B
	Through						
	Right Turn	46	45	97.2%	16.5	3.8	C
	Subtotal	73	69	93.8%	15.2	2.7	C
Total		1,291	1,285	99.5%	2.9	0.7	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	537	534	99.4%	28.5	1.8	C
	Right Turn	190	193	101.4%	20.5	1.8	C
	Subtotal	727	726	99.9%	26.4	1.6	C
SB	Left Turn	85	85	99.8%	33.9	2.2	C
	Through	427	426	99.8%	3.6	0.4	A
	Right Turn						
	Subtotal	512	511	99.8%	8.6	0.6	A
EB	Left Turn	22	23	106.4%	39.6	5.7	D
	Through	618	608	98.4%	35.6	2.2	D
	Right Turn	84	84	100.2%	25.3	3.5	C
	Subtotal	724	716	98.8%	34.5	2.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,963	1,953	99.5%	24.7	0.8	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	169	166	98.5%	48.8	1.9	D
	Through	390	392	100.4%	2.0	0.3	A
	Right Turn						
	Subtotal	559	558	99.8%	15.9	0.8	B
SB	Left Turn						
	Through	390	387	99.2%	8.3	0.5	A
	Right Turn	21	21	101.0%	3.6	0.7	A
	Subtotal	411	408	99.3%	8.0	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	122	124	101.3%	37.4	1.7	D
	Through	222	218	98.3%	36.0	1.6	D
	Right Turn	226	221	97.9%	7.9	0.5	A
	Subtotal	570	563	98.8%	25.3	0.9	C
Total		1,540	1,529	99.3%	17.3	0.5	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	102	95	93.4%	14.3	1.8	B
	Through	301	300	99.8%	10.2	0.8	B
	Right Turn	213	217	101.9%	4.8	0.5	A
	Subtotal	616	613	99.5%	8.9	0.5	A
SB	Left Turn	59	58	99.0%	20.8	3.5	C
	Through	162	158	97.3%	12.6	0.9	B
	Right Turn	35	34	96.0%	3.1	0.4	A
	Subtotal	256	250	97.5%	13.2	1.3	B
EB	Left Turn	78	76	97.1%	42.0	3.0	D
	Through	598	596	99.6%	34.3	1.0	C
	Right Turn	57	57	99.5%	26.5	2.5	C
	Subtotal	733	728	99.3%	34.5	1.2	C
WB	Left Turn	192	195	101.4%	31.3	2.0	C
	Through	291	289	99.3%	25.5	1.5	C
	Right Turn	23	23	100.4%	15.3	4.9	B
	Subtotal	506	507	100.1%	27.3	1.0	C
Total		2,111	2,097	99.3%	22.8	0.6	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	33	33	100.9%	4.4	0.2	A
	Subtotal	33	33	100.9%	4.4	0.2	A
SB	Left Turn	394	381	96.7%	42.5	2.7	D
	Through	122	133	108.9%	42.6	3.4	D
	Right Turn						
	Subtotal	516	514	99.6%	42.5	2.2	D
EB	Left Turn						
	Through	843	834	98.9%	1.9	0.3	A
	Right Turn	50	52	103.0%	1.6	0.7	A
	Subtotal	893	885	99.1%	1.9	0.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,442	1,433	99.3%	16.5	0.8	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	493	495	100.3%	3.0	1.0	A
	Right Turn	10	9	87.0%	1.1	0.5	A
	Subtotal	503	503	100.0%	3.0	1.0	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	23	20	87.4%	26.3	5.0	C
	Through	35	34	96.0%	28.3	6.0	C
	Right Turn						
	Subtotal	58	54	92.6%	27.5	4.4	C
Total		561	557	99.3%	5.4	1.0	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	336	327	97.3%	26.6	1.6	C
	Through	483	473	98.0%	21.6	1.3	C
	Right Turn	315	323	102.6%	12.0	1.3	B
	Subtotal	1,134	1,123	99.1%	20.3	1.2	C
EB	Left Turn						
	Through	855	854	99.9%	8.0	0.7	A
	Right Turn	15	15	100.0%	3.7	2.4	A
	Subtotal	870	869	99.9%	8.0	0.7	A
WB	Left Turn	5	15	308.0%	16.6	5.5	B
	Through	191	182	95.4%	8.0	1.7	A
	Right Turn						
	Subtotal	196	198	100.9%	8.7	1.7	A
Total		2,200	2,190	99.6%	14.4	0.5	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	153	158	103.0%	34.3	2.0	C
	Right Turn	99	100	101.3%	22.5	1.8	C
	Subtotal	252	258	102.3%	29.7	1.9	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	120	113	93.9%	7.4	1.5	A
	Through	1,128	1,115	98.9%	7.6	0.7	A
	Right Turn	22	22	98.6%	5.1	1.6	A
	Subtotal	1,270	1,250	98.4%	7.6	0.7	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,522	1,508	99.0%	11.3	0.7	B

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	12	106.4%	33.3	7.3	C
	Through	355	341	96.2%	30.7	1.7	C
	Right Turn	19	27	142.1%	20.9	4.4	C
	Subtotal	385	380	98.7%	30.1	1.6	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	376	369	98.1%	41.6	2.1	D
	Through	815	811	99.5%	8.0	0.8	A
	Right Turn						
	Subtotal	1,191	1,180	99.1%	18.5	0.5	B
WB	Left Turn						
	Through	185	187	100.9%	7.0	0.8	A
	Right Turn	7	7	102.9%	3.2	1.9	A
	Subtotal	192	194	101.0%	6.8	0.8	A
Total		1,768	1,754	99.2%	19.7	0.5	B

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	235	231	98.4%	1.0	0.2	A
	Right Turn						
	Subtotal	235	231	98.4%	1.0	0.2	A
SB	Left Turn						
	Through	202	192	95.0%	0.7	0.2	A
	Right Turn						
	Subtotal	202	192	95.0%	0.7	0.2	A
EB	Left Turn						
	Through	33	31	93.6%	38.8	1.8	D
	Right Turn						
	Subtotal	33	31	93.6%	38.8	1.8	D
WB	Left Turn						
	Through	39	38	97.7%	33.6	2.8	C
	Right Turn	25	26	104.0%	11.4	4.4	B
	Subtotal	64	64	100.2%	24.6	3.1	C
Total		534	518	97.0%	6.1	0.6	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	260	257	98.7%	2.1	0.5	A
	Subtotal	260	257	98.7%	2.1	0.5	A
SB	Left Turn Through Right Turn	202	191	94.6%	5.7	0.8	A
	Subtotal	202	191	94.6%	5.7	0.8	A
EB	Left Turn Through Right Turn	110	107	97.1%	15.4	3.1	B
	Subtotal	110	107	97.1%	15.4	3.1	B
WB	Left Turn						
	Through	106	95	89.6%	23.6	2.2	C
	Right Turn	33	34	103.3%	13.1	3.6	B
	Subtotal	139	129	92.9%	20.8	2.1	C
Total		711	684	96.1%	8.7	0.8	A

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	293	291	99.2%	3.7	0.7	A
	Subtotal	293	291	99.2%	3.7	0.7	A
SB	Left Turn Through Right Turn	202	192	95.0%	2.4	0.5	A
	Subtotal	202	192	95.0%	2.4	0.5	A
EB	Left Turn Through Right Turn	37	34	91.4%	37.5	3.5	D
	Subtotal	37	34	91.4%	37.5	3.5	D
WB	Left Turn Through Right Turn	71	66	92.5%	38.9	1.7	D
	Subtotal	71	66	92.5%	38.9	1.7	D
Total		603	582	96.5%	9.2	0.5	A

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	248	246	99.3%	21.1	1.7	C
	Right Turn	45	44	97.3%	5.8	0.8	A
	Subtotal	293	290	99.0%	18.8	1.3	B
SB	Left Turn	36	34	95.3%	35.4	5.8	D
	Through	156	150	96.2%	10.8	1.0	B
	Right Turn						
	Subtotal	192	184	96.0%	15.4	1.8	B
EB	Left Turn	56	55	98.4%	23.6	4.0	C
	Through	1,125	1,119	99.4%	23.4	2.2	C
	Right Turn	46	42	91.1%	16.2	3.6	B
	Subtotal	1,227	1,216	99.1%	23.2	2.3	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,712	1,690	98.7%	21.6	1.6	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	6	77.5%	12.9	2.5	B
	Through						
	Right Turn	6	3	45.0%	7.9	0.8	A
	Subtotal	14	9	63.6%	11.4	2.0	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	31	27	85.8%	2.7	0.8	A
	Right Turn	6	7	120.0%	2.8	0.6	A
	Subtotal	37	34	91.4%	2.7	0.7	A
WB	Left Turn	7	7	94.3%	7.9	4.2	A
	Through	63	60	95.4%	7.9	1.1	A
	Right Turn						
	Subtotal	70	67	95.3%	7.9	1.1	A
Total		121	109	90.4%	6.6	0.5	A

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	589	589	99.9%	7.4	0.6	A
	Subtotal	589	589	99.9%	7.4	0.6	A
SB	Left Turn Through Right Turn	416	414	99.4%	1.4	0.3	A
	Subtotal	416	414	99.4%	1.4	0.3	A
EB	Left Turn Through Right Turn	209	208	99.7%	36.3	2.7	D
	Subtotal	209	208	99.7%	36.3	2.7	D
WB	Left Turn Through Right Turn	192	183	95.1%	25.9	2.0	C
	Subtotal	192	183	95.1%	25.9	2.0	C
Total		1,406	1,393	99.1%	12.4	0.5	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	14	102.1%	14.6	2.4	B
	Through						
	Right Turn	9	8	92.2%	14.8	5.7	B
	Subtotal	23	23	98.3%	14.8	2.2	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	31	25	79.4%	1.1	0.6	A
	Right Turn	6	5	83.3%	1.1	1.2	A
	Subtotal	37	30	80.0%	1.1	0.6	A
WB	Left Turn	13	12	89.2%	2.0	1.6	A
	Through	56	53	94.1%	2.3	0.9	A
	Right Turn						
	Subtotal	69	64	93.2%	2.2	0.8	A
Total		129	117	90.3%	4.4	1.0	A

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	9	9	101.1%	6.4	3.6	A
	Through	90	88	97.2%	3.5	1.2	A
	Right Turn	12	10	84.2%	2.2	0.7	A
	Subtotal	111	107	96.1%	3.6	1.0	A
SB	Left Turn	15	13	86.0%	6.0	3.2	A
	Through	111	105	94.7%	4.0	0.9	A
	Right Turn	11	12	105.5%	3.4	1.2	A
	Subtotal	137	130	94.6%	4.2	0.8	A
EB	Left Turn	15	14	96.0%	30.3	7.7	C
	Through	22	16	72.7%	33.9	8.0	C
	Right Turn	3	2	63.3%	10.9	9.0	B
	Subtotal	40	32	80.8%	30.8	5.8	C
WB	Left Turn	16	17	103.8%	2.7	0.6	A
	Through	49	44	88.8%	2.8	0.2	A
	Right Turn	23	26	112.2%	7.5	0.5	A
	Subtotal	88	86	97.6%	4.1	0.3	A
Total		376	355	94.3%	6.4	1.1	A

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	194	187	96.4%	45.0	3.1	D
	Right Turn	275	274	99.7%	42.8	4.8	D
	Subtotal	469	461	98.3%	43.7	4.1	D
SB	Left Turn	480	477	99.3%	41.2	2.1	D
	Through	236	232	98.4%	25.1	2.1	C
	Right Turn						
	Subtotal	716	709	99.0%	35.9	1.7	D
EB	Left Turn	798	789	98.9%	37.6	4.2	D
	Through	388	380	97.8%	23.0	3.0	C
	Right Turn	47	58	122.3%	20.0	3.1	C
	Subtotal	1,233	1,226	99.4%	32.3	3.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,418	2,396	99.1%	35.6	1.9	D

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	39	36	92.3%	31.1	3.2	C
	Through	166	162	97.6%	18.3	1.8	B
	Right Turn						
	Subtotal	205	198	96.6%	20.6	2.0	C
SB	Left Turn						
	Through	555	550	99.0%	17.5	4.0	B
	Right Turn	22	21	95.9%	22.6	6.6	C
	Subtotal	577	571	98.9%	17.7	4.0	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	162	160	98.8%	46.8	1.6	D
	Through	119	120	100.8%	36.7	2.7	D
	Right Turn	517	513	99.1%	4.4	0.3	A
	Subtotal	798	793	99.3%	17.8	0.8	B
Total		1,580	1,561	98.8%	18.1	1.4	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	589	589	100.0%	1.4	0.3	A
	Right Turn						
	Subtotal	589	589	100.0%	1.4	0.3	A
SB	Left Turn						
	Through	416	414	99.6%	3.1	0.3	A
	Right Turn	101	100	99.4%	3.0	0.7	A
	Subtotal	517	515	99.5%	3.1	0.2	A
EB	Left Turn	118	115	97.7%	38.3	2.4	D
	Through						
	Right Turn						
	Subtotal	118	115	97.7%	38.3	2.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,224	1,219	99.6%	5.6	0.2	A

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	202	192	95.0%	4.2	0.8	A
	Subtotal	202	192	95.0%	4.2	0.8	A
EB	Left Turn	235	232	98.8%	4.2	0.5	A
	Through						
	Right Turn						
	Subtotal	235	232	98.8%	4.2	0.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		437	424	97.0%	4.2	0.4	A

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	38	38	98.9%	48.3	7.6	D
	Through	266	263	98.8%	1.9	0.3	A
	Right Turn						
	Subtotal	304	300	98.8%	7.7	1.5	A
SB	Left Turn						
	Through	151	144	95.1%	2.8	0.6	A
	Right Turn	12	11	94.2%	2.5	1.5	A
	Subtotal	163	155	95.0%	2.7	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	41	41	100.0%	37.7	3.0	D
	Through	120	115	95.4%	36.8	2.5	D
	Right Turn	19	19	102.1%	23.6	5.9	C
	Subtotal	180	175	97.2%	35.5	1.6	D
Total		647	630	97.4%	14.2	0.6	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	249	249	99.8%	10.1	1.1	B
	Right Turn	36	33	91.9%	3.6	0.5	A
	Subtotal	285	282	98.8%	9.4	1.0	A
SB	Left Turn	55	58	105.8%	42.2	5.4	D
	Through	118	112	94.9%	8.9	1.5	A
	Right Turn						
	Subtotal	173	170	98.4%	20.2	2.1	C
EB	Left Turn	26	36	138.8%	16.1	4.7	B
	Through	763	758	99.4%	17.6	1.6	B
	Right Turn	45	43	94.7%	5.5	1.0	A
	Subtotal	834	837	100.3%	16.9	1.4	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,292	1,289	99.8%	15.7	1.0	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	39	37	95.6%	3.6	1.2	A
	Through	236	248	104.9%	3.0	0.3	A
	Right Turn						
	Subtotal	275	285	103.6%	3.1	0.3	A
SB	Left Turn						
	Through	150	144	95.9%	3.7	0.5	A
	Right Turn	48	60	124.0%	2.5	0.6	A
	Subtotal	198	203	102.7%	3.3	0.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	171	162	94.7%	36.4	1.5	D
	Through	214	215	100.4%	36.5	1.4	D
	Right Turn	25	26	104.8%	26.4	4.6	C
	Subtotal	410	403	98.3%	35.9	0.8	D
Total		883	891	100.9%	18.0	0.4	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,115	1,097	98.4%	2.6	0.2	A
	Right Turn	20	17	85.0%	3.3	1.4	A
	Subtotal	1,135	1,114	98.2%	2.6	0.2	A
NE	Left Turn	64	62	96.9%	40.4	2.9	D
	Through						
	Right Turn	37	36	97.3%	40.9	3.8	D
	Subtotal	101	98	97.0%	40.6	1.7	D
EB	Left Turn	110	109	99.0%	39.0	1.8	D
	Through	388	387	99.7%	41.5	0.9	D
	Right Turn						
	Subtotal	498	496	99.5%	41.0	0.7	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,734	1,708	98.5%	15.9	0.2	B

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,077	1,061	98.5%	2.8	0.3	A
	Through	212	207	97.5%	3.7	0.5	A
	Right Turn						
	Subtotal	1,289	1,267	98.3%	3.0	0.3	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	160	162	101.2%	32.9	2.0	C
	Right Turn	547	542	99.1%	38.0	1.1	D
	Subtotal	707	704	99.6%	36.9	1.0	D
Total		1,996	1,971	98.8%	15.1	0.4	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,114	1,111	99.8%	0.9	0.1	A
	Through						
	Right Turn	80	77	96.3%	1.9	0.2	A
	Subtotal	1,194	1,188	99.5%	1.0	0.1	A
SB	Left Turn						
	Through	353	349	98.8%	0.2	0.0	A
	Right Turn	26	26	101.5%	4.7	0.3	A
	Subtotal	379	375	99.0%	0.5	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	72	71	98.8%	5.5	0.5	A
	Through	131	134	102.6%	39.3	4.8	D
	Right Turn						
	Subtotal	203	206	101.2%	27.6	3.2	C
Total		1,776	1,769	99.6%	4.0	0.4	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	478	484	101.3%	3.4	0.3	A
	Through	1,034	1,027	99.3%	3.8	0.2	A
	Right Turn	27	22	82.6%	4.0	0.9	A
	Subtotal	1,539	1,533	99.6%	3.6	0.2	A
EB	Left Turn						
	Through	184	179	97.5%	34.9	2.9	C
	Right Turn	39	38	96.4%	28.1	2.1	C
	Subtotal	223	217	97.3%	33.7	2.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,762	1,750	99.3%	7.4	0.4	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	70	67	96.1%	16.5	3.4	B
	Right Turn	58	61	104.3%	10.3	2.9	B
	Subtotal	128	128	99.8%	13.6	2.8	B
SB	Left Turn	30	34	112.3%	24.8	2.5	C
	Through	63	55	87.6%	20.2	3.6	C
	Right Turn						
	Subtotal	93	89	95.6%	21.9	2.8	C
EB	Left Turn	16	15	94.4%	22.4	5.3	C
	Through	1,145	1,124	98.2%	23.9	3.7	C
	Right Turn	74	74	99.7%	15.7	2.0	B
	Subtotal	1,235	1,213	98.2%	23.4	3.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,456	1,430	98.2%	22.4	3.1	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **4 PM to 5 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	56	53	94.5%	38.2	4.7	D
	Through	546	535	98.1%	18.2	0.5	B
	Right Turn	858	859	100.1%	11.1	1.6	B
	Subtotal	1,460	1,448	99.1%	14.7	0.9	B
SB	Left Turn						
	Through	57	52	91.6%	16.5	2.8	B
	Right Turn	20	20	100.0%	9.1	1.4	A
	Subtotal	77	72	93.8%	14.5	2.0	B
EB	Left Turn	49	46	93.3%	36.7	5.6	D
	Through	102	102	99.9%	35.0	2.2	D
	Right Turn	81	75	93.1%	1.2	0.4	A
	Subtotal	232	223	96.1%	23.9	1.4	C
WB	Left Turn	301	284	94.3%	38.0	4.9	D
	Through	95	95	100.1%	28.7	4.2	C
	Right Turn	21	21	99.5%	16.7	5.3	B
	Subtotal	417	400	95.9%	34.7	3.1	C
Total		2,186	2,142	98.0%	19.4	0.9	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	31	30	96.5%	24.0	3.6	C
	Through	323	309	95.5%	29.6	1.7	C
	Right Turn	82	83	101.5%	23.9	2.4	C
	Subtotal	436	422	96.7%	28.1	1.5	C
SB	Left Turn	107	101	94.0%	40.8	4.3	D
	Through	177	166	93.7%	23.6	2.4	C
	Right Turn	17	17	98.2%	6.9	3.1	A
	Subtotal	301	283	94.1%	28.8	1.8	C
EB	Left Turn	27	26	97.0%	21.4	4.8	C
	Through	104	114	109.8%	18.6	3.4	B
	Right Turn	13	11	86.2%	11.8	3.3	B
	Subtotal	144	152	105.3%	18.6	3.0	B
WB	Left Turn	68	60	87.9%	21.9	5.0	C
	Through	77	80	103.2%	21.6	4.2	C
	Right Turn	73	68	93.7%	14.6	4.3	B
	Subtotal	218	208	95.3%	19.4	3.6	B
Total		1,099	1,064	96.8%	25.3	1.0	C

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	77	72	93.0%	38.8	3.7	D
	Through	78	75	96.5%	32.6	3.5	C
	Right Turn	258	243	94.2%	27.1	3.1	C
	Subtotal	413	390	94.4%	30.4	1.9	C
SB	Left Turn	89	88	98.5%	45.0	1.7	D
	Through	50	48	95.8%	30.4	4.9	C
	Right Turn	13	12	94.6%	5.3	1.0	A
	Subtotal	152	148	97.3%	37.1	1.9	D
EB	Left Turn						
	Through	810	815	100.6%	25.6	2.3	C
	Right Turn	150	144	96.3%	4.2	0.4	A
	Subtotal	960	959	99.9%	22.4	2.0	C
WB	Left Turn	109	100	92.1%	76.6	20.0	E
	Through	327	316	96.6%	12.0	1.3	B
	Right Turn	40	36	88.8%	6.2	1.9	A
	Subtotal	476	452	94.9%	26.2	5.9	C
Total		2,001	1,949	97.4%	26.0	1.6	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	898	881	98.2%	33.9	2.0	C
	Right Turn						
	Subtotal	898	881	98.2%	33.9	2.0	C
SB	Left Turn						
	Through	910	875	96.1%	14.9	4.0	B
	Right Turn	54	50	92.2%	18.6	5.0	B
	Subtotal	964	925	95.9%	15.1	4.0	B
EB	Left Turn						
	Through	312	319	102.2%	23.3	1.3	C
	Right Turn	68	61	89.0%	19.0	4.1	B
	Subtotal	380	379	99.8%	22.6	1.2	C
WB	Left Turn						
	Through	192	183	95.4%	20.7	1.8	C
	Right Turn						
	Subtotal	192	183	95.4%	20.7	1.8	C
Total		2,434	2,369	97.3%	23.7	1.9	C

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	873	854	97.8%	14.9	3.9	B
	Right Turn	25	22	87.2%	18.1	5.1	C
	Subtotal	898	875	97.5%	15.0	3.8	B
SB	Left Turn						
	Through	951	917	96.4%	3.6	2.1	A
	Right Turn						
	Subtotal	951	917	96.4%	3.6	2.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	13	13	98.5%	29.1	8.0	D
	Through						
	Right Turn	49	46	93.7%	37.8	7.4	E
	Subtotal	62	59	94.7%	35.8	5.9	E
Total		1,911	1,851	96.9%	10.0	2.2	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	676	654	96.8%	53.3	6.5	D
	Right Turn	246	237	96.1%	28.5	0.7	C
	Subtotal	922	891	96.6%	46.8	5.3	D
SB	Left Turn	136	128	94.3%	34.7	3.4	C
	Through	847	817	96.4%	7.2	0.7	A
	Right Turn						
	Subtotal	983	945	96.1%	11.0	0.8	B
EB	Left Turn	76	73	95.7%	40.9	4.7	D
	Through	789	781	98.9%	33.2	1.1	C
	Right Turn	104	104	100.0%	28.3	1.9	C
	Subtotal	969	957	98.8%	33.2	1.0	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,874	2,793	97.2%	30.0	1.6	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	228	221	97.0%	52.5	1.3	D
	Through	524	503	96.0%	3.0	0.4	A
	Right Turn						
	Subtotal	752	724	96.3%	18.1	1.2	B
SB	Left Turn						
	Through	678	649	95.7%	8.3	1.0	A
	Right Turn	15	15	97.3%	4.2	1.0	A
	Subtotal	693	664	95.7%	8.2	1.0	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	305	299	98.0%	36.0	1.1	D
	Through	233	220	94.5%	29.7	1.5	C
	Right Turn	213	221	103.7%	8.8	0.8	A
	Subtotal	751	740	98.6%	26.0	0.5	C
Total		2,196	2,128	96.9%	17.8	0.6	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	115	111	96.9%	22.1	2.5	C
	Through	348	350	100.5%	11.8	0.9	B
	Right Turn	274	263	96.1%	5.8	0.6	A
	Subtotal	737	724	98.3%	11.2	0.7	B
SB	Left Turn	74	75	100.7%	35.7	3.0	D
	Through	280	270	96.4%	19.1	1.5	B
	Right Turn	45	44	96.9%	4.5	0.5	A
	Subtotal	399	388	97.3%	20.7	1.7	C
EB	Left Turn	91	96	105.6%	44.8	2.9	D
	Through	1,012	994	98.2%	29.8	1.6	C
	Right Turn	51	46	89.8%	27.6	2.6	C
	Subtotal	1,154	1,136	98.4%	31.0	1.5	C
WB	Left Turn	362	349	96.3%	36.2	1.7	D
	Through	300	302	100.7%	18.7	1.2	B
	Right Turn	37	37	101.1%	10.4	2.3	B
	Subtotal	699	688	98.5%	27.1	0.8	C
Total		2,989	2,937	98.3%	23.8	0.8	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	62	65	104.0%	4.9	0.6	A
	Subtotal	62	65	104.0%	4.9	0.6	A
SB	Left Turn	408	400	98.1%	41.6	2.0	D
	Through	146	147	100.8%	42.0	3.9	D
	Right Turn						
	Subtotal	554	547	98.8%	41.8	2.0	D
EB	Left Turn						
	Through	1,068	1,046	97.9%	4.6	0.3	A
	Right Turn	103	98	94.9%	2.4	0.5	A
	Subtotal	1,171	1,144	97.7%	4.5	0.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,787	1,756	98.2%	16.1	0.7	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	519	513	98.9%	3.5	0.9	A
	Right Turn	7	7	97.1%	1.7	0.9	A
	Subtotal	526	520	98.9%	3.4	0.9	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	35	32	91.4%	30.8	4.1	C
	Through	34	36	106.2%	29.1	2.3	C
	Right Turn						
	Subtotal	69	68	98.7%	29.8	2.6	C
Total		595	588	98.9%	6.5	0.9	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	422	423	100.1%	21.8	1.6	C
	Through	492	481	97.7%	16.6	2.0	B
	Right Turn	443	441	99.5%	10.5	0.9	B
	Subtotal	1,357	1,344	99.0%	16.2	1.4	B
EB	Left Turn						
	Through	1,332	1,308	98.2%	11.7	1.3	B
	Right Turn	28	23	82.5%	7.2	2.1	A
	Subtotal	1,360	1,332	97.9%	11.6	1.2	B
WB	Left Turn	6	16	265.0%	37.6	11.9	D
	Through	256	248	96.7%	15.4	1.7	B
	Right Turn						
	Subtotal	262	263	100.5%	16.7	1.5	B
Total		2,979	2,939	98.6%	14.2	0.6	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	219	227	103.5%	31.8	2.2	C
	Right Turn	112	107	95.4%	28.8	3.6	C
	Subtotal	331	334	100.8%	30.9	2.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	158	147	92.9%	12.3	1.2	B
	Through	1,358	1,339	98.6%	11.4	1.1	B
	Right Turn	22	21	97.3%	10.8	4.1	B
	Subtotal	1,538	1,507	98.0%	11.5	1.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,869	1,840	98.5%	15.0	1.0	B

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	13	94.3%	27.5	8.4	C
	Through	460	439	95.5%	29.4	2.0	C
	Right Turn	45	58	128.0%	24.9	5.7	C
	Subtotal	519	510	98.3%	28.9	2.2	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	491	479	97.5%	39.2	2.5	D
	Through	1,263	1,251	99.1%	9.2	1.3	A
	Right Turn						
	Subtotal	1,754	1,730	98.6%	17.5	1.1	B
WB	Left Turn						
	Through	248	253	101.9%	10.6	1.2	B
	Right Turn	6	6	95.0%	5.6	2.9	A
	Subtotal	254	259	101.8%	10.5	1.2	B
Total		2,527	2,499	98.9%	19.1	1.0	B

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	437	424	96.9%	2.2	0.5	A
	Right Turn						
	Subtotal	437	424	96.9%	2.2	0.5	A
SB	Left Turn						
	Through	391	382	97.6%	3.4	0.8	A
	Right Turn						
	Subtotal	391	382	97.6%	3.4	0.8	A
EB	Left Turn						
	Through	27	26	97.4%	31.6	2.9	C
	Right Turn						
	Subtotal	27	26	97.4%	31.6	2.9	C
WB	Left Turn						
	Through	34	34	98.8%	30.8	4.5	C
	Right Turn	28	27	95.7%	13.2	3.3	B
	Subtotal	62	60	97.4%	23.1	4.0	C
Total		917	892	97.3%	5.0	0.4	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	465	446	95.9%	5.3	1.1	A
	Right Turn						
	Subtotal	465	446	95.9%	5.3	1.1	A
SB	Left Turn						
	Through	391	382	97.8%	6.9	0.8	A
	Right Turn						
	Subtotal	391	382	97.8%	6.9	0.8	A
EB	Left Turn						
	Through	194	188	96.9%	12.0	2.2	B
	Right Turn						
	Subtotal	194	188	96.9%	12.0	2.2	B
WB	Left Turn						
	Through	158	133	84.2%	22.7	1.4	C
	Right Turn	35	28	81.1%	20.6	5.4	C
	Subtotal	193	162	83.7%	22.3	1.9	C
Total		1,243	1,178	94.8%	9.2	0.7	A

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	500	472	94.3%	13.2	1.7	B
	Right Turn						
	Subtotal	500	472	94.3%	13.2	1.7	B
SB	Left Turn						
	Through	391	384	98.2%	3.8	0.7	A
	Right Turn						
	Subtotal	391	384	98.2%	3.8	0.7	A
EB	Left Turn	4	4	110.0%	57.2	16.1	E
	Through	57	53	92.1%	42.3	3.3	D
	Right Turn						
	Subtotal	61	57	93.3%	43.6	3.5	D
WB	Left Turn						
	Through	148	139	94.0%	41.9	3.7	D
	Right Turn						
	Subtotal	148	139	94.0%	41.9	3.7	D
Total		1,100	1,051	95.6%	15.2	1.0	B

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	445	418	93.9%	22.1	1.6	C
	Right Turn	59	56	94.7%	5.2	0.7	A
	Subtotal	504	474	94.0%	20.2	1.5	C
SB	Left Turn	21	22	104.8%	38.0	8.9	D
	Through	299	294	98.2%	13.1	1.2	B
	Right Turn						
	Subtotal	320	316	98.6%	14.9	1.4	B
EB	Left Turn	70	73	104.0%	20.8	2.9	C
	Through	1,308	1,284	98.2%	20.6	2.6	C
	Right Turn	92	91	98.7%	16.9	3.7	B
	Subtotal	1,470	1,448	98.5%	20.4	2.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,294	2,238	97.5%	19.6	1.7	B

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	11	11	100.9%	15.2	2.5	B
	Through						
	Right Turn	7	6	84.3%	8.1	0.9	A
	Subtotal	18	17	94.4%	12.8	1.8	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	53	48	90.4%	2.6	0.8	A
	Right Turn	4	5	115.0%	1.8	0.6	A
	Subtotal	57	53	92.1%	2.6	0.7	A
WB	Left Turn	5	5	104.0%	7.5	3.7	A
	Through	137	121	88.0%	9.9	1.1	A
	Right Turn						
	Subtotal	142	126	88.5%	9.8	1.1	A
Total		217	195	90.0%	8.1	0.9	A

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	744	736	98.9%	24.5	2.3	C
	Subtotal	744	736	98.9%	24.5	2.3	C
SB	Left Turn Through Right Turn	518	500	96.5%	7.5	0.7	A
	Subtotal	518	500	96.5%	7.5	0.7	A
EB	Left Turn Through Right Turn	404	397	98.2%	18.7	0.8	B
	Subtotal	404	397	98.2%	18.7	0.8	B
WB	Left Turn Through Right Turn	371	371	99.9%	8.6	1.3	A
	Subtotal	371	371	99.9%	8.6	1.3	A
Total		2,037	2,003	98.3%	16.2	0.8	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	14	13	92.9%	11.5	2.1	B
	Through						
	Right Turn	23	20	87.8%	12.6	1.9	B
	Subtotal	37	33	89.7%	12.2	1.5	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	58	51	88.6%	3.0	0.8	A
	Right Turn	2	2	115.0%	3.2	5.7	A
	Subtotal	60	54	89.5%	2.9	0.8	A
WB	Left Turn	9	11	123.3%	8.0	3.7	A
	Through	128	112	87.7%	7.4	1.1	A
	Right Turn						
	Subtotal	137	123	90.0%	7.5	1.2	A
Total		234	210	89.8%	7.0	1.0	A

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	5	5	104.0%	9.8	4.1	A
	Through	140	133	95.1%	5.2	0.8	A
	Right Turn	8	10	120.0%	6.6	2.5	A
	Subtotal	153	148	96.7%	5.5	0.7	A
SB	Left Turn	32	28	87.2%	14.3	3.0	B
	Through	140	137	98.1%	8.5	1.4	A
	Right Turn	83	76	91.7%	8.8	1.5	A
	Subtotal	255	241	94.7%	9.2	1.0	A
EB	Left Turn	38	33	87.1%	37.5	6.7	D
	Through	40	36	90.0%	39.9	5.3	D
	Right Turn	3	3	103.3%	20.7	10.6	C
	Subtotal	81	72	89.1%	37.9	3.8	D
WB	Left Turn	14	11	77.9%	3.2	2.4	A
	Through	49	46	94.5%	4.3	0.9	A
	Right Turn	9	13	144.4%	12.6	1.8	B
	Subtotal	72	70	97.5%	5.6	0.9	A
Total		561	532	94.8%	11.6	0.8	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	206	201	97.3%	48.9	4.6	D
	Right Turn	353	350	99.1%	49.3	6.3	D
	Subtotal	559	550	98.4%	49.2	5.6	D
SB	Left Turn	449	445	99.1%	43.5	2.0	D
	Through	237	235	99.3%	24.5	1.7	C
	Right Turn						
	Subtotal	686	680	99.2%	36.9	1.7	D
EB	Left Turn	801	793	99.0%	29.7	5.0	C
	Through	511	501	98.0%	14.4	1.0	B
	Right Turn	40	46	115.0%	13.7	2.7	B
	Subtotal	1,352	1,339	99.1%	23.5	3.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,597	2,570	99.0%	32.5	2.7	C

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	41	39	95.1%	28.5	2.3	C
	Through	175	168	96.2%	17.0	1.5	B
	Right Turn						
	Subtotal	216	207	96.0%	19.2	1.3	B
SB	Left Turn						
	Through	531	528	99.5%	13.8	2.9	B
	Right Turn	22	24	106.8%	27.9	8.1	C
	Subtotal	553	552	99.7%	14.4	3.0	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	155	155	100.1%	45.4	2.2	D
	Through	201	199	99.1%	40.4	2.5	D
	Right Turn	494	487	98.6%	4.9	0.6	A
	Subtotal	850	841	99.0%	20.8	0.7	C
Total		1,619	1,600	98.8%	18.4	1.1	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	744	731	98.3%	4.5	0.6	A
	Right Turn						
	Subtotal	744	731	98.3%	4.5	0.6	A
SB	Left Turn						
	Through	518	500	96.5%	11.6	1.2	B
	Right Turn	460	431	93.7%	14.5	1.7	B
	Subtotal	978	931	95.2%	12.9	1.1	B
EB	Left Turn	154	147	95.6%	40.8	3.5	D
	Through						
	Right Turn						
	Subtotal	154	147	95.6%	40.8	3.5	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,876	1,809	96.4%	11.8	0.8	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	391	382	97.7%	7.6	0.5	A
	Subtotal	391	382	97.7%	7.6	0.5	A
EB	Left Turn	437	426	97.5%	11.1	1.2	B
	Through						
	Right Turn						
	Subtotal	437	426	97.5%	11.1	1.2	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		828	808	97.6%	9.4	0.6	A

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	63	63	99.4%	60.1	17.6	E
	Through	452	424	93.7%	6.7	1.2	A
	Right Turn						
	Subtotal	515	486	94.4%	13.8	4.2	B
SB	Left Turn						
	Through	229	225	98.3%	4.0	0.7	A
	Right Turn	32	32	98.8%	4.9	2.1	A
	Subtotal	261	257	98.3%	4.1	0.7	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	91	90	98.6%	35.2	2.5	D
	Through	116	114	98.0%	38.0	3.0	D
	Right Turn	52	51	97.9%	24.8	2.9	C
	Subtotal	259	254	98.2%	34.3	1.8	C
Total		1,035	997	96.3%	16.6	2.2	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	466	433	92.8%	17.2	1.2	B
	Right Turn	38	37	97.1%	6.7	1.9	A
	Subtotal	504	470	93.2%	16.4	1.3	B
SB	Left Turn	67	65	97.5%	46.0	8.4	D
	Through	183	181	99.0%	14.9	0.9	B
	Right Turn						
	Subtotal	250	247	98.6%	23.1	1.9	C
EB	Left Turn	30	37	124.0%	15.7	4.1	B
	Through	1,200	1,191	99.2%	11.4	1.1	B
	Right Turn	78	77	98.5%	4.0	1.2	A
	Subtotal	1,308	1,305	99.8%	11.1	1.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,062	2,021	98.0%	13.8	0.6	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	47	46	97.4%	10.2	1.5	B
	Through	449	425	94.6%	7.5	0.5	A
	Right Turn						
	Subtotal	496	471	94.9%	7.7	0.4	A
SB	Left Turn						
	Through	223	221	99.2%	4.8	0.6	A
	Right Turn	66	74	111.8%	4.7	0.9	A
	Subtotal	289	295	102.1%	4.8	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	223	216	96.8%	34.4	2.1	C
	Through	230	231	100.3%	35.2	1.9	D
	Right Turn	24	24	98.3%	23.5	3.5	C
	Subtotal	477	470	98.6%	34.3	1.6	C
Total		1,262	1,236	97.9%	17.1	0.6	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,267	1,230	97.1%	5.3	0.6	A
	Right Turn	36	37	101.9%	5.6	1.3	A
	Subtotal	1,303	1,267	97.2%	5.3	0.6	A
NE	Left Turn	82	80	97.9%	37.1	2.8	D
	Through						
	Right Turn	184	180	97.7%	40.1	2.1	D
	Subtotal	266	260	97.8%	39.2	2.0	D
EB	Left Turn	136	132	97.0%	39.6	2.2	D
	Through	576	567	98.4%	40.5	1.0	D
	Right Turn						
	Subtotal	712	699	98.1%	40.3	1.0	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,281	2,226	97.6%	20.3	0.4	C

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,239	1,205	97.2%	4.1	1.0	A
	Through	246	238	96.5%	4.8	0.8	A
	Right Turn						
	Subtotal	1,485	1,442	97.1%	4.2	0.9	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	166	169	101.7%	30.3	2.4	C
	Right Turn	682	676	99.2%	34.6	0.5	C
	Subtotal	848	845	99.7%	33.7	0.7	C
Total		2,333	2,287	98.0%	15.1	0.7	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,490	1,481	99.4%	1.9	0.2	A
	Through						
	Right Turn	129	128	99.2%	3.0	0.6	A
	Subtotal	1,619	1,609	99.4%	2.0	0.2	A
SB	Left Turn						
	Through	436	428	98.3%	0.6	0.1	A
	Right Turn	27	30	110.7%	4.6	0.3	A
	Subtotal	463	458	99.0%	0.8	0.1	A
EB	Left Turn						
	Through						
	Right Turn	2	0	0.0%	0.0	0.0	A
	Subtotal	2	0	0.0%	0.0	0.0	A
WB	Left Turn	68	68	100.6%	5.8	0.5	A
	Through	131	133	101.4%	42.8	5.0	D
	Right Turn						
	Subtotal	199	201	101.1%	30.2	3.1	C
Total		2,283	2,269	99.4%	4.3	0.4	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	604	596	98.7%	5.2	0.3	A
	Through	1,360	1,351	99.4%	5.6	0.3	A
	Right Turn	32	31	97.2%	5.9	1.3	A
	Subtotal	1,996	1,979	99.1%	5.5	0.2	A
EB	Left Turn						
	Through	287	279	97.4%	34.7	1.6	C
	Right Turn	48	49	102.7%	30.7	4.6	C
	Subtotal	335	329	98.1%	34.1	1.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,331	2,307	99.0%	9.6	0.3	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	94	87	92.1%	34.2	2.4	C
	Right Turn	93	91	98.1%	22.6	3.9	C
	Subtotal	187	178	95.1%	28.3	2.6	C
SB	Left Turn	57	63	111.2%	39.0	4.0	D
	Through	128	118	92.4%	35.4	2.3	D
	Right Turn						
	Subtotal	185	182	98.2%	36.6	2.6	D
EB	Left Turn	9	9	103.3%	26.6	14.6	C
	Through	1,202	1,187	98.8%	25.3	6.4	C
	Right Turn	127	129	101.5%	19.2	2.8	B
	Subtotal	1,338	1,325	99.1%	24.7	6.1	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,710	1,685	98.5%	26.4	4.9	C

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Volume and Delay by Movement **5 PM to 6 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	65	62	96.0%	41.1	3.6	D
	Through	561	560	99.8%	19.7	1.0	B
	Right Turn	934	943	101.0%	13.8	2.2	B
	Subtotal	1,560	1,565	100.3%	17.0	1.5	B
SB	Left Turn						
	Through	88	83	94.3%	20.3	1.6	C
	Right Turn	25	28	110.0%	10.6	1.4	B
	Subtotal	113	111	97.8%	17.9	1.4	B
EB	Left Turn	90	87	96.6%	36.4	2.5	D
	Through	146	135	92.5%	33.6	2.4	C
	Right Turn	66	64	97.1%	1.5	0.2	A
	Subtotal	302	286	94.7%	27.3	2.0	C
WB	Left Turn	307	298	97.1%	37.8	2.2	D
	Through	102	106	104.3%	31.5	2.6	C
	Right Turn	21	20	96.7%	18.1	4.3	B
	Subtotal	430	425	98.8%	35.3	1.5	D
Total		2,405	2,387	99.2%	21.6	1.1	C

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	22	19	85.5%	23.8	5.1	C
	Through	222	226	101.8%	29.3	1.2	C
	Right Turn	48	48	99.4%	20.6	1.7	C
	Subtotal	292	293	100.2%	27.5	0.9	C
SB	Left Turn	137	133	97.1%	35.9	3.3	D
	Through	167	163	97.8%	19.4	2.1	B
	Right Turn	14	14	101.4%	5.6	1.7	A
	Subtotal	318	311	97.6%	25.9	2.1	C
EB	Left Turn	29	28	97.6%	16.0	3.0	B
	Through	120	129	107.3%	13.9	1.6	B
	Right Turn	22	22	100.0%	8.5	1.9	A
	Subtotal	171	179	104.7%	13.6	1.6	B
WB	Left Turn	83	73	88.3%	18.0	3.1	B
	Through	105	109	103.9%	17.4	2.5	B
	Right Turn	79	69	87.6%	12.7	1.8	B
	Subtotal	267	252	94.2%	16.3	2.3	B
Total		1,048	1,034	98.6%	21.9	1.0	C

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	73	78	106.2%	40.1	3.0	D
	Through	93	92	98.8%	33.2	3.6	C
	Right Turn	160	149	93.1%	21.9	2.3	C
	Subtotal	326	318	97.7%	29.6	1.8	C
SB	Left Turn	91	91	99.5%	44.5	4.5	D
	Through	72	71	98.9%	41.2	4.9	D
	Right Turn	10	9	87.0%	6.2	2.4	A
	Subtotal	173	170	98.5%	41.1	2.8	D
EB	Left Turn						
	Through	910	914	100.4%	22.6	2.3	C
	Right Turn	170	165	97.0%	4.0	0.5	A
	Subtotal	1,080	1,079	99.9%	19.8	2.0	B
WB	Left Turn	89	88	98.5%	64.2	10.1	E
	Through	347	341	98.3%	10.3	1.9	B
	Right Turn	38	39	102.9%	5.2	1.6	A
	Subtotal	474	468	98.7%	20.2	2.9	C
Total		2,053	2,035	99.1%	23.2	1.4	C

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	914	899	98.4%	38.0	2.3	D
	Right Turn						
	Subtotal	914	899	98.4%	38.0	2.3	D
SB	Left Turn						
	Through	1,049	1,008	96.1%	14.1	1.5	B
	Right Turn	51	48	94.9%	21.1	4.3	C
	Subtotal	1,100	1,056	96.0%	14.4	1.6	B
EB	Left Turn						
	Through	363	371	102.2%	23.9	2.1	C
	Right Turn	80	75	93.1%	21.9	3.6	C
	Subtotal	443	446	100.6%	23.5	2.2	C
WB	Left Turn						
	Through	204	195	95.7%	19.3	0.8	B
	Right Turn						
	Subtotal	204	195	95.7%	19.3	0.8	B
Total		2,661	2,596	97.6%	24.5	1.3	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **5 PM to 6 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	904	889	98.3%	34.3	6.4	D
	Right Turn	10	8	79.0%	16.0	7.5	C
	Subtotal	914	897	98.1%	34.2	6.3	D
SB	Left Turn						
	Through	1,088	1,046	96.1%	6.2	1.9	A
	Right Turn						
	Subtotal	1,088	1,046	96.1%	6.2	1.9	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	12	12	100.0%	36.6	10.5	E
	Through						
	Right Turn	74	75	101.1%	48.1	7.2	E
	Subtotal	86	87	100.9%	46.5	7.3	E
Total		2,088	2,029	97.2%	20.3	3.4	C

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	724	708	97.7%	39.1	2.0	D
	Right Turn	254	253	99.5%	28.2	2.7	C
	Subtotal	978	960	98.2%	36.2	1.8	D
SB	Left Turn	117	119	102.1%	29.6	3.6	C
	Through	967	932	96.4%	9.0	1.6	A
	Right Turn						
	Subtotal	1,084	1,052	97.0%	11.4	1.6	B
EB	Left Turn	38	40	104.5%	41.1	5.0	D
	Through	783	787	100.5%	35.3	1.5	D
	Right Turn	121	118	97.1%	30.2	2.1	C
	Subtotal	942	944	100.3%	34.9	1.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		3,004	2,956	98.4%	27.0	1.1	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	234	226	96.6%	52.7	2.3	D
	Through	528	519	98.4%	5.9	1.8	A
	Right Turn						
	Subtotal	762	745	97.8%	20.1	1.4	C
SB	Left Turn						
	Through	741	725	97.9%	8.2	1.5	A
	Right Turn	19	18	93.7%	4.7	1.5	A
	Subtotal	760	743	97.8%	8.2	1.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	343	330	96.2%	38.3	1.6	D
	Through	221	223	100.9%	30.3	1.9	C
	Right Turn	234	228	97.2%	9.4	1.2	A
	Subtotal	798	780	97.8%	27.6	0.7	C
Total		2,320	2,269	97.8%	18.8	0.8	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	109	107	97.7%	23.7	1.9	C
	Through	517	501	96.8%	12.0	1.3	B
	Right Turn	136	138	101.4%	6.7	1.0	A
	Subtotal	762	745	97.8%	12.7	0.9	B
SB	Left Turn	89	84	94.8%	67.9	20.6	E
	Through	294	288	97.9%	20.7	1.0	C
	Right Turn	67	69	102.2%	5.4	0.5	A
	Subtotal	450	441	98.0%	27.5	4.7	C
EB	Left Turn	127	125	98.7%	45.7	4.9	D
	Through	1,198	1,191	99.4%	34.2	3.0	C
	Right Turn	50	48	95.4%	32.9	4.0	C
	Subtotal	1,375	1,364	99.2%	35.2	3.1	D
WB	Left Turn	416	405	97.4%	37.6	1.7	D
	Through	392	392	99.9%	18.6	0.7	B
	Right Turn	28	26	91.4%	11.6	3.8	B
	Subtotal	836	822	98.4%	27.7	1.0	C
Total		3,423	3,373	98.5%	27.4	1.5	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	39	37	95.4%	5.4	1.0	A
	Subtotal	39	37	95.4%	5.4	1.0	A
SB	Left Turn	493	488	99.0%	39.5	2.4	D
	Through	175	177	101.2%	39.0	3.2	D
	Right Turn						
	Subtotal	668	665	99.6%	39.4	2.3	D
EB	Left Turn						
	Through	1,046	1,052	100.6%	8.0	3.7	A
	Right Turn	108	107	99.4%	4.0	2.0	A
	Subtotal	1,154	1,159	100.5%	7.6	3.6	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,861	1,862	100.1%	18.9	2.5	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	641	642	100.1%	3.8	1.1	A
	Right Turn	15	15	102.0%	1.5	1.4	A
	Subtotal	656	657	100.1%	3.7	1.0	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	27	24	89.6%	29.5	5.9	C
	Through	20	19	97.0%	28.4	3.7	C
	Right Turn						
	Subtotal	47	44	92.8%	29.1	4.3	C
Total		703	701	99.6%	5.3	1.2	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	454	448	98.6%	18.5	1.8	B
	Through	627	620	98.8%	14.7	1.6	B
	Right Turn	553	552	99.8%	11.0	1.9	B
	Subtotal	1,634	1,619	99.1%	14.5	1.5	B
EB	Left Turn						
	Through	1,397	1,397	100.0%	14.3	2.8	B
	Right Turn	26	26	101.5%	8.6	2.4	A
	Subtotal	1,423	1,423	100.0%	14.2	2.8	B
WB	Left Turn	3	11	370.0%	56.6	15.1	E
	Through	283	271	95.7%	19.0	1.4	B
	Right Turn						
	Subtotal	286	282	98.5%	20.5	1.8	C
Total		3,343	3,324	99.4%	14.9	1.4	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	300	308	102.6%	33.3	2.8	C
	Right Turn	100	95	95.3%	33.5	4.1	C
	Subtotal	400	403	100.8%	33.4	3.0	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	134	132	98.3%	19.2	3.9	B
	Through	1,355	1,360	100.4%	17.9	3.8	B
	Right Turn	89	87	97.8%	15.0	3.8	B
	Subtotal	1,578	1,579	100.0%	17.8	3.8	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,978	1,982	100.2%	21.0	3.4	C

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	16	14	85.0%	25.7	6.8	C
	Through	535	532	99.5%	27.5	1.4	C
	Right Turn	61	69	112.6%	30.6	5.9	C
	Subtotal	612	615	100.4%	27.7	1.4	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	468	472	100.8%	43.5	2.2	D
	Through	1,383	1,376	99.5%	10.3	1.4	B
	Right Turn						
	Subtotal	1,851	1,847	99.8%	18.7	1.2	B
WB	Left Turn						
	Through	270	268	99.2%	11.6	0.9	B
	Right Turn	7	6	80.0%	5.2	3.2	A
	Subtotal	277	274	98.7%	11.5	0.9	B
Total		2,740	2,736	99.8%	20.0	1.1	C

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	492	477	97.0%	8.5	5.2	A
	Right Turn						
	Subtotal	492	477	97.0%	8.5	5.2	A
SB	Left Turn						
	Through	455	449	98.8%	4.1	0.6	A
	Right Turn						
	Subtotal	455	449	98.8%	4.1	0.6	A
EB	Left Turn	2	2	100.0%	28.6	19.7	C
	Through	42	40	94.5%	35.1	2.3	D
	Right Turn						
	Subtotal	44	42	94.8%	35.0	2.3	C
WB	Left Turn						
	Through	44	41	93.0%	32.6	4.2	C
	Right Turn	55	51	93.5%	18.9	5.0	B
	Subtotal	99	92	93.2%	25.0	4.4	C
Total		1,090	1,061	97.3%	9.1	2.6	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	549	532	96.9%	16.6	6.5	B
	Right Turn						
	Subtotal	549	532	96.9%	16.6	6.5	B
SB	Left Turn						
	Through	455	449	98.7%	8.4	0.7	A
	Right Turn						
	Subtotal	455	449	98.7%	8.4	0.7	A
EB	Left Turn						
	Through	254	243	95.7%	12.0	2.3	B
	Right Turn						
	Subtotal	254	243	95.7%	12.0	2.3	B
WB	Left Turn						
	Through	216	195	90.0%	53.8	18.3	D
	Right Turn	74	64	86.5%	66.4	27.3	E
	Subtotal	290	259	89.1%	56.8	20.3	E
Total		1,548	1,483	95.8%	20.4	5.9	C

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	623	597	95.8%	22.4	2.9	C
	Right Turn						
	Subtotal	623	597	95.8%	22.4	2.9	C
SB	Left Turn						
	Through	455	450	98.9%	5.7	1.1	A
	Right Turn						
	Subtotal	455	450	98.9%	5.7	1.1	A
EB	Left Turn						
	Through	219	211	96.1%	44.5	4.9	D
	Right Turn						
	Subtotal	219	211	96.1%	44.5	4.9	D
WB	Left Turn						
	Through	154	152	98.4%	58.4	12.3	E
	Right Turn						
	Subtotal	154	152	98.4%	58.4	12.3	E
Total		1,451	1,409	97.1%	24.2	1.7	C

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	558	534	95.8%	25.0	2.0	C
	Right Turn	65	63	96.9%	5.3	1.1	A
	Subtotal	623	597	95.9%	23.0	2.0	C
SB	Left Turn	33	30	92.1%	38.1	6.8	D
	Through	348	345	99.0%	15.5	1.6	B
	Right Turn						
	Subtotal	381	375	98.4%	17.4	1.6	B
EB	Left Turn	99	100	101.0%	29.3	5.7	C
	Through	1,249	1,246	99.7%	29.4	6.9	C
	Right Turn	107	106	98.7%	24.9	7.7	C
	Subtotal	1,455	1,451	99.7%	29.1	6.7	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,459	2,424	98.6%	25.8	4.3	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	17	17	97.6%	15.3	1.9	B
	Through						
	Right Turn	9	7	82.2%	9.2	2.0	A
	Subtotal	26	24	92.3%	13.4	1.2	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	214	206	96.4%	3.5	0.7	A
	Right Turn	5	4	84.0%	3.0	2.3	A
	Subtotal	219	211	96.1%	3.4	0.7	A
WB	Left Turn	4	4	95.0%	8.2	5.1	A
	Through	137	126	92.0%	9.7	1.1	A
	Right Turn						
	Subtotal	141	130	92.1%	9.7	1.1	A
Total		386	364	94.4%	6.3	0.5	A

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	791	780	98.6%	24.7	1.7	C
	Subtotal	791	780	98.6%	24.7	1.7	C
SB	Left Turn Through Right Turn	574	558	97.2%	10.3	0.9	B
	Subtotal	574	558	97.2%	10.3	0.9	B
EB	Left Turn Through Right Turn	454	448	98.8%	18.3	1.1	B
	Subtotal	454	448	98.8%	18.3	1.1	B
WB	Left Turn Through Right Turn	432	437	101.0%	8.9	1.1	A
	Subtotal	432	437	101.0%	8.9	1.1	A
Total		2,251	2,222	98.7%	16.7	0.6	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	15	96.7%	11.3	2.9	B
	Through						
	Right Turn	35	34	98.0%	11.8	2.0	B
	Subtotal	50	49	97.6%	11.7	1.6	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	220	210	95.5%	9.1	1.2	A
	Right Turn	3	3	103.3%	5.8	5.3	A
	Subtotal	223	213	95.6%	9.0	1.2	A
WB	Left Turn	8	8	101.3%	11.2	5.3	B
	Through	126	113	90.0%	9.4	1.5	A
	Right Turn						
	Subtotal	134	122	90.7%	9.4	1.6	A
Total		407	383	94.2%	9.5	1.0	A

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	8	100.0%	11.8	4.7	B
	Through	151	148	98.0%	7.5	1.2	A
	Right Turn	20	20	99.0%	9.8	1.2	A
	Subtotal	179	176	98.2%	7.9	1.3	A
SB	Left Turn	42	39	93.6%	20.4	2.9	C
	Through	188	184	97.9%	13.0	1.4	B
	Right Turn	100	93	92.8%	12.6	1.9	B
	Subtotal	330	316	95.8%	13.8	1.5	B
EB	Left Turn	121	115	95.4%	37.1	3.6	D
	Through	123	115	93.2%	35.6	1.8	D
	Right Turn	11	10	91.8%	30.8	8.5	C
	Subtotal	255	240	94.2%	36.1	1.8	D
WB	Left Turn	9	8	91.1%	3.8	1.5	A
	Through	26	26	101.5%	5.1	1.8	A
	Right Turn	9	8	93.3%	10.3	2.6	B
	Subtotal	44	43	97.7%	5.9	1.8	A
Total		808	775	95.9%	18.9	0.9	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	211	210	99.4%	66.5	7.7	E
	Right Turn	406	407	100.2%	91.2	19.7	F
	Subtotal	617	617	100.0%	82.7	15.3	F
SB	Left Turn	543	551	101.5%	48.1	1.6	D
	Through	250	248	99.0%	23.8	2.2	C
	Right Turn						
	Subtotal	793	799	100.7%	40.6	1.3	D
EB	Left Turn	869	860	98.9%	49.8	4.8	D
	Through	493	468	94.9%	21.3	2.4	C
	Right Turn	39	40	102.6%	19.6	3.2	B
	Subtotal	1,401	1,367	97.6%	39.2	3.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,811	2,783	99.0%	49.2	3.9	D

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	42	38	89.5%	35.3	3.2	D
	Through	173	173	99.8%	22.3	2.6	C
	Right Turn						
	Subtotal	215	210	97.8%	24.6	2.7	C
SB	Left Turn						
	Through	615	607	98.7%	31.8	8.2	C
	Right Turn	25	24	96.8%	39.1	6.3	D
	Subtotal	640	631	98.6%	32.1	8.1	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	179	178	99.3%	46.3	2.6	D
	Through	241	235	97.7%	34.0	2.3	C
	Right Turn	571	568	99.4%	5.7	0.3	A
	Subtotal	991	981	99.0%	19.8	0.8	B
Total		1,846	1,822	98.7%	24.6	3.0	C

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	791	781	98.7%	3.4	0.3	A
	Right Turn						
	Subtotal	791	781	98.7%	3.4	0.3	A
SB	Left Turn						
	Through	574	559	97.4%	10.4	1.3	B
	Right Turn	555	518	93.3%	12.4	1.6	B
	Subtotal	1,129	1,077	95.4%	11.4	1.0	B
EB	Left Turn	123	120	97.8%	40.9	4.4	D
	Through						
	Right Turn						
	Subtotal	123	120	97.8%	40.9	4.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,043	1,978	96.8%	10.0	0.5	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	455	449	98.8%	7.6	0.3	A
	Subtotal	455	449	98.8%	7.6	0.3	A
EB	Left Turn	492	479	97.3%	16.1	4.4	B
	Through						
	Right Turn						
	Subtotal	492	479	97.3%	16.1	4.4	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		947	928	98.0%	12.0	2.2	B

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	93	89	96.0%	73.5	18.3	E
	Through	564	545	96.6%	7.1	2.0	A
	Right Turn						
	Subtotal	657	634	96.5%	16.5	3.8	B
SB	Left Turn						
	Through	273	271	99.3%	4.7	0.6	A
	Right Turn	23	22	94.3%	4.8	1.9	A
	Subtotal	296	293	99.0%	4.7	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	108	104	96.7%	38.3	1.9	D
	Through	109	108	98.7%	35.0	3.0	C
	Right Turn	50	47	93.2%	24.1	2.2	C
	Subtotal	267	259	96.9%	34.4	1.6	C
Total		1,220	1,186	97.2%	17.5	2.2	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	540	522	96.7%	16.1	1.9	B
	Right Turn	74	70	95.0%	7.9	0.9	A
	Subtotal	614	592	96.5%	15.2	1.7	B
SB	Left Turn	65	68	105.2%	43.3	4.9	D
	Through	206	202	98.2%	13.6	1.0	B
	Right Turn						
	Subtotal	271	271	99.9%	21.2	1.6	C
EB	Left Turn	28	36	126.8%	17.2	2.9	B
	Through	1,326	1,315	99.2%	11.9	1.3	B
	Right Turn	90	92	102.0%	5.4	1.5	A
	Subtotal	1,444	1,442	99.9%	11.6	1.3	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,329	2,305	99.0%	13.6	0.8	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	61	56	92.3%	10.9	2.7	B
	Through	507	500	98.5%	8.7	0.8	A
	Right Turn						
	Subtotal	568	556	97.9%	8.9	0.6	A
SB	Left Turn						
	Through	241	242	100.2%	5.0	0.6	A
	Right Turn	89	91	102.5%	4.5	0.5	A
	Subtotal	330	333	100.8%	4.9	0.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	225	211	93.9%	35.3	1.4	D
	Through	258	259	100.3%	35.9	1.3	D
	Right Turn	27	28	103.0%	23.4	3.9	C
	Subtotal	510	498	97.6%	34.9	1.0	C
Total		1,408	1,387	98.5%	17.3	0.5	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,319	1,311	99.4%	9.2	3.6	A
	Right Turn	72	74	103.1%	7.4	1.5	A
	Subtotal	1,391	1,385	99.6%	9.1	3.4	A
NE	Left Turn	93	91	97.5%	35.6	3.6	D
	Through						
	Right Turn	227	225	99.0%	39.2	2.6	D
	Subtotal	320	316	98.6%	38.1	2.0	D
EB	Left Turn	207	197	95.1%	40.1	2.2	D
	Through	747	749	100.3%	37.6	0.6	D
	Right Turn						
	Subtotal	954	946	99.2%	38.1	0.7	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,665	2,647	99.3%	22.9	1.7	C

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,313	1,293	98.5%	9.3	7.2	A
	Through	306	304	99.2%	8.5	6.4	A
	Right Turn						
	Subtotal	1,619	1,597	98.6%	9.1	7.0	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	147	148	100.9%	29.8	2.2	C
	Right Turn	673	677	100.7%	34.4	2.4	C
	Subtotal	820	826	100.7%	33.6	1.9	C
Total		2,439	2,423	99.3%	17.5	5.0	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,620	1,604	99.0%	3.1	0.4	A
	Through						
	Right Turn	161	158	98.0%	3.6	0.4	A
	Subtotal	1,781	1,762	98.9%	3.2	0.4	A
SB	Left Turn						
	Through	554	553	99.7%	0.9	0.1	A
	Right Turn	31	29	93.5%	4.6	0.4	A
	Subtotal	585	582	99.4%	1.0	0.1	A
EB	Left Turn						
	Through						
	Right Turn	7	4	57.1%	6.1	1.5	A
	Subtotal	7	4	57.1%	6.1	1.5	A
WB	Left Turn	63	66	104.6%	6.3	0.6	A
	Through	119	118	99.2%	42.4	3.6	D
	Right Turn						
	Subtotal	182	184	101.0%	29.4	2.7	C
Total		2,555	2,532	99.1%	4.6	0.5	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	696	698	100.3%	6.4	0.6	A
	Through	1,515	1,508	99.5%	7.0	0.2	A
	Right Turn	33	34	103.6%	7.5	1.7	A
	Subtotal	2,244	2,240	99.8%	6.8	0.3	A
EB	Left Turn						
	Through	383	373	97.4%	35.1	1.4	D
	Right Turn	45	43	94.9%	30.7	3.6	C
	Subtotal	428	416	97.1%	34.7	1.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,672	2,656	99.4%	11.2	0.4	B

Intersection 32 **Washington St/5th St** **0**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	120	115	95.7%	31.1	2.8	C
	Right Turn	161	157	97.5%	25.5	3.3	C
	Subtotal	281	272	96.7%	27.9	2.6	C
SB	Left Turn	65	70	108.3%	37.5	3.5	D
	Through	146	140	95.5%	34.1	1.8	C
	Right Turn						
	Subtotal	211	210	99.5%	35.2	1.2	D
EB	Left Turn	5	4	72.0%	71.8	47.4	E
	Through	1,175	1,155	98.3%	88.8	33.1	F
	Right Turn	184	182	98.6%	61.5	21.2	E
	Subtotal	1,364	1,340	98.3%	85.2	31.5	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,856	1,822	98.2%	70.8	23.0	E

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **6 PM to 7 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	50	100.2%	40.1	5.5	D
	Through	336	340	101.1%	15.0	0.9	B
	Right Turn	877	870	99.1%	11.0	0.9	B
	Subtotal	1,263	1,259	99.7%	13.3	0.7	B
SB	Left Turn						
	Through	41	38	93.2%	17.0	3.8	B
	Right Turn	14	14	101.4%	8.3	1.5	A
	Subtotal	55	52	95.3%	14.8	3.2	B
EB	Left Turn	79	81	102.7%	36.3	2.7	D
	Through	132	119	90.2%	33.7	2.2	C
	Right Turn	52	53	101.2%	1.1	0.4	A
	Subtotal	263	253	96.1%	27.8	2.0	C
WB	Left Turn	212	230	108.3%	38.1	3.4	D
	Through	86	84	97.3%	31.4	3.1	C
	Right Turn	25	23	92.4%	17.7	3.7	B
	Subtotal	323	337	104.2%	35.1	1.9	D
Total		1,904	1,901	99.8%	19.1	0.6	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	8	107.1%	24.8	4.4	C
	Through	122	116	94.9%	28.8	1.9	C
	Right Turn	8	10	122.5%	16.5	5.3	B
	Subtotal	137	133	97.2%	27.7	2.0	C
SB	Left Turn	159	145	91.3%	29.8	2.6	C
	Through	127	121	94.9%	18.6	1.9	B
	Right Turn	12	13	105.8%	5.6	1.2	A
	Subtotal	298	278	93.4%	23.8	1.7	C
EB	Left Turn	16	15	95.0%	9.7	3.1	A
	Through	80	88	109.6%	8.6	1.6	A
	Right Turn	9	7	76.7%	6.0	2.8	A
	Subtotal	105	110	104.6%	8.6	1.3	A
WB	Left Turn	29	24	82.4%	11.5	2.8	B
	Through	72	78	108.6%	11.6	1.6	B
	Right Turn	72	65	90.3%	8.4	1.4	A
	Subtotal	173	167	96.6%	10.4	1.1	B
Total		713	688	96.5%	18.9	0.7	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	53	88.5%	34.6	4.2	C
	Through	63	64	101.6%	33.7	4.0	C
	Right Turn	102	93	91.0%	17.3	2.3	B
	Subtotal	225	210	93.3%	26.7	2.3	C
SB	Left Turn	77	75	96.8%	39.2	3.4	D
	Through	47	45	96.2%	33.8	4.6	C
	Right Turn	11	13	118.2%	5.2	0.5	A
	Subtotal	135	133	98.3%	34.0	2.3	C
EB	Left Turn						
	Through	828	825	99.7%	15.2	1.7	B
	Right Turn	181	167	92.3%	6.3	1.1	A
	Subtotal	1,009	992	98.3%	13.7	1.5	B
WB	Left Turn	71	66	93.0%	45.2	7.5	D
	Through	252	265	105.2%	8.5	1.9	A
	Right Turn	50	51	101.6%	4.7	1.2	A
	Subtotal	373	382	102.4%	14.4	2.4	B
Total		1,742	1,717	98.6%	17.0	0.9	B

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	597	609	102.1%	29.7	3.7	C
	Right Turn						
	Subtotal	597	609	102.1%	29.7	3.7	C
SB	Left Turn						
	Through	1,406	1,334	94.9%	24.8	4.0	C
	Right Turn	20	16	82.0%	21.8	4.9	C
	Subtotal	1,426	1,351	94.7%	24.8	4.0	C
EB	Left Turn						
	Through	176	192	109.3%	22.4	1.9	C
	Right Turn	127	110	86.6%	17.6	1.8	B
	Subtotal	303	302	99.8%	20.7	1.8	C
WB	Left Turn						
	Through	143	142	99.2%	21.0	1.4	C
	Right Turn						
	Subtotal	143	142	99.2%	21.0	1.4	C
Total		2,469	2,404	97.4%	25.3	2.3	C

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **6 PM to 7 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	578	603	104.3%	6.5	3.2	A
	Right Turn	19	16	86.3%	3.1	3.1	A
	Subtotal	597	619	103.7%	6.4	3.2	A
SB	Left Turn						
	Through	1,423	1,347	94.6%	9.0	2.4	A
	Right Turn						
	Subtotal	1,423	1,347	94.6%	9.0	2.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	3	2	70.0%	24.0	18.0	C
	Through						
	Right Turn	49	46	94.3%	18.0	5.8	C
	Subtotal	52	48	92.9%	18.2	5.9	C
Total		2,072	2,014	97.2%	8.4	2.1	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	457	480	104.9%	37.6	4.7	D
	Right Turn	170	180	106.1%	24.5	2.2	C
	Subtotal	627	660	105.2%	34.1	3.7	C
SB	Left Turn	146	145	99.3%	42.3	4.8	D
	Through	1,316	1,241	94.3%	9.2	2.7	A
	Right Turn						
	Subtotal	1,462	1,386	94.8%	12.7	2.1	B
EB	Left Turn	51	47	92.5%	39.1	2.8	D
	Through	689	681	98.8%	34.5	1.6	C
	Right Turn	107	107	100.4%	30.5	2.3	C
	Subtotal	847	836	98.7%	34.3	1.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,936	2,881	98.1%	23.8	1.5	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	158	168	106.2%	47.5	2.8	D
	Through	350	361	103.1%	11.5	2.3	B
	Right Turn						
	Subtotal	508	529	104.1%	23.0	1.6	C
SB	Left Turn						
	Through	949	916	96.5%	23.5	3.0	C
	Right Turn	10	9	94.0%	7.8	2.7	A
	Subtotal	959	926	96.5%	23.3	3.0	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	513	469	91.4%	37.2	4.5	D
	Through	205	203	98.8%	25.0	1.8	C
	Right Turn	191	192	100.4%	10.5	2.2	B
	Subtotal	909	863	95.0%	28.5	2.4	C
Total		2,376	2,318	97.5%	25.2	2.3	C

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	97	101	104.4%	29.6	4.4	C
	Through	273	289	105.8%	20.3	1.4	C
	Right Turn	171	166	96.9%	10.0	0.8	B
	Subtotal	541	556	102.7%	18.9	1.1	B
SB	Left Turn	57	59	103.3%	34.3	3.2	C
	Through	362	362	99.9%	35.6	9.4	D
	Right Turn	54	54	99.3%	5.2	0.4	A
	Subtotal	473	474	100.3%	32.1	7.1	C
EB	Left Turn	82	77	94.1%	44.1	4.7	D
	Through	813	823	101.3%	29.5	1.2	C
	Right Turn	46	40	87.8%	56.3	26.6	E
	Subtotal	941	941	100.0%	32.0	2.1	C
WB	Left Turn	551	531	96.4%	53.5	12.6	D
	Through	284	280	98.6%	16.8	1.2	B
	Right Turn	22	18	83.6%	9.2	1.9	A
	Subtotal	857	829	96.8%	40.2	8.0	D
Total		2,812	2,800	99.6%	31.8	4.2	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	16	17	106.9%	4.7	0.9	A
	Subtotal	16	17	106.9%	4.7	0.9	A
SB	Left Turn	417	418	100.2%	43.3	2.0	D
	Through	95	103	108.7%	41.1	3.9	D
	Right Turn						
	Subtotal	512	521	101.8%	42.8	1.3	D
EB	Left Turn						
	Through	921	928	100.7%	3.1	0.7	A
	Right Turn	84	80	95.7%	1.9	0.5	A
	Subtotal	1,005	1,008	100.3%	3.0	0.6	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,533	1,546	100.9%	16.4	0.6	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	495	503	101.7%	3.5	1.4	A
	Right Turn	9	10	108.9%	1.2	0.8	A
	Subtotal	504	513	101.8%	3.4	1.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	17	15	90.0%	29.1	8.5	C
	Through	29	28	97.6%	26.0	4.2	C
	Right Turn						
	Subtotal	46	44	94.8%	26.9	4.5	C
Total		550	557	101.2%	5.3	1.2	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	366	368	100.5%	20.9	1.2	C
	Through	479	478	99.7%	17.5	1.6	B
	Right Turn	592	574	97.0%	11.5	1.1	B
	Subtotal	1,437	1,419	98.8%	16.0	0.8	B
EB	Left Turn						
	Through	1,020	1,030	101.0%	8.6	0.6	A
	Right Turn	21	20	95.7%	4.2	1.9	A
	Subtotal	1,041	1,050	100.9%	8.5	0.6	A
WB	Left Turn	4	14	347.5%	36.9	12.6	D
	Through	265	261	98.5%	16.5	2.8	B
	Right Turn						
	Subtotal	269	275	102.2%	17.5	2.6	B
Total		2,747	2,744	99.9%	13.3	0.6	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	314	316	100.6%	26.9	1.2	C
	Right Turn	43	45	104.0%	30.5	1.8	C
	Subtotal	357	361	101.0%	27.3	1.1	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	102	106	103.9%	9.7	2.1	A
	Through	1,203	1,207	100.3%	10.8	1.4	B
	Right Turn	49	49	100.2%	8.2	1.8	A
	Subtotal	1,354	1,362	100.6%	10.7	1.4	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,711	1,723	100.7%	14.2	1.3	B

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	6	84.3%	32.0	8.1	C
	Through	448	456	101.7%	27.2	1.5	C
	Right Turn	63	72	113.5%	26.5	3.6	C
	Subtotal	518	533	102.9%	27.2	1.6	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	457	446	97.7%	41.7	2.1	D
	Through	929	951	102.4%	9.2	1.3	A
	Right Turn						
	Subtotal	1,386	1,397	100.8%	19.6	1.2	B
WB	Left Turn						
	Through	262	268	102.3%	10.6	1.5	B
	Right Turn	11	10	92.7%	6.0	1.4	A
	Subtotal	273	278	101.9%	10.4	1.5	B
Total		2,177	2,209	101.5%	20.3	0.9	C

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	555	538	96.9%	5.9	2.7	A
	Right Turn						
	Subtotal	555	538	96.9%	5.9	2.7	A
SB	Left Turn						
	Through	619	600	97.0%	4.1	0.7	A
	Right Turn						
	Subtotal	619	600	97.0%	4.1	0.7	A
EB	Left Turn						
	Through	26	24	93.1%	34.2	3.3	C
	Right Turn						
	Subtotal	26	24	93.1%	34.2	3.3	C
WB	Left Turn						
	Through	41	39	95.4%	29.3	4.6	C
	Right Turn	31	30	96.5%	20.0	5.6	B
	Subtotal	72	69	95.8%	25.3	4.6	C
Total		1,272	1,231	96.8%	6.7	1.5	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	586	574	97.9%	10.0	3.8	A
	Right Turn						
	Subtotal	586	574	97.9%	10.0	3.8	A
SB	Left Turn						
	Through	619	603	97.4%	6.9	0.7	A
	Right Turn						
	Subtotal	619	603	97.4%	6.9	0.7	A
EB	Left Turn						
	Through	191	193	100.9%	14.1	1.6	B
	Right Turn						
	Subtotal	191	193	100.9%	14.1	1.6	B
WB	Left Turn						
	Through	158	139	88.2%	29.7	10.6	C
	Right Turn	34	29	85.6%	37.4	19.7	D
	Subtotal	192	169	87.8%	31.0	11.9	C
Total		1,588	1,538	96.8%	11.6	2.5	B

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	620	605	97.6%	17.8	2.6	B
	Right Turn						
	Subtotal	620	605	97.6%	17.8	2.6	B
SB	Left Turn						
	Through	619	603	97.4%	6.8	0.6	A
	Right Turn	1	1	60.0%	6.0	12.3	A
	Subtotal	620	604	97.4%	6.8	0.6	A
EB	Left Turn						
	Through	73	72	99.0%	38.8	2.8	D
	Right Turn						
	Subtotal	73	72	99.0%	38.8	2.8	D
WB	Left Turn						
	Through	231	221	95.5%	43.8	2.1	D
	Right Turn						
	Subtotal	231	221	95.5%	43.8	2.1	D
Total		1,544	1,502	97.3%	18.2	1.0	B

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	575	564	98.1%	22.7	1.5	C
	Right Turn	45	43	95.6%	4.4	0.7	A
	Subtotal	620	607	97.9%	21.4	1.4	C
SB	Left Turn	41	43	104.4%	36.5	6.1	D
	Through	472	465	98.5%	14.0	1.3	B
	Right Turn						
	Subtotal	513	508	99.0%	15.9	1.5	B
EB	Left Turn	47	50	105.5%	25.6	4.8	C
	Through	1,051	1,065	101.4%	24.1	2.5	C
	Right Turn	148	142	96.2%	18.9	2.6	B
	Subtotal	1,246	1,257	100.9%	23.5	2.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,379	2,372	99.7%	21.4	1.3	C

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	10	97.0%	15.7	3.5	B
	Through						
	Right Turn	7	6	88.6%	8.8	1.8	A
	Subtotal	17	16	93.5%	13.0	2.4	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	70	70	100.0%	3.9	0.7	A
	Right Turn	3	2	76.7%	2.4	0.9	A
	Subtotal	73	72	99.0%	3.9	0.7	A
WB	Left Turn	3	3	103.3%	8.6	4.4	A
	Through	221	194	87.8%	12.0	1.2	B
	Right Turn						
	Subtotal	224	197	88.0%	12.0	1.2	B
Total		314	285	90.9%	10.0	1.0	B

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **6 PM to 7 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	509	524	102.9%	20.2	0.7	C
	Subtotal	509	524	102.9%	20.2	0.7	C
SB	Left Turn Through Right Turn	547	548	100.1%	14.0	1.1	B
	Subtotal	547	548	100.1%	14.0	1.1	B
EB	Left Turn Through Right Turn	532	514	96.5%	22.2	1.2	C
	Subtotal	532	514	96.5%	22.2	1.2	C
WB	Left Turn Through Right Turn	588	582	99.0%	16.1	1.3	B
	Subtotal	588	582	99.0%	16.1	1.3	B
Total		2,176	2,168	99.6%	18.0	0.4	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	18	16	90.0%	10.7	2.9	B
	Through						
	Right Turn	25	25	99.2%	10.5	1.7	B
	Subtotal	43	41	95.3%	10.6	1.7	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	71	71	99.3%	6.3	1.3	A
	Right Turn	6	6	100.0%	7.4	5.4	A
	Subtotal	77	77	99.4%	6.4	1.2	A
WB	Left Turn	5	5	94.0%	11.4	5.0	B
	Through	206	179	86.9%	11.5	1.0	B
	Right Turn						
	Subtotal	211	184	87.1%	11.5	1.0	B
Total		331	301	91.0%	10.1	0.8	B

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	4	4	95.0%	11.5	8.1	B
	Through	170	167	98.0%	7.7	1.4	A
	Right Turn	16	16	102.5%	10.6	2.1	B
	Subtotal	190	187	98.3%	8.0	1.5	A
SB	Left Turn	33	31	93.3%	23.2	3.9	C
	Through	160	162	101.3%	14.5	2.6	B
	Right Turn	185	171	92.6%	14.8	1.6	B
	Subtotal	378	364	96.3%	15.4	2.1	B
EB	Left Turn	51	53	104.1%	34.1	6.3	C
	Through	35	35	100.6%	33.5	6.1	C
	Right Turn	10	10	99.0%	17.5	3.9	B
	Subtotal	96	98	102.3%	32.5	3.6	C
WB	Left Turn	16	17	104.4%	3.3	2.0	A
	Through	22	19	86.8%	6.3	2.4	A
	Right Turn	12	12	100.0%	14.7	4.4	B
	Subtotal	50	48	95.6%	7.4	1.7	A
Total		714	697	97.6%	15.3	1.3	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	201	197	98.2%	53.8	3.6	D
	Right Turn	307	310	100.9%	62.5	4.2	E
	Subtotal	508	507	99.8%	59.2	3.5	E
SB	Left Turn	439	449	102.3%	44.4	1.5	D
	Through	307	291	94.8%	25.4	2.1	C
	Right Turn						
	Subtotal	746	740	99.2%	36.9	1.7	D
EB	Left Turn	821	849	103.4%	36.8	4.9	D
	Through	316	341	107.8%	11.6	2.1	B
	Right Turn	45	49	108.0%	10.1	3.0	B
	Subtotal	1,182	1,238	104.8%	28.8	3.8	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,436	2,486	102.0%	37.4	2.1	D

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn	40	39	97.0%	32.2	2.3	C
	Through	172	175	101.5%	19.9	1.8	B
	Right Turn						
	Subtotal	212	213	100.7%	22.2	1.6	C
SB	Left Turn						
	Through	578	571	98.7%	23.4	5.4	C
	Right Turn	24	23	97.1%	56.2	14.8	E
	Subtotal	602	594	98.7%	24.7	5.4	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	169	165	97.8%	42.7	2.4	D
	Through	314	299	95.1%	39.2	2.6	D
	Right Turn	539	534	99.0%	7.3	1.0	A
	Subtotal	1,022	997	97.6%	22.7	1.5	C
Total		1,836	1,805	98.3%	23.3	1.8	C

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	509	520	102.1%	2.4	0.2	A
	Right Turn						
	Subtotal	509	520	102.1%	2.4	0.2	A
SB	Left Turn						
	Through	547	544	99.4%	7.5	1.5	A
	Right Turn	986	890	90.3%	16.7	1.0	B
	Subtotal	1,533	1,434	93.5%	13.2	1.0	B
EB	Left Turn	88	85	96.4%	37.8	2.1	D
	Through						
	Right Turn						
	Subtotal	88	85	96.4%	37.8	2.1	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,130	2,039	95.7%	11.5	0.8	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	619	596	96.3%	7.3	0.4	A
	Subtotal	619	596	96.3%	7.3	0.4	A
EB	Left Turn	555	533	96.1%	10.5	3.3	B
	Through						
	Right Turn						
	Subtotal	555	533	96.1%	10.5	3.3	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,174	1,129	96.2%	8.8	1.7	A

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	56	58	104.1%	49.5	7.2	D
	Through	566	560	98.9%	5.6	0.7	A
	Right Turn						
	Subtotal	622	618	99.4%	9.8	1.3	A
SB	Left Turn						
	Through	354	355	100.2%	8.0	1.2	A
	Right Turn	9	7	81.1%	12.5	6.9	B
	Subtotal	363	362	99.7%	8.1	1.2	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	159	155	97.4%	38.5	2.6	D
	Through	83	85	101.8%	35.2	1.6	D
	Right Turn	101	84	83.5%	26.3	2.1	C
	Subtotal	343	324	94.4%	34.5	1.4	C
Total		1,328	1,304	98.2%	15.4	0.7	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	638	617	96.6%	10.7	0.8	B
	Right Turn	29	30	102.4%	7.5	2.6	A
	Subtotal	667	646	96.9%	10.6	0.7	B
SB	Left Turn	37	33	89.7%	47.0	6.7	D
	Through	248	246	99.3%	10.4	1.0	B
	Right Turn						
	Subtotal	285	279	98.0%	14.7	1.5	B
EB	Left Turn	22	32	143.2%	20.4	5.2	C
	Through	855	871	101.9%	14.9	0.9	B
	Right Turn	115	115	100.3%	6.7	1.5	A
	Subtotal	992	1,018	102.6%	14.1	0.8	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,944	1,944	100.0%	13.0	0.3	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	46	44	95.2%	10.4	2.2	B
	Through	614	605	98.5%	6.3	0.4	A
	Right Turn						
	Subtotal	660	649	98.3%	6.6	0.4	A
SB	Left Turn						
	Through	263	256	97.5%	4.3	0.4	A
	Right Turn	66	75	113.3%	5.6	1.0	A
	Subtotal	329	331	100.7%	4.6	0.4	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	230	225	97.7%	37.3	1.4	D
	Through	171	172	100.4%	35.5	1.8	D
	Right Turn	9	8	92.2%	21.4	3.7	C
	Subtotal	410	405	98.7%	36.2	1.1	D
Total		1,399	1,385	99.0%	14.8	0.4	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,138	1,142	100.4%	8.9	0.7	A
	Right Turn	38	37	97.4%	8.8	2.0	A
	Subtotal	1,176	1,179	100.3%	8.9	0.7	A
NE	Left Turn	71	68	95.1%	33.0	2.6	C
	Through						
	Right Turn	396	395	99.7%	43.1	3.2	D
	Subtotal	467	462	99.0%	41.6	2.8	D
EB	Left Turn	124	139	111.7%	37.3	1.4	D
	Through	665	674	101.3%	38.3	0.4	D
	Right Turn						
	Subtotal	789	812	102.9%	38.1	0.5	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,432	2,454	100.9%	24.7	0.7	C

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,093	1,111	101.7%	3.3	0.5	A
	Through	240	240	100.1%	4.1	0.5	A
	Right Turn						
	Subtotal	1,333	1,352	101.4%	3.5	0.5	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	97	97	100.1%	33.5	2.4	C
	Right Turn	477	482	101.0%	36.6	1.6	D
	Subtotal	574	579	100.9%	36.1	1.2	D
Total		1,907	1,931	101.2%	13.2	0.4	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	1,498	1,474	98.4%	2.3	0.2	A
	Through						
	Right Turn	201	208	103.3%	3.1	0.4	A
	Subtotal	1,699	1,682	99.0%	2.4	0.2	A
SB	Left Turn						
	Through	506	498	98.4%	0.5	0.1	A
	Right Turn	25	26	103.2%	4.7	0.2	A
	Subtotal	531	524	98.7%	0.7	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	43	44	101.9%	5.3	0.5	A
	Through	92	91	99.1%	38.4	5.2	D
	Right Turn						
	Subtotal	135	135	100.0%	27.7	3.7	C
Total		2,365	2,341	99.0%	3.5	0.3	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	648	652	100.5%	4.9	0.4	A
	Through	1,376	1,355	98.5%	5.3	0.1	A
	Right Turn	23	22	94.8%	5.8	2.0	A
	Subtotal	2,047	2,028	99.1%	5.2	0.2	A
EB	Left Turn						
	Through	251	266	105.8%	35.0	2.2	C
	Right Turn	33	32	98.2%	32.4	5.0	C
	Subtotal	284	298	104.9%	34.7	2.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,331	2,326	99.8%	9.0	0.3	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	127	125	98.3%	41.9	3.7	D
	Right Turn	106	108	101.4%	32.1	3.4	C
	Subtotal	233	232	99.7%	37.4	3.2	D
SB	Left Turn	39	43	111.0%	42.7	3.5	D
	Through	196	189	96.4%	33.3	2.6	C
	Right Turn						
	Subtotal	235	232	98.9%	35.0	2.3	D
EB	Left Turn	12	12	95.8%	47.0	19.5	D
	Through	1,037	1,073	103.5%	48.2	19.0	D
	Right Turn	182	186	102.1%	34.3	9.8	C
	Subtotal	1,231	1,270	103.2%	46.1	17.6	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,699	1,735	102.1%	43.5	13.3	D

Vissim Post-Processor **A's Ballpark**
Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**
Volume and Delay by Movement **7 PM to 8 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	35	36	101.4%	36.5	4.0	D
	Through	88	91	103.3%	14.2	1.7	B
	Right Turn	626	628	100.4%	7.7	0.6	A
	Subtotal	749	755	100.8%	9.8	0.7	A
SB	Left Turn						
	Through	50	45	89.4%	17.8	2.7	B
	Right Turn	11	12	110.9%	6.9	1.0	A
	Subtotal	61	57	93.3%	15.6	2.2	B
EB	Left Turn	39	41	103.9%	32.0	4.2	C
	Through	149	140	94.0%	29.0	2.0	C
	Right Turn	47	41	87.2%	0.7	0.2	A
	Subtotal	235	222	94.3%	24.3	1.5	C
WB	Left Turn	182	175	96.1%	35.8	2.9	D
	Through	64	61	95.2%	25.2	2.5	C
	Right Turn	16	15	93.1%	12.3	4.2	B
	Subtotal	262	251	95.7%	31.8	1.5	C
Total		1,307	1,284	98.2%	16.9	0.7	B

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	13	14	106.2%	26.0	4.7	C
	Through	110	103	93.6%	24.6	1.0	C
	Right Turn	5	6	114.0%	9.4	4.6	A
	Subtotal	128	123	95.7%	24.1	1.1	C
SB	Left Turn	86	85	98.6%	26.2	2.2	C
	Through	117	106	90.9%	19.8	1.7	B
	Right Turn	7	8	108.6%	5.3	1.4	A
	Subtotal	210	199	94.6%	22.0	1.5	C
EB	Left Turn	21	18	84.8%	7.8	1.4	A
	Through	40	52	130.8%	7.7	1.8	A
	Right Turn	10	11	105.0%	2.7	0.9	A
	Subtotal	71	81	113.5%	7.0	1.2	A
WB	Left Turn	24	19	77.1%	8.1	2.7	A
	Through	43	54	126.0%	8.4	1.0	A
	Right Turn	60	55	91.2%	5.4	1.1	A
	Subtotal	127	127	100.3%	7.0	0.6	A
Total		536	529	98.7%	16.6	0.7	B

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	49	44	88.8%	28.0	2.3	C
	Through	39	36	91.0%	28.4	4.6	C
	Right Turn	112	105	93.7%	14.1	1.8	B
	Subtotal	200	184	92.0%	20.2	1.8	C
SB	Left Turn	71	69	96.9%	34.0	2.5	C
	Through	23	22	96.5%	30.8	5.3	C
	Right Turn	15	14	94.7%	5.0	0.5	A
	Subtotal	109	105	96.5%	29.4	2.4	C
EB	Left Turn						
	Through	662	663	100.1%	12.7	1.0	B
	Right Turn	113	106	94.1%	3.1	0.4	A
	Subtotal	775	769	99.2%	11.3	0.8	B
WB	Left Turn	83	79	95.2%	44.0	6.0	D
	Through	198	192	97.2%	7.1	1.1	A
	Right Turn	38	36	95.3%	3.9	1.1	A
	Subtotal	319	308	96.4%	16.3	1.9	B
Total		1,403	1,366	97.3%	15.0	0.6	B

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	452	456	100.8%	24.3	1.4	C
	Right Turn						
	Subtotal	452	456	100.8%	24.3	1.4	C
SB	Left Turn						
	Through	769	798	103.8%	22.5	2.1	C
	Right Turn	30	30	99.3%	14.3	6.8	B
	Subtotal	799	828	103.7%	22.2	2.1	C
EB	Left Turn						
	Through	96	107	111.4%	26.2	3.5	C
	Right Turn	60	61	101.7%	21.3	3.9	C
	Subtotal	156	168	107.6%	24.4	2.6	C
WB	Left Turn						
	Through	119	123	102.9%	21.5	0.9	C
	Right Turn						
	Subtotal	119	123	102.9%	21.5	0.9	C
Total		1,526	1,574	103.2%	23.0	1.4	C

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	447	452	101.1%	2.6	0.6	A
	Right Turn	5	3	66.0%	1.7	3.4	A
	Subtotal	452	455	100.7%	2.6	0.6	A
SB	Left Turn						
	Through	796	821	103.2%	7.5	1.5	A
	Right Turn						
	Subtotal	796	821	103.2%	7.5	1.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	3	2	73.3%	11.8	6.0	B
	Through						
	Right Turn	32	31	97.2%	9.0	2.0	A
	Subtotal	35	33	95.1%	9.3	1.9	A
Total		1,283	1,310	102.1%	5.8	1.1	A

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	340	354	104.2%	28.2	1.4	C
	Right Turn	139	134	96.4%	22.2	1.3	C
	Subtotal	479	488	101.9%	26.5	1.0	C
SB	Left Turn	152	157	103.5%	47.0	6.8	D
	Through	707	719	101.8%	7.7	1.6	A
	Right Turn						
	Subtotal	859	877	102.1%	14.8	2.1	B
EB	Left Turn	29	29	100.3%	38.6	4.8	D
	Through	509	508	99.7%	35.8	3.6	D
	Right Turn	89	94	105.6%	28.3	4.1	C
	Subtotal	627	631	100.6%	34.8	3.3	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,965	1,996	101.6%	24.0	1.3	C

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	116	114	97.8%	46.4	3.4	D
	Through	253	272	107.5%	3.1	0.4	A
	Right Turn						
	Subtotal	369	386	104.5%	15.9	1.1	B
SB	Left Turn						
	Through	552	565	102.3%	11.2	2.4	B
	Right Turn	12	12	100.8%	4.4	1.4	A
	Subtotal	564	577	102.3%	11.1	2.3	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	307	306	99.7%	37.7	2.8	D
	Through	191	181	94.7%	31.4	1.9	C
	Right Turn	166	164	98.7%	7.7	0.3	A
	Subtotal	664	651	98.0%	28.4	1.4	C
Total		1,597	1,613	101.0%	19.2	1.1	B

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	67	68	100.7%	17.3	2.0	B
	Through	218	225	103.1%	12.2	1.0	B
	Right Turn	134	144	107.5%	5.0	0.5	A
	Subtotal	419	436	104.1%	10.6	0.8	B
SB	Left Turn	28	25	87.5%	20.7	2.5	C
	Through	217	219	101.1%	15.4	2.4	B
	Right Turn	39	41	104.1%	3.6	0.4	A
	Subtotal	284	284	100.1%	14.2	1.9	B
EB	Left Turn	60	59	98.3%	42.8	3.9	D
	Through	402	408	101.5%	32.1	2.0	C
	Right Turn	41	42	102.7%	24.8	4.2	C
	Subtotal	503	509	101.2%	32.7	2.1	C
WB	Left Turn	306	308	100.6%	34.2	3.3	C
	Through	210	208	99.1%	22.6	1.3	C
	Right Turn	27	26	95.6%	10.0	3.3	A
	Subtotal	543	542	99.8%	28.7	2.1	C
Total		1,749	1,771	101.3%	23.1	1.2	C

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn	16	14	84.4%	4.3	0.7	A
	Subtotal	16	14	84.4%	4.3	0.7	A
SB	Left Turn	307	306	99.5%	48.1	3.5	D
	Through	104	110	106.0%	44.2	4.1	D
	Right Turn						
	Subtotal	411	416	101.1%	47.1	3.4	D
EB	Left Turn						
	Through	695	693	99.7%	1.5	0.2	A
	Right Turn	105	106	100.6%	1.6	0.3	A
	Subtotal	800	798	99.8%	1.5	0.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,227	1,227	100.0%	17.0	0.9	B

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through	393	400	101.9%	1.9	0.5	A
	Right Turn	8	8	103.8%	1.4	0.6	A
	Subtotal	401	409	101.9%	1.9	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	18	17	92.8%	27.5	5.2	C
	Through	30	30	99.7%	27.3	4.5	C
	Right Turn						
	Subtotal	48	47	97.1%	27.6	3.4	C
Total		449	455	101.4%	4.5	0.4	A

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	205	205	99.8%	28.3	2.1	C
	Through	384	381	99.2%	24.6	1.2	C
	Right Turn	362	358	98.8%	11.5	0.9	B
	Subtotal	951	943	99.2%	20.4	0.7	C
EB	Left Turn						
	Through	549	565	102.9%	5.7	0.7	A
	Right Turn	15	15	96.7%	2.2	1.6	A
	Subtotal	564	580	102.7%	5.6	0.6	A
WB	Left Turn	2	13	630.0%	10.2	3.9	B
	Through	181	177	97.7%	7.4	1.4	A
	Right Turn						
	Subtotal	183	190	103.6%	7.6	1.3	A
Total		1,698	1,712	100.8%	14.0	0.5	B

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	178	201	113.1%	28.5	2.5	C
	Right Turn	21	19	91.9%	21.5	4.7	C
	Subtotal	199	221	110.9%	27.9	2.3	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	64	63	98.4%	4.9	1.1	A
	Through	941	938	99.7%	5.8	0.6	A
	Right Turn	13	15	111.5%	4.3	1.6	A
	Subtotal	1,018	1,015	99.7%	5.8	0.6	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,217	1,236	101.6%	9.7	0.6	A

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	7	6	90.0%	27.7	10.8	C
	Through	311	314	101.0%	26.6	2.7	C
	Right Turn	24	40	165.0%	14.9	6.2	B
	Subtotal	342	360	105.3%	25.3	2.8	C
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn	344	355	103.1%	40.1	1.9	D
	Through	410	417	101.6%	6.4	0.6	A
	Right Turn						
	Subtotal	754	771	102.3%	21.9	1.2	C
WB	Left Turn						
	Through	176	181	103.0%	7.6	1.3	A
	Right Turn	3	3	100.0%	2.4	2.2	A
	Subtotal	179	184	102.9%	7.5	1.3	A
Total		1,275	1,316	103.2%	20.8	0.9	C

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	284	314	110.6%	1.2	0.2	A
	Right Turn						
	Subtotal	284	314	110.6%	1.2	0.2	A
SB	Left Turn						
	Through	333	350	105.0%	5.9	1.1	A
	Right Turn						
	Subtotal	333	350	105.0%	5.9	1.1	A
EB	Left Turn	2	2	95.0%	39.8	16.8	D
	Through	22	20	91.4%	31.6	3.9	C
	Right Turn						
	Subtotal	24	22	91.7%	31.9	3.8	C
WB	Left Turn						
	Through	31	29	92.3%	28.6	4.7	C
	Right Turn	25	23	90.0%	14.4	4.8	B
	Subtotal	56	51	91.3%	22.2	3.6	C
Total		697	737	105.8%	5.8	0.9	A

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	311	336	108.1%	3.0	0.9	A
	Right Turn						
	Subtotal	311	336	108.1%	3.0	0.9	A
SB	Left Turn						
	Through	333	348	104.6%	11.8	1.4	B
	Right Turn						
	Subtotal	333	348	104.6%	11.8	1.4	B
EB	Left Turn						
	Through	95	89	93.8%	16.6	2.2	B
	Right Turn						
	Subtotal	95	89	93.8%	16.6	2.2	B
WB	Left Turn						
	Through	127	110	86.6%	21.7	3.0	C
	Right Turn	27	24	87.8%	15.3	2.6	B
	Subtotal	154	134	86.8%	20.5	2.8	C
Total		893	907	101.6%	10.3	0.8	B

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	338	360	106.4%	7.5	0.6	A
	Right Turn						
	Subtotal	338	360	106.4%	7.5	0.6	A
SB	Left Turn						
	Through	333	345	103.5%	6.2	2.0	A
	Right Turn						
	Subtotal	333	345	103.5%	6.2	2.0	A
EB	Left Turn						
	Through	22	22	98.2%	40.2	3.8	D
	Right Turn						
	Subtotal	22	22	98.2%	40.2	3.8	D
WB	Left Turn						
	Through	104	112	107.6%	38.3	2.0	D
	Right Turn						
	Subtotal	104	112	107.6%	38.3	2.0	D
Total		797	838	105.1%	12.0	0.9	B

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	301	322	107.0%	15.8	1.4	B
	Right Turn	37	38	103.5%	4.3	0.6	A
	Subtotal	338	360	106.6%	14.6	1.2	B
SB	Left Turn	20	20	100.5%	37.7	6.6	D
	Through	255	260	101.8%	9.6	1.6	A
	Right Turn						
	Subtotal	275	280	101.7%	11.6	1.8	B
EB	Left Turn	20	21	107.0%	25.8	4.4	C
	Through	864	859	99.5%	24.3	2.5	C
	Right Turn	78	80	102.9%	17.8	3.7	B
	Subtotal	962	961	99.9%	23.8	2.5	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,575	1,601	101.7%	19.6	1.4	B

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1	2	150.0%	8.5	5.7	A
	Through						
	Right Turn	3	3	90.0%	7.3	2.9	A
	Subtotal	4	4	105.0%	9.5	3.1	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	19	19	100.5%	2.5	0.7	A
	Right Turn	3	3	83.3%	2.4	1.6	A
	Subtotal	22	22	98.2%	2.5	0.7	A
WB	Left Turn	1	1	90.0%	5.2	9.2	A
	Through	103	101	97.9%	9.6	1.3	A
	Right Turn						
	Subtotal	104	102	97.8%	9.6	1.4	A
Total		130	128	98.1%	8.4	1.1	A

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn Through Right Turn	383	386	100.7%	21.3	3.1	C
	Subtotal	383	386	100.7%	21.3	3.1	C
SB	Left Turn Through Right Turn	419	432	103.0%	8.1	0.6	A
	Subtotal	419	432	103.0%	8.1	0.6	A
EB	Left Turn Through Right Turn	267	289	108.4%	19.3	1.5	B
	Subtotal	267	289	108.4%	19.3	1.5	B
WB	Left Turn Through Right Turn	316	339	107.3%	9.9	1.6	A
	Subtotal	316	339	107.3%	9.9	1.6	A
Total		1,385	1,446	104.4%	14.3	1.2	B

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	8	7	92.5%	12.3	2.7	B
	Through						
	Right Turn	12	12	101.7%	10.5	1.8	B
	Subtotal	20	20	98.0%	11.2	1.9	B
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	20	20	102.0%	2.6	1.3	A
	Right Turn	2	2	90.0%	0.4	0.2	A
	Subtotal	22	22	100.9%	2.4	1.2	A
WB	Left Turn	5	5	90.0%	6.2	3.6	A
	Through	96	94	98.3%	7.9	0.7	A
	Right Turn						
	Subtotal	101	99	97.9%	7.8	0.8	A
Total		143	141	98.4%	7.4	0.5	A

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	6	6	105.0%	14.4	4.8	B
	Through	91	85	93.0%	10.7	2.4	B
	Right Turn	16	18	114.4%	9.1	2.7	A
	Subtotal	113	109	96.6%	10.7	2.0	B
SB	Left Turn	1	2	150.0%	19.6	20.1	B
	Through	117	121	103.6%	11.8	2.4	B
	Right Turn	73	71	97.5%	10.2	2.3	B
	Subtotal	191	194	101.5%	11.3	2.1	B
EB	Left Turn	18	20	110.6%	18.5	4.6	B
	Through	9	10	107.8%	19.6	5.6	B
	Right Turn	5	4	84.0%	6.8	3.9	A
	Subtotal	32	34	105.6%	17.6	3.9	B
WB	Left Turn	10	8	84.0%	2.1	0.2	A
	Through	22	21	95.9%	4.6	1.3	A
	Right Turn	13	15	113.8%	10.4	2.3	B
	Subtotal	45	44	98.4%	6.0	1.2	A
Total		381	381	100.1%	11.1	1.4	B

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	178	174	97.5%	31.1	1.8	C
	Right Turn	209	213	102.1%	25.4	2.3	C
	Subtotal	387	387	100.0%	27.9	1.9	C
SB	Left Turn	374	382	102.2%	27.0	1.0	C
	Through	212	208	98.3%	15.5	1.1	B
	Right Turn						
	Subtotal	586	591	100.8%	23.0	0.9	C
EB	Left Turn	595	592	99.5%	39.7	5.2	D
	Through	274	261	95.1%	29.0	1.4	C
	Right Turn	48	47	97.5%	23.6	2.9	C
	Subtotal	917	900	98.1%	35.8	4.0	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,890	1,877	99.3%	30.1	1.8	C

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	36	36	100.0%	21.7	2.2	C
	Through	155	152	98.0%	11.5	0.6	B
	Right Turn						
	Subtotal	191	188	98.4%	13.5	0.7	B
SB	Left Turn						
	Through	455	456	100.2%	7.4	1.1	A
	Right Turn	19	18	93.7%	16.9	4.6	B
	Subtotal	474	474	99.9%	7.7	1.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	132	133	101.0%	32.9	1.5	C
	Through	175	175	100.2%	31.1	0.9	C
	Right Turn	421	413	98.0%	4.0	0.2	A
	Subtotal	728	721	99.1%	15.9	0.7	B
Total		1,393	1,383	99.3%	12.8	0.6	B

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	383	393	102.6%	9.6	1.0	A
	Right Turn						
	Subtotal	383	393	102.6%	9.6	1.0	A
SB	Left Turn						
	Through	419	433	103.2%	19.8	1.9	B
	Right Turn	410	445	108.4%	22.1	1.6	C
	Subtotal	829	877	105.8%	21.0	1.0	C
EB	Left Turn	69	65	94.6%	46.3	7.8	D
	Through						
	Right Turn						
	Subtotal	69	65	94.6%	46.3	7.8	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,281	1,335	104.2%	18.9	0.8	B

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	333	352	105.8%	10.8	0.8	B
	Subtotal	333	352	105.8%	10.8	0.8	B
EB	Left Turn	284	315	110.8%	16.6	3.0	B
	Through						
	Right Turn						
	Subtotal	284	315	110.8%	16.6	3.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		617	667	108.1%	13.5	1.6	B

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	43	41	94.9%	45.6	5.0	D
	Through	278	304	109.4%	1.9	0.5	A
	Right Turn						
	Subtotal	321	345	107.5%	7.0	0.8	A
SB	Left Turn						
	Through	195	194	99.4%	4.2	0.6	A
	Right Turn	10	10	98.0%	4.2	2.6	A
	Subtotal	205	204	99.4%	4.2	0.6	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	80	84	104.5%	34.8	1.9	C
	Through	95	92	96.7%	35.8	1.6	D
	Right Turn	33	34	101.8%	22.2	3.3	C
	Subtotal	208	209	100.5%	33.2	1.5	C
Total		734	758	103.2%	13.5	0.6	B

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	290	321	110.7%	6.0	0.8	A
	Right Turn	21	19	91.9%	3.6	0.9	A
	Subtotal	311	340	109.5%	5.8	0.8	A
SB	Left Turn	22	23	103.2%	47.0	5.1	D
	Through	135	131	96.9%	4.5	0.7	A
	Right Turn						
	Subtotal	157	154	97.8%	10.8	1.2	B
EB	Left Turn	11	24	215.5%	17.9	5.8	B
	Through	353	359	101.7%	26.0	1.2	C
	Right Turn	70	71	101.1%	10.4	1.7	B
	Subtotal	434	453	104.5%	23.1	1.2	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		902	947	105.0%	14.9	0.7	B

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	15	15	97.3%	5.3	2.0	A
	Through	286	330	115.3%	2.5	0.4	A
	Right Turn						
	Subtotal	301	345	114.5%	2.6	0.5	A
SB	Left Turn						
	Through	139	135	97.1%	2.9	0.5	A
	Right Turn	40	50	123.8%	3.0	0.8	A
	Subtotal	179	185	103.1%	3.0	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	159	150	94.2%	38.3	2.6	D
	Through	146	149	101.7%	36.8	2.0	D
	Right Turn	12	11	87.5%	16.8	5.3	B
	Subtotal	317	309	97.4%	36.8	2.0	D
Total		797	838	105.1%	15.3	0.8	B

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	816	825	101.1%	2.3	0.4	A
	Right Turn	19	19	97.4%	1.9	0.9	A
	Subtotal	835	844	101.1%	2.3	0.4	A
NE	Left Turn	73	71	97.5%	36.4	2.7	D
	Through						
	Right Turn	168	168	100.1%	40.9	2.4	D
	Subtotal	241	239	99.3%	39.6	2.0	D
EB	Left Turn	89	88	98.9%	40.1	2.7	D
	Through	338	342	101.2%	42.6	1.0	D
	Right Turn						
	Subtotal	427	430	100.7%	42.1	0.8	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,503	1,513	100.7%	19.5	0.6	B

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	823	827	100.5%	1.6	0.2	A
	Through	155	158	102.2%	2.3	0.3	A
	Right Turn						
	Subtotal	978	985	100.7%	1.7	0.2	A
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through	77	76	98.6%	36.3	2.9	D
	Right Turn	331	332	100.2%	40.9	1.6	D
	Subtotal	408	408	99.9%	40.0	1.6	D
Total		1,386	1,393	100.5%	12.9	0.5	B

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
SW	Left Turn	960	951	99.1%	1.0	0.1	A
	Through						
	Right Turn	125	127	101.8%	2.1	0.3	A
	Subtotal	1,085	1,078	99.4%	1.1	0.1	A
SB	Left Turn						
	Through	278	279	100.5%	0.2	0.0	A
	Right Turn	14	13	95.0%	4.7	0.2	A
	Subtotal	292	293	100.2%	0.4	0.1	A
EB	Left Turn						
	Through						
	Right Turn	1	0	0.0%	0.0	0.0	A
	Subtotal	1	0	0.0%	0.0	0.0	A
WB	Left Turn	51	50	98.2%	5.9	0.4	A
	Through	69	70	101.2%	38.1	5.3	D
	Right Turn						
	Subtotal	120	120	99.9%	24.6	3.1	C
Total		1,498	1,491	99.5%	2.9	0.2	A

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	372	374	100.5%	3.1	0.3	A
	Through	897	889	99.1%	3.5	0.4	A
	Right Turn	21	22	106.7%	3.5	1.2	A
	Subtotal	1,290	1,286	99.7%	3.4	0.3	A
EB	Left Turn						
	Through	155	158	101.6%	34.2	2.1	C
	Right Turn	41	39	95.1%	25.5	6.4	C
	Subtotal	196	197	100.3%	32.4	2.4	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,486	1,482	99.7%	7.2	0.4	A

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	Total Delay (sec/veh) LOS
NB	Left Turn						
	Through	57	55	96.5%	17.7	3.5	B
	Right Turn	65	65	100.3%	10.4	2.0	B
	Subtotal	122	120	98.5%	13.7	2.5	B
SB	Left Turn	34	32	93.8%	28.1	4.9	C
	Through	90	92	101.8%	20.9	2.4	C
	Right Turn						
	Subtotal	124	124	99.6%	22.8	2.7	C
EB	Left Turn	8	9	111.3%	15.6	5.2	B
	Through	818	795	97.1%	17.5	3.7	B
	Right Turn	101	106	105.3%	16.0	3.1	B
	Subtotal	927	910	98.2%	17.3	3.3	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,173	1,154	98.3%	17.5	2.9	B

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	7	1	75	16	NO
	Through	1,000	30	4	396	73	NO
	Right Turn	1,000	29	4	396	73	NO
SB	Left Turn						
	Through	185	4	1	59	15	NO
	Right Turn	185	3	1	60	15	NO
EB	Left Turn	800	7	1	72	14	NO
	Through	800	15	2	125	20	NO
	Right Turn	800	0	0	27	11	NO
WB	Left Turn	580	36	5	195	39	NO
	Through	580	15	2	145	38	NO
	Right Turn	580	11	2	146	38	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	48	2	377	57	NO
	Through	1,000	48	2	377	57	NO
	Right Turn	1,000	50	2	383	57	NO
SB	Left Turn	500	31	5	240	45	NO
	Through	500	31	5	240	45	NO
	Right Turn	500	29	4	244	45	NO
EB	Left Turn	1,000	6	2	124	22	NO
	Through	1,000	6	2	124	22	NO
	Right Turn	1,000	6	2	127	22	NO
WB	Left Turn	1,000	11	1	208	34	NO
	Through	1,000	11	1	208	34	NO
	Right Turn	1,000	11	1	210	34	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	13	2	137	25	NO
	Through	510	23	2	290	41	NO
	Right Turn						
SB	Left Turn	180	20	1	142	29	NO
	Through	200	21	1	143	29	NO
	Right Turn	200	16	2	144	30	NO
EB	Left Turn						
	Through	600	63	5	320	22	NO
	Right Turn	600	63	5	322	22	NO
WB	Left Turn	400	93	32	428	87	MAX
	Through	1,000	9	2	190	46	NO
	Right Turn	1,000	7	2	191	46	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	500	30	4	242	43	NO
	Right Turn						
SB	Left Turn						
	Through	190	17	2	192	30	MAX
	Right Turn	190	20	2	199	30	MAX
EB	Left Turn						
	Through	1,000	29	2	258	28	NO
	Right Turn	1,000	27	2	260	28	NO
WB	Left Turn						
	Through	200	16	2	227	57	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	1	2	81	60	NO
	Right Turn	210	3	2	115	59	NO
SB	Left Turn						
	Through	220	0	0	32	39	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	6	2	129	39	NO
	Through						
	Right Turn	220	6	2	129	39	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	71	4	312	12	MAX
	Right Turn	210	73	4	316	12	MAX
SB	Left Turn	100	20	3	156	17	MAX
	Through	150	6	1	111	19	NO
	Right Turn						
EB	Left Turn	1,000	67	5	304	49	NO
	Through	1,000	67	5	304	49	NO
	Right Turn	1,000	66	5	306	49	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	54	4	270	25	MAX
	Through	170	54	4	270	25	MAX
	Right Turn						
SB	Left Turn						
	Through	140	11	1	169	37	MAX
	Right Turn	140	0	0	40	18	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	70	4	295	25	MAX
	Through	800	70	4	295	25	NO
	Right Turn	200	6	1	113	34	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	7	2	194	60	MAX
	Through	145	21	2	264	19	MAX
	Right Turn	145	22	2	264	19	MAX
SB	Left Turn	80	4	1	67	11	NO
	Through	240	7	1	85	16	NO
	Right Turn	80	0	0	41	12	NO
EB	Left Turn	160	18	2	122	26	NO
	Through	500	58	2	221	29	NO
	Right Turn	500	59	2	225	29	NO
WB	Left Turn	190	24	2	119	16	NO
	Through	400	32	2	192	33	NO
	Right Turn	400	29	2	192	33	NO

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	0	0	56	5	NO
SB	Left Turn	180	65	5	260	19	MAX
	Through	180	65	5	260	19	MAX
	Right Turn						
EB	Left Turn						
	Through	270	4	1	163	50	NO
	Right Turn	270	3	1	170	50	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	2	1	113	30	NO
	Right Turn	200	1	1	113	30	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	4	2	90	26	NO
	Through	310	5	2	84	28	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	75	6	370	53	NO
	Through	1,000	76	6	370	53	NO
	Right Turn	1,000	74	6	372	53	NO
EB	Left Turn						
	Through	390	22	3	266	54	NO
	Right Turn	390	22	3	266	54	NO
WB	Left Turn	130	2	1	69	20	NO
	Through	380	5	1	91	22	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	56	6	311	15	MAX
	Right Turn	220	60	6	317	15	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	25	3	329	55	MAX
	Through	315	25	3	329	55	MAX
	Right Turn	315	25	3	333	55	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	28	2	131	15	NO
	Through	200	28	2	131	15	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	14	2	217	54	NO
	Right Turn						
WB	Left Turn						
	Through	240	3	1	97	19	NO
	Right Turn	240	1	0	94	21	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	0	0	51	24	NO
	Right Turn						
SB	Left Turn						
	Through	200	0	0	44	44	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	2	1	85	36	NO
SB	Left Turn Through Right Turn	200	5	1	149	24	NO
EB	Left Turn Through Right Turn	300	9	2	116	57	NO
WB	Left Turn Through	300	14	2	137	14	NO
	Right Turn	300	15	2	137	14	NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	4	1	120	37	NO
SB	Left Turn Through Right Turn	200	2	0	85	29	NO
EB	Left Turn Through Right Turn	300	5	1	68	18	NO
WB	Left Turn Through Right Turn	300	14	1	109	26	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	30	3	188	10	NO
	Right Turn	200	29	3	186	10	NO
SB	Left Turn	210	13	2	133	23	NO
	Through	210	13	2	133	23	NO
	Right Turn						
EB	Left Turn	300	74	7	373	36	MAX
	Through	300	74	7	373	36	MAX
	Right Turn	300	74	8	375	36	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	23	2	NO
	Through						
	Right Turn	200	0	0	25	2	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	0	0	41	13	NO
	Right Turn	310	0	0	43	13	NO
WB	Left Turn	300	2	0	67	11	NO
	Through	300	2	0	67	11	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	11	1	141	17	NO
SB	Left Turn Through Right Turn	200	2	0	96	23	NO
EB	Left Turn Through Right Turn	600	42	3	230	30	NO
WB	Left Turn Through Right Turn	800	30	3	245	37	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	1	57	18	NO
	Through						
	Right Turn	200	2	1	57	18	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	0	0	21	14	NO
	Right Turn	300	0	0	21	14	NO
WB	Left Turn	290	1	0	47	19	NO
	Through	290	1	0	47	19	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	1	66	14	NO
	Through	200	1	1	66	14	NO
	Right Turn	200	2	1	67	14	NO
SB	Left Turn	200	2	1	96	28	NO
	Through	200	2	1	96	28	NO
	Right Turn	200	3	1	100	28	NO
EB	Left Turn	290	5	1	66	28	NO
	Through	290	5	1	66	28	NO
	Right Turn	290	6	2	72	28	NO
WB	Left Turn	300	1	0	69	13	NO
	Through	300	1	0	118	11	NO
	Right Turn	300	1	0	63	13	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	83	10	399	71	MAX
	Right Turn	200	83	10	399	71	MAX
SB	Left Turn	200	87	5	289	12	MAX
	Through	200	62	6	289	13	MAX
	Right Turn						
EB	Left Turn	300	112	14	398	13	MAX
	Through	300	112	14	398	13	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	7	1	128	19	NO
	Through	200	14	2	163	13	NO
	Right Turn						
SB	Left Turn						
	Through	200	35	9	256	74	MAX
	Right Turn	200	35	9	256	74	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	43	4	208	25	NO
	Through	1,000	20	2	147	80	NO
	Right Turn	150	1	0	104	40	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	2	1	136	29	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	0	0	NO
	Right Turn	500	0	0	17	11	NO
EB	Left Turn	1,000	22	2	134	24	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	3	1	136	37	NO
EB	Left Turn	600	1	1	52	23	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	11	3	112	37	NO
	Through	200	11	3	112	37	NO
	Right Turn						
SB	Left Turn						
	Through	200	1	0	69	13	NO
	Right Turn	200	1	0	69	13	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	28	2	159	28	NO
	Through	200	28	2	159	28	NO
	Right Turn	220	28	2	162	28	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	14	3	200	15	NO
	Right Turn	210	14	3	200	15	NO
SB	Left Turn	170	15	2	108	14	NO
	Through	170	15	2	108	14	NO
	Right Turn						
EB	Left Turn	180	46	4	271	48	MAX
	Through	180	46	4	271	48	MAX
	Right Turn	180	49	4	277	48	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	3	0	131	49	NO
	Through	180	3	0	131	49	NO
	Right Turn						
SB	Left Turn						
	Through	200	2	0	94	21	NO
	Right Turn	200	2	0	95	21	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	24	2	144	20	NO
	Through	300	30	2	144	20	NO
	Right Turn	300	31	2	146	20	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	7	1	94	16	NO
	Right Turn	180	14	1	128	16	NO
NE	Left Turn	670	16	1	105	20	NO
	Through						
	Right Turn	670	16	1	105	20	NO
EB	Left Turn	380	42	1	142	12	NO
	Through	380	42	1	142	12	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	10	1	157	44	NO
	Through	190	10	1	157	44	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	73	3	261	23	MAX
	Right Turn	250	73	3	261	23	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	0	0	5	9	NO
	Through						
	Right Turn	1,000	0	0	7	16	NO
SB	Left Turn						
	Through	1,000	0	0	91	11	NO
	Right Turn	1,000	1	0	58	14	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	3	0	93	15	NO
	Through	350	12	3	74	8	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **3 PM to 4 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	11	1	156	24	NO
	Through	200	11	1	156	24	NO
	Right Turn	200	11	1	160	24	NO
EB	Left Turn						
	Through	500	28	2	129	29	NO
	Right Turn	500	40	2	160	29	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	8	3	119	30	NO
	Right Turn	200	8	2	120	30	NO
SB	Left Turn	200	10	2	120	31	NO
	Through	200	10	2	120	31	NO
	Right Turn						
EB	Left Turn	800	80	15	467	71	NO
	Through	800	80	15	467	71	NO
	Right Turn	800	79	15	469	71	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	12	4	130	46	NO
	Through	1,000	77	12	615	121	NO
	Right Turn	1,000	76	12	615	121	NO
SB	Left Turn						
	Through	185	4	1	58	11	NO
	Right Turn	185	4	0	60	11	NO
EB	Left Turn	800	9	2	83	21	NO
	Through	800	19	1	139	31	NO
	Right Turn	800	0	0	31	13	NO
WB	Left Turn	580	42	4	198	23	NO
	Through	580	19	5	186	60	NO
	Right Turn	580	15	6	187	60	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	110	8	682	111	NO
	Through	1,000	110	8	682	111	NO
	Right Turn	1,000	112	9	688	111	NO
SB	Left Turn	500	46	5	280	25	NO
	Through	500	46	5	280	25	NO
	Right Turn	500	37	4	285	25	NO
EB	Left Turn	1,000	17	4	191	59	NO
	Through	1,000	17	4	191	59	NO
	Right Turn	1,000	18	4	194	59	NO
WB	Left Turn	1,000	27	8	279	63	NO
	Through	1,000	27	8	279	63	NO
	Right Turn	1,000	27	8	280	63	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	20	4	174	43	NO
	Through	510	70	13	454	37	NO
	Right Turn						
SB	Left Turn	180	25	2	137	27	NO
	Through	200	26	2	139	27	NO
	Right Turn	200	22	3	149	27	NO
EB	Left Turn						
	Through	600	115	8	405	63	NO
	Right Turn	600	115	8	407	63	NO
WB	Left Turn	400	90	29	372	62	NO
	Through	1,000	16	3	206	30	NO
	Right Turn	1,000	15	3	206	30	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	500	103	5	469	44	NO
	Right Turn						
SB	Left Turn						
	Through	190	47	10	226	16	MAX
	Right Turn	190	51	10	233	16	MAX
EB	Left Turn						
	Through	1,000	56	4	461	122	NO
	Right Turn	1,000	55	4	463	122	NO
WB	Left Turn						
	Through	200	27	4	285	20	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	20	10	249	33	MAX
	Right Turn	210	29	12	282	33	MAX
SB	Left Turn						
	Through	220	13	9	301	81	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	9	2	110	27	NO
	Through						
	Right Turn	220	9	2	110	27	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	148	8	331	9	MAX
	Right Turn	210	151	8	335	9	MAX
SB	Left Turn	100	35	7	264	40	MAX
	Through	150	21	3	235	43	MAX
	Right Turn						
EB	Left Turn	1,000	89	4	387	56	NO
	Through	1,000	89	4	387	56	NO
	Right Turn	1,000	88	4	389	56	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	87	13	301	25	MAX
	Through	170	87	13	301	25	MAX
	Right Turn						
SB	Left Turn						
	Through	140	20	4	252	39	MAX
	Right Turn	140	0	0	28	9	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	95	4	406	37	MAX
	Through	800	95	4	406	37	NO
	Right Turn	200	6	1	104	15	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	14	2	260	14	MAX
	Through	145	31	3	270	7	MAX
	Right Turn	145	31	3	271	7	MAX
SB	Left Turn	80	10	2	94	22	MAX
	Through	240	18	1	130	20	NO
	Right Turn	80	1	0	68	20	NO
EB	Left Turn	160	24	3	153	32	NO
	Through	500	78	5	326	54	NO
	Right Turn	500	80	5	329	54	NO
WB	Left Turn	190	43	3	187	33	NO
	Through	400	23	3	164	22	NO
	Right Turn	400	21	3	165	22	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	1	0	46	6	NO
SB	Left Turn	180	72	5	278	21	MAX
	Through	180	72	5	279	21	MAX
	Right Turn						
EB	Left Turn						
	Through	270	16	1	277	61	MAX
	Right Turn	270	13	2	283	61	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	2	0	120	22	NO
	Right Turn	200	1	0	121	22	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	6	2	82	15	NO
	Through	310	5	1	62	8	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	73	8	451	35	NO
	Through	1,000	75	7	451	35	NO
	Right Turn	1,000	73	8	453	35	NO
EB	Left Turn						
	Through	390	52	7	408	35	MAX
	Right Turn	390	52	7	408	35	MAX
WB	Left Turn	130	4	2	88	28	NO
	Through	380	12	1	120	17	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	93	13	338	3	MAX
	Right Turn	220	98	13	344	3	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	49	4	408	18	MAX
	Through	315	49	4	408	18	MAX
	Right Turn	315	49	5	411	18	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	35	3	165	32	NO
	Through	200	35	3	165	32	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	27	5	362	78	NO
	Right Turn						
WB	Left Turn						
	Through	240	7	1	113	17	NO
	Right Turn	240	4	1	114	17	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	5	2	247	65	MAX
	Right Turn						
SB	Left Turn						
	Through	200	6	2	182	51	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	10	3	193	12	NO
SB	Left Turn Through Right Turn	200	13	2	220	30	MAX
EB	Left Turn Through Right Turn	300	13	3	188	38	NO
WB	Left Turn Through Right Turn	300 300	20 20	2 2	167 167	28 28	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	36	5	254	35	MAX
SB	Left Turn Through Right Turn	200	6	2	170	36	NO
EB	Left Turn Through Right Turn	300	11	1	94	17	NO
WB	Left Turn Through Right Turn	300	33	3	188	31	NO

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	55	5	228	33	MAX
	Right Turn	200	54	5	227	33	MAX
SB	Left Turn	210	24	2	204	15	NO
	Through	210	24	2	204	15	NO
	Right Turn						
EB	Left Turn	300	81	11	401	30	MAX
	Through	300	81	11	401	30	MAX
	Right Turn	300	82	11	402	30	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	34	9	NO
	Through						
	Right Turn	200	1	0	36	9	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	0	0	44	16	NO
	Right Turn	310	0	0	46	17	NO
WB	Left Turn	300	6	1	108	23	NO
	Through	300	6	1	108	23	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	56	6	452	79	NO
SB	Left Turn Through Right Turn	200	14	1	163	18	NO
EB	Left Turn Through Right Turn	600	30	3	274	52	NO
WB	Left Turn Through Right Turn	800	17	3	325	101	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	1	61	18	NO
	Through						
	Right Turn	200	2	1	61	18	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	1	0	39	12	NO
	Right Turn	300	1	0	39	12	NO
WB	Left Turn	290	4	1	105	18	NO
	Through	290	4	1	105	18	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	3	1	92	17	NO
	Through	200	3	1	92	17	NO
	Right Turn	200	3	1	94	17	NO
SB	Left Turn	200	11	2	166	26	NO
	Through	200	11	2	166	26	NO
	Right Turn	200	12	2	170	26	NO
EB	Left Turn	290	15	1	128	28	NO
	Through	290	15	1	128	28	NO
	Right Turn	290	17	1	134	28	NO
WB	Left Turn	300	1	0	84	21	NO
	Through	300	2	1	126	27	NO
	Right Turn	300	1	0	78	21	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	109	15	463	58	MAX
	Right Turn	200	109	15	463	58	MAX
SB	Left Turn	200	81	6	288	13	MAX
	Through	200	54	6	287	12	MAX
	Right Turn						
EB	Left Turn	300	97	19	405	15	MAX
	Through	300	97	19	405	15	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	7	1	121	18	NO
	Through	200	13	2	168	25	NO
	Right Turn						
SB	Left Turn						
	Through	200	26	6	241	60	MAX
	Right Turn	200	26	6	241	60	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	40	4	236	51	NO
	Through	1,000	32	5	279	179	NO
	Right Turn	150	1	0	135	63	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	10	2	170	20	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	84	82	NO
	Right Turn	500	0	0	98	84	NO
EB	Left Turn	1,000	26	2	130	19	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	10	1	190	38	NO
EB	Left Turn	600	21	4	490	82	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	33	13	217	12	MAX
	Through	200	33	13	217	12	MAX
	Right Turn						
SB	Left Turn						
	Through	200	4	1	128	29	NO
	Right Turn	200	4	1	128	29	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	33	1	161	20	NO
	Through	200	33	1	161	20	NO
	Right Turn	220	34	1	164	20	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	47	3	285	8	MAX
	Right Turn	210	47	3	285	8	MAX
SB	Left Turn	170	28	4	168	49	NO
	Through	170	28	4	168	49	NO
	Right Turn						
EB	Left Turn	180	49	6	311	20	MAX
	Through	180	49	6	311	20	MAX
	Right Turn	180	52	6	317	20	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	20	2	275	11	MAX
	Through	180	20	2	275	11	MAX
	Right Turn						
SB	Left Turn						
	Through	200	5	1	146	33	NO
	Right Turn	200	5	1	146	33	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	27	2	153	21	NO
	Through	300	30	1	156	20	NO
	Right Turn	300	31	1	158	20	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	15	2	164	51	NO
	Right Turn	180	26	2	198	51	MAX
NE	Left Turn	670	47	3	210	27	NO
	Through						
	Right Turn	670	47	3	210	27	NO
EB	Left Turn	380	56	2	173	17	NO
	Through	380	56	2	173	17	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	17	3	175	22	NO
	Through	190	17	3	175	22	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	81	2	292	17	MAX
	Right Turn	250	81	2	292	17	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	2	1	209	63	NO
	Through						
	Right Turn	1,000	1	1	136	56	NO
SB	Left Turn						
	Through	1,000	0	0	95	10	NO
	Right Turn	1,000	1	0	59	8	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	3	0	95	11	NO
	Through	350	14	1	84	8	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **4 PM to 5 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	22	1	219	8	MAX
	Through	200	22	1	219	8	MAX
	Right Turn	200	23	1	223	8	MAX
EB	Left Turn						
	Through	500	41	2	194	30	NO
	Right Turn	500	53	2	224	30	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	28	4	224	33	MAX
	Right Turn	200	28	3	226	33	MAX
SB	Left Turn	200	38	4	220	13	MAX
	Through	200	38	4	220	13	MAX
	Right Turn						
EB	Left Turn	800	99	28	578	73	NO
	Through	800	99	28	578	73	NO
	Right Turn	800	98	28	580	73	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	15	2	112	26	NO
	Through	1,000	102	16	687	93	NO
	Right Turn	1,000	101	16	687	93	NO
SB	Left Turn						
	Through	185	6	1	81	15	NO
	Right Turn	185	6	1	83	15	NO
EB	Left Turn	800	17	2	131	25	NO
	Through	800	25	3	169	29	NO
	Right Turn	800	0	0	32	10	NO
WB	Left Turn	580	43	4	196	18	NO
	Through	580	21	4	171	28	NO
	Right Turn	580	18	4	172	28	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	57	3	410	104	NO
	Through	1,000	57	3	410	104	NO
	Right Turn	1,000	60	3	416	104	NO
SB	Left Turn	500	43	6	270	30	NO
	Through	500	43	6	270	30	NO
	Right Turn	500	33	4	275	30	NO
EB	Left Turn	1,000	13	2	186	46	NO
	Through	1,000	13	2	186	46	NO
	Right Turn	1,000	14	2	189	46	NO
WB	Left Turn	1,000	23	3	287	49	NO
	Through	1,000	23	3	287	49	NO
	Right Turn	1,000	23	3	288	49	NO

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	19	5	176	58	NO
	Through	510	31	3	277	67	NO
	Right Turn						
SB	Left Turn	180	29	3	158	27	NO
	Through	200	30	3	159	27	NO
	Right Turn	200	26	2	158	23	NO
EB	Left Turn						
	Through	600	104	10	393	54	NO
	Right Turn	600	105	10	396	54	NO
WB	Left Turn	400	60	16	319	61	NO
	Through	1,000	12	4	183	42	NO
	Right Turn	1,000	11	4	183	42	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	500	117	8	481	43	NO
	Right Turn						
SB	Left Turn						
	Through	190	61	7	222	12	MAX
	Right Turn	190	66	8	229	12	MAX
EB	Left Turn						
	Through	1,000	67	8	427	93	NO
	Right Turn	1,000	67	8	429	93	NO
WB	Left Turn						
	Through	200	26	3	292	14	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	22	8	247	33	MAX
	Right Turn	210	33	10	280	33	MAX
SB	Left Turn						
	Through	220	29	11	366	2	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	220	19	5	150	28	NO
	Through						
	Right Turn	220	19	5	150	28	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	162	8	315	15	MAX
	Right Turn	210	164	8	318	15	MAX
SB	Left Turn	100	27	6	261	60	MAX
	Through	150	30	7	285	48	MAX
	Right Turn						
EB	Left Turn	1,000	89	4	364	49	NO
	Through	1,000	89	4	364	49	NO
	Right Turn	1,000	88	4	366	49	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	94	10	281	14	MAX
	Through	170	94	10	281	14	MAX
	Right Turn						
SB	Left Turn						
	Through	140	23	3	246	32	MAX
	Right Turn	140	0	0	32	12	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	102	5	396	37	MAX
	Through	800	102	5	396	37	NO
	Right Turn	200	7	2	119	24	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	19	6	266	7	MAX
	Through	145	49	11	273	2	MAX
	Right Turn	145	50	11	274	2	MAX
SB	Left Turn	80	25	14	157	50	MAX
	Through	240	22	3	162	39	NO
	Right Turn	80	2	0	65	22	NO
EB	Left Turn	160	31	4	212	70	MAX
	Through	500	107	11	427	84	NO
	Right Turn	500	108	11	430	84	NO
WB	Left Turn	190	51	2	224	32	MAX
	Through	400	28	2	199	23	NO
	Right Turn	400	26	2	199	23	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	1	0	53	15	NO
SB	Left Turn	180	75	5	277	24	MAX
	Through	180	75	5	278	24	MAX
	Right Turn						
EB	Left Turn						
	Through	270	28	18	299	79	MAX
	Right Turn	270	25	18	301	76	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	3	1	127	45	NO
	Right Turn	200	2	1	127	45	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	5	2	81	16	NO
	Through	310	3	1	50	14	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	72	8	480	122	NO
	Through	1,000	73	9	480	122	NO
	Right Turn	1,000	73	9	482	122	NO
EB	Left Turn						
	Through	390	61	13	414	40	MAX
	Right Turn	390	61	13	414	40	MAX
WB	Left Turn	130	5	2	98	23	NO
	Through	380	16	2	129	19	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	143	17	332	7	MAX
	Right Turn	220	148	17	338	7	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	81	19	420	18	MAX
	Through	315	81	19	420	18	MAX
	Right Turn	315	81	19	424	18	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	41	3	188	45	NO
	Through	200	41	3	188	45	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	33	6	431	30	MAX
	Right Turn						
WB	Left Turn						
	Through	240	8	1	121	13	NO
	Right Turn						

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	26	18	349	27	MAX
	Right Turn						
SB	Left Turn						
	Through	200	9	2	202	29	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	45	21	260	40	MAX
SB	Left Turn Through Right Turn	200	19	2	256	25	MAX
EB	Left Turn Through Right Turn	300	15	4	183	50	NO
WB	Left Turn Through Right Turn	300 300	104 105	50 50	373 373	51 51	MAX MAX

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	84	15	270	34	MAX
SB	Left Turn Through Right Turn	200	12	3	209	47	MAX
EB	Left Turn Through Right Turn	300	51	9	275	9	NO
WB	Left Turn Through Right Turn	300	51	12	232	56	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	82	8	244	30	MAX
	Right Turn	200	81	8	243	30	MAX
SB	Left Turn	210	34	3	209	20	NO
	Through	210	34	3	209	20	NO
	Right Turn						
EB	Left Turn	300	112	26	404	16	MAX
	Through	300	112	26	404	16	MAX
	Right Turn	300	112	26	406	16	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	41	9	NO
	Through						
	Right Turn	200	1	0	43	9	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	2	1	115	34	NO
	Right Turn	310	2	1	117	34	NO
WB	Left Turn	300	6	1	114	19	NO
	Through	300	6	1	114	19	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	60	5	362	78	NO
SB	Left Turn Through Right Turn	200	21	2	176	17	NO
EB	Left Turn Through Right Turn	600	31	3	306	50	NO
WB	Left Turn Through Right Turn	800	22	5	487	82	NO

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	3	1	68	20	NO
	Through						
	Right Turn	200	3	1	68	20	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	9	1	147	21	NO
	Right Turn	300	9	1	147	21	NO
WB	Left Turn	290	5	1	122	35	NO
	Through	290	5	1	122	35	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	6	1	125	33	NO
	Through	200	6	1	125	33	NO
	Right Turn	200	6	1	127	33	NO
SB	Left Turn	200	24	5	232	34	MAX
	Through	200	24	5	232	34	MAX
	Right Turn	200	26	5	236	34	MAX
EB	Left Turn	290	52	3	250	30	NO
	Through	290	52	3	250	30	NO
	Right Turn	290	55	3	256	30	NO
WB	Left Turn	300	0	0	44	10	NO
	Through	300	1	1	90	12	NO
	Right Turn	300	0	0	38	10	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	228	53	729	122	AVG
	Right Turn	200	228	53	729	122	AVG
SB	Left Turn	200	110	9	296	16	MAX
	Through	200	79	11	293	14	MAX
	Right Turn						
EB	Left Turn	300	175	17	408	14	MAX
	Through	300	175	17	408	14	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	10	2	150	44	NO
	Through	200	18	3	181	23	NO
	Right Turn						
SB	Left Turn						
	Through	200	60	15	363	42	MAX
	Right Turn	200	60	15	363	42	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	45	3	275	68	NO
	Through	1,000	31	3	364	133	NO
	Right Turn	150	1	1	142	43	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	7	1	176	8	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	97	98	NO
	Right Turn	500	0	0	52	36	NO
EB	Left Turn	1,000	20	2	101	17	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	11	1	179	13	NO
EB	Left Turn	600	36	13	578	142	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	52	15	240	45	MAX
	Through	200	52	15	240	45	MAX
	Right Turn						
SB	Left Turn						
	Through	200	6	1	140	29	NO
	Right Turn	200	6	1	140	29	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	35	1	167	18	NO
	Through	200	35	1	167	18	NO
	Right Turn	220	35	1	171	18	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	50	8	279	17	MAX
	Right Turn	210	50	8	279	17	MAX
SB	Left Turn	170	26	2	205	63	MAX
	Through	170	26	2	205	63	MAX
	Right Turn						
EB	Left Turn	180	59	8	324	5	MAX
	Through	180	59	8	324	5	MAX
	Right Turn	180	62	8	330	5	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	27	4	261	26	MAX
	Through	180	27	4	261	26	MAX
	Right Turn						
SB	Left Turn						
	Through	200	6	1	170	51	NO
	Right Turn	200	6	1	171	51	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	29	2	157	28	NO
	Through	300	34	1	168	26	NO
	Right Turn	300	36	1	171	26	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	27	10	229	64	MAX
	Right Turn	180	43	12	263	64	MAX
NE	Left Turn	670	55	3	259	36	NO
	Through						
	Right Turn	670	55	3	259	36	NO
EB	Left Turn	380	67	2	210	20	NO
	Through	380	67	2	210	20	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	38	26	217	54	MAX
	Through	190	38	26	217	54	MAX
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	81	6	299	27	MAX
	Right Turn	250	81	6	299	27	MAX

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	7	3	341	91	NO
	Through						
	Right Turn	1,000	3	1	235	84	NO
SB	Left Turn						
	Through	1,000	0	0	96	14	NO
	Right Turn	1,000	1	0	64	9	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	3	0	93	18	NO
	Through	350	11	3	71	11	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **5 PM to 6 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	31	2	226	11	MAX
	Through	200	31	2	226	11	MAX
	Right Turn	200	32	2	230	11	MAX
EB	Left Turn						
	Through	500	50	2	257	68	NO
	Right Turn	500	62	2	288	68	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	43	6	266	37	MAX
	Right Turn	200	44	6	267	37	MAX
SB	Left Turn	200	41	2	223	10	MAX
	Through	200	41	2	223	10	MAX
	Right Turn						
EB	Left Turn	800	369	144	769	96	NO
	Through	800	369	144	769	96	NO
	Right Turn	800	370	144	771	96	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	12	2	102	18	NO
	Through	1,000	60	8	618	106	NO
	Right Turn	1,000	59	8	618	106	NO
SB	Left Turn						
	Through	185	3	1	44	2	NO
	Right Turn	185	3	1	45	2	NO
EB	Left Turn	800	16	2	151	57	NO
	Through	800	22	3	173	54	NO
	Right Turn	800	0	0	27	12	NO
WB	Left Turn	580	33	2	155	22	NO
	Through	580	17	3	158	35	NO
	Right Turn	580	14	3	159	35	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	28	3	229	37	NO
	Through	1,000	28	3	229	37	NO
	Right Turn	1,000	29	2	234	37	NO
SB	Left Turn	500	33	3	205	49	NO
	Through	500	33	3	205	49	NO
	Right Turn	500	21	2	196	49	NO
EB	Left Turn	1,000	5	1	128	22	NO
	Through	1,000	5	1	128	22	NO
	Right Turn	1,000	5	1	131	22	NO
WB	Left Turn	1,000	8	1	220	59	NO
	Through	1,000	8	1	220	59	NO
	Right Turn	1,000	9	1	221	59	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	11	1	114	25	NO
	Through	510	18	2	175	25	NO
	Right Turn						
SB	Left Turn	180	22	3	174	31	NO
	Through	200	23	3	176	30	NO
	Right Turn	200	18	1	170	39	NO
EB	Left Turn						
	Through	600	78	7	375	47	NO
	Right Turn	600	78	7	377	47	NO
WB	Left Turn	400	30	7	223	58	NO
	Through	1,000	9	3	186	32	NO
	Right Turn	1,000	8	3	186	32	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	500	58	6	310	71	NO
	Right Turn						
SB	Left Turn						
	Through	190	81	9	222	7	MAX
	Right Turn	190	85	9	229	7	MAX
EB	Left Turn						
	Through	1,000	34	5	285	39	NO
	Right Turn						
WB	Left Turn						
	Through	200	17	2	242	50	MAX
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	6	6	172	88	NO
	Right Turn	210	8	7	204	88	NO
SB	Left Turn						
	Through	220	58	18	366	2	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn	220	4	2	84	23	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	77	6	304	1	MAX
	Right Turn	210	79	6	308	1	MAX
SB	Left Turn	100	44	12	274	71	MAX
	Through	150	38	15	305	15	MAX
	Right Turn						
EB	Left Turn	1,000	75	5	357	58	NO
	Through	1,000	75	5	357	58	NO
	Right Turn	1,000	74	5	359	58	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	60	9	275	4	MAX
	Through	170	60	9	275	4	MAX
	Right Turn						
SB	Left Turn						
	Through	140	95	27	288	2	MAX
	Right Turn	140	0	0	56	59	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	135	20	446	25	MAX
	Through	800	135	20	446	25	NO
	Right Turn	200	7	3	138	89	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	20	5	256	14	MAX
	Through	145	46	5	267	7	MAX
	Right Turn	145	46	5	268	7	MAX
SB	Left Turn	80	7	1	87	30	MAX
	Through	240	26	3	171	30	NO
	Right Turn	80	1	0	58	37	NO
EB	Left Turn	160	19	3	145	22	NO
	Through	500	69	9	282	41	NO
	Right Turn	500	72	9	285	41	NO
WB	Left Turn	190	94	22	387	101	MAX
	Through	400	20	2	163	22	NO
	Right Turn	400	18	2	163	22	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	0	0	26	8	NO
SB	Left Turn	180	66	4	256	40	MAX
	Through	180	66	4	257	40	MAX
	Right Turn						
EB	Left Turn						
	Through	270	8	2	224	80	NO
	Right Turn	270	7	2	231	80	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	2	1	113	26	NO
	Right Turn	200	1	1	114	26	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	2	1	57	14	NO
	Through	310	4	1	59	10	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	71	5	442	87	NO
	Through	1,000	73	5	442	87	NO
	Right Turn	1,000	72	5	444	87	NO
EB	Left Turn						
	Through	390	27	3	330	41	NO
	Right Turn	390	27	3	330	41	NO
WB	Left Turn	130	3	2	90	15	NO
	Through	380	15	3	152	28	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	83	9	323	14	MAX
	Right Turn	220	87	9	329	14	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	39	6	378	40	MAX
	Through	315	39	6	378	40	MAX
	Right Turn	315	39	6	381	40	MAX
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	35	2	183	39	NO
	Through	200	35	2	183	39	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	19	3	265	82	NO
	Right Turn						
WB	Left Turn						
	Through	240	7	1	121	15	NO
	Right Turn	240	5	1	121	15	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	18	11	329	43	MAX
	Right Turn						
SB	Left Turn						
	Through	200	11	3	212	44	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	26	13	234	44	MAX
SB	Left Turn Through Right Turn	200	22	2	278	22	MAX
EB	Left Turn Through Right Turn	300	14	2	142	38	NO
WB	Left Turn Through Right Turn	300 300	30 30	15 15	239 239	83 83	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	65	12	272	32	MAX
SB	Left Turn Through Right Turn	200	21	3	254	29	MAX
EB	Left Turn Through Right Turn	300	12	2	132	54	NO
WB	Left Turn Through Right Turn	300	55	3	231	20	NO

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	79	7	265	2	MAX
	Right Turn	200	78	7	264	2	MAX
SB	Left Turn	210	44	5	244	25	MAX
	Through	210	44	5	244	25	MAX
	Right Turn						
EB	Left Turn	300	75	8	376	32	MAX
	Through	300	75	8	376	32	MAX
	Right Turn	300	76	8	377	32	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	34	9	NO
	Through						
	Right Turn	200	1	0	36	9	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	1	0	71	18	NO
	Right Turn	310	1	0	72	18	NO
WB	Left Turn	300	13	2	159	23	NO
	Through	300	13	2	159	23	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	34	2	218	28	NO
SB	Left Turn Through Right Turn	200	27	2	152	18	NO
EB	Left Turn Through Right Turn	600	32	4	360	108	NO
WB	Left Turn Through Right Turn	800	59	6	576	98	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	2	0	73	15	NO
	Through						
	Right Turn	200	2	0	73	15	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	2	0	83	21	NO
	Right Turn	300	2	0	83	21	NO
WB	Left Turn	290	11	1	156	30	NO
	Through	290	11	1	156	30	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	6	1	125	27	NO
	Through	200	6	1	125	27	NO
	Right Turn	200	6	1	126	27	NO
SB	Left Turn	200	33	6	260	22	MAX
	Through	200	33	6	260	22	MAX
	Right Turn	200	35	6	264	22	MAX
EB	Left Turn	290	17	2	146	35	NO
	Through	290	17	2	146	35	NO
	Right Turn	290	19	3	152	35	NO
WB	Left Turn	300	1	0	43	16	NO
	Through	300	1	1	91	13	NO
	Right Turn	300	1	0	36	16	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	124	10	527	51	MAX
	Right Turn	200	124	10	527	51	MAX
SB	Left Turn	200	83	4	290	10	MAX
	Through	200	69	7	290	10	MAX
	Right Turn						
EB	Left Turn	300	115	20	400	26	MAX
	Through	300	115	20	400	26	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	8	2	135	36	NO
	Through	200	16	1	169	17	NO
	Right Turn						
SB	Left Turn						
	Through	200	59	16	340	87	MAX
	Right Turn	200	59	16	340	87	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	39	3	239	48	NO
	Through	1,000	53	9	573	195	NO
	Right Turn	150	1	1	154	83	MAX

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	4	0	169	14	NO
	Right Turn						
SB	Left Turn						
	Through	500	2	2	269	218	NO
	Right Turn	500	1	2	173	198	NO
EB	Left Turn	1,000	13	1	70	13	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	14	1	217	24	NO
EB	Left Turn	600	20	10	359	92	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	28	4	220	29	MAX
	Through	200	28	4	220	29	MAX
	Right Turn						
SB	Left Turn						
	Through	200	14	3	213	44	MAX
	Right Turn	200	14	3	213	44	MAX
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	43	2	181	22	NO
	Through	200	43	2	181	22	NO
	Right Turn	220	43	2	184	22	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	38	3	280	17	MAX
	Right Turn	210	38	3	280	17	MAX
SB	Left Turn	170	19	2	178	45	MAX
	Through	170	19	2	178	45	MAX
	Right Turn						
EB	Left Turn	180	47	4	309	20	MAX
	Through	180	47	4	309	20	MAX
	Right Turn	180	50	4	316	20	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	23	2	246	38	MAX
	Through	180	23	2	246	38	MAX
	Right Turn						
SB	Left Turn						
	Through	200	5	1	149	44	NO
	Right Turn	200	5	1	149	44	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	30	1	143	19	NO
	Through	300	23	2	140	20	NO
	Right Turn	300	24	2	142	20	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	23	2	198	26	MAX
	Right Turn	180	39	2	232	26	MAX
NE	Left Turn	670	102	8	366	27	NO
	Through						
	Right Turn	670	102	8	366	27	NO
EB	Left Turn	380	60	2	187	14	NO
	Through	380	60	2	187	14	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **6 PM to 7 PM**

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	13	2	177	29	NO
	Through	190	13	2	177	29	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	62	2	239	18	NO
	Right Turn	250	62	2	239	18	NO

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	2	1	245	68	NO
	Through						
	Right Turn	1,000	2	1	169	49	NO
SB	Left Turn						
	Through	1,000	0	0	97	17	NO
	Right Turn	1,000	1	0	62	11	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	2	0	73	13	NO
	Through	350	6	1	67	19	NO
	Right Turn						

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	21	1	202	7	MAX
	Through	200	21	1	202	7	MAX
	Right Turn	200	21	1	206	7	MAX
EB	Left Turn						
	Through	500	36	3	185	36	NO
	Right Turn	500	48	3	215	36	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	52	8	280	14	MAX
	Right Turn	200	52	8	281	14	MAX
SB	Left Turn	200	45	4	220	9	MAX
	Through	200	45	4	220	9	MAX
	Right Turn						
EB	Left Turn	800	175	72	655	117	NO
	Through	800	175	72	655	117	NO
	Right Turn	800	175	72	657	117	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 1 **Union St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	230	7	2	82	15	NO
	Through	1,000	23	3	324	69	NO
	Right Turn	1,000	23	3	324	69	NO
SB	Left Turn						
	Through	185	3	0	44	9	NO
	Right Turn	185	3	1	46	9	NO
EB	Left Turn	800	7	1	74	14	NO
	Through	800	23	2	182	32	NO
	Right Turn	800	0	0	21	10	NO
WB	Left Turn	580	27	3	140	18	NO
	Through	580	9	1	107	40	NO
	Right Turn	580	6	2	108	40	NO

Intersection 2 **Adeline St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	1,000	24	2	223	25	NO
	Through	1,000	24	2	223	25	NO
	Right Turn	1,000	24	2	228	25	NO
SB	Left Turn	500	26	2	197	33	NO
	Through	500	26	2	197	33	NO
	Right Turn	500	20	1	198	27	NO
EB	Left Turn	1,000	3	1	105	28	NO
	Through	1,000	3	1	105	28	NO
	Right Turn	1,000	3	1	108	28	NO
WB	Left Turn	1,000	4	1	165	38	NO
	Through	1,000	4	1	165	38	NO
	Right Turn	1,000	4	1	166	38	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 3 **Adeline St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	8	2	114	22	NO
	Through	510	11	3	198	36	NO
	Right Turn						
SB	Left Turn	180	13	1	104	20	NO
	Through	200	14	1	105	20	NO
	Right Turn	200	8	2	108	20	NO
EB	Left Turn						
	Through	600	45	4	311	28	NO
	Right Turn	600	45	4	314	28	NO
WB	Left Turn	400	40	6	284	63	NO
	Through	1,000	5	1	122	22	NO
	Right Turn	1,000	4	1	122	22	NO

Intersection 4 **Market St/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	500	36	2	332	44	NO
	Right Turn						
SB	Left Turn						
	Through	190	46	4	220	9	MAX
	Right Turn	190	49	4	227	9	MAX
EB	Left Turn						
	Through	1,000	23	4	233	71	NO
	Right Turn	1,000	22	4	236	71	NO
WB	Left Turn						
	Through	200	15	2	177	44	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 5 **Market St/4th St** **Side-street Stop**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	1	1	97	40	NO
	Right Turn	210	2	1	126	43	NO
SB	Left Turn						
	Through	220	26	6	365	1	MAX
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn	220	1	0	40	9	NO

Intersection 6 **Market St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	47	3	301	4	MAX
	Right Turn	210	48	3	304	4	MAX
SB	Left Turn	100	49	15	286	26	MAX
	Through	150	19	7	279	32	MAX
	Right Turn						
EB	Left Turn	1,000	57	6	267	29	NO
	Through	1,000	57	6	267	29	NO
	Right Turn	1,000	56	7	270	29	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 7 **Market St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	170	32	4	225	62	MAX
	Through	170	32	4	225	62	MAX
	Right Turn						
SB	Left Turn						
	Through	140	21	3	208	36	MAX
	Right Turn	140	0	0	38	43	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	93	7	390	34	MAX
	Through	800	93	7	390	34	NO
	Right Turn	200	4	0	91	22	NO

Intersection 8 **Market St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	145	5	1	167	57	MAX
	Through	145	18	2	239	18	MAX
	Right Turn	145	18	2	240	18	MAX
SB	Left Turn	80	2	1	47	14	NO
	Through	240	11	1	104	19	NO
	Right Turn	80	1	0	41	11	NO
EB	Left Turn	160	15	2	123	31	NO
	Through	500	38	2	183	39	NO
	Right Turn	500	40	2	186	39	NO
WB	Left Turn	190	37	3	183	50	NO
	Through	400	20	2	151	11	NO
	Right Turn	400	17	3	151	11	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 9 **Brush St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn	200	0	0	28	9	NO
SB	Left Turn	180	55	3	195	24	MAX
	Through	180	55	3	195	24	MAX
	Right Turn						
EB	Left Turn						
	Through	270	3	1	130	32	NO
	Right Turn	270	2	0	130	29	NO
WB	Left Turn						
	Through						
	Right Turn						

Intersection 10 **Brush St/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through	200	1	0	115	21	NO
	Right Turn	200	1	0	116	21	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	310	3	1	62	13	NO
	Through	310	4	1	64	10	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 11 **Brush St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	1,000	58	2	297	36	NO
	Through	1,000	59	2	297	36	NO
	Right Turn	1,000	58	2	299	36	NO
EB	Left Turn						
	Through	390	10	1	214	43	NO
	Right Turn	390	10	1	214	43	NO
WB	Left Turn	130	1	0	87	21	NO
	Through	380	4	1	100	21	NO
	Right Turn						

Intersection 12 **Castro St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	220	41	5	301	9	MAX
	Right Turn	220	45	6	307	9	MAX
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn	315	14	2	228	51	NO
	Through	315	14	2	228	51	NO
	Right Turn	315	14	2	232	51	NO
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 13 **Castro St/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	23	3	143	46	NO
	Through	200	23	3	143	46	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	370	7	1	118	20	NO
	Right Turn						
WB	Left Turn						
	Through	240	4	1	91	18	NO
	Right Turn	240	1	0	80	16	NO

Intersection 14 **Martin Luther King Jr Way/2nd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	1	0	71	26	NO
	Right Turn						
SB	Left Turn						
	Through	200	11	3	179	20	NO
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 15 **Martin Luther King Jr Way/3rd St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	210	4	2	129	63	NO
SB	Left Turn Through Right Turn	200	22	4	243	42	MAX
EB	Left Turn Through Right Turn	300	7	2	86	23	NO
WB	Left Turn Through Right Turn	300 300	15 15	2 2	148 148	50 50	NO NO

Intersection 16 **Martin Luther King Jr Way/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn Through Right Turn	200	13	2	207	18	MAX
SB	Left Turn Through Right Turn	200	10	4	217	43	MAX
EB	Left Turn Through Right Turn	300	3	0	52	8	NO
WB	Left Turn Through Right Turn	300	23	2	149	25	NO

Intersection 17 **Martin Luther King Jr Way/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	29	3	212	29	MAX
	Right Turn	200	29	3	210	29	MAX
SB	Left Turn	210	16	3	197	31	NO
	Through	210	16	3	197	31	NO
	Right Turn						
EB	Left Turn	300	60	5	348	52	MAX
	Through	300	60	5	348	52	MAX
	Right Turn	300	60	5	350	52	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 18 **Jefferson St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	0	0	21	1	NO
	Through						
	Right Turn	200	0	0	23	1	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	310	0	0	29	10	NO
	Right Turn	310	0	0	31	10	NO
WB	Left Turn	300	5	1	93	24	NO
	Through	300	5	1	93	24	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 33 **Market St/Martin Luther King Jr Way** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft)		Maximum Queue (ft)		Exceeds Storage?
			Average	Std. Dev.	Average	Std. Dev.	
NB	Left Turn Through Right Turn	1,000	28	4	276	68	NO
SB	Left Turn Through Right Turn	200	13	1	177	11	NO
EB	Left Turn Through Right Turn	600	19	2	217	57	NO
WB	Left Turn Through Right Turn	800	21	4	480	94	NO

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 19 **Clay St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	1	0	42	10	NO
	Through						
	Right Turn	200	1	0	42	10	NO
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through	300	0	0	31	10	NO
	Right Turn	300	0	0	31	10	NO
WB	Left Turn	290	3	0	87	5	NO
	Through	290	3	0	87	5	NO
	Right Turn						

Intersection 20 **Washington St/4th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	5	1	97	29	NO
	Through	200	5	1	97	29	NO
	Right Turn	200	5	1	98	29	NO
SB	Left Turn	200	11	3	186	38	NO
	Through	200	11	3	186	38	NO
	Right Turn	200	13	3	190	38	NO
EB	Left Turn	290	3	1	70	35	NO
	Through	290	3	1	70	35	NO
	Right Turn	290	4	1	76	35	NO
WB	Left Turn	300	0	0	45	21	NO
	Through	300	1	1	90	14	NO
	Right Turn	300	1	0	39	21	NO

Intersection 21 **Broadway/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	45	3	241	63	MAX
	Right Turn	200	45	3	241	63	MAX
SB	Left Turn	200	40	2	260	35	MAX
	Through	200	23	4	228	55	MAX
	Right Turn						
EB	Left Turn	300	89	13	375	28	MAX
	Through	300	89	13	375	28	MAX
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 22 **Broadway/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	5	1	108	33	NO
	Through	200	8	1	147	20	NO
	Right Turn						
SB	Left Turn						
	Through	200	11	2	165	19	NO
	Right Turn	200	11	2	165	19	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	1,000	25	4	184	49	NO
	Through	1,000	22	2	130	43	NO
	Right Turn	150	0	0	84	47	NO

Intersection 23 **Market St/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	12	1	165	17	NO
	Right Turn						
SB	Left Turn						
	Through	500	0	0	87	87	NO
	Right Turn	500	0	0	65	66	NO
EB	Left Turn	1,000	12	2	77	17	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 24 **Martin Luther King Jr Way/Embarcadero West** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn	450	15	2	178	17	NO
EB	Left Turn	600	26	7	460	112	NO
	Through						
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

Queue Length **7 PM to 8 PM**

Intersection 25 **Martin Luther King Jr Way/6th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	200	11	2	135	41	NO
	Through	200	11	2	135	41	NO
	Right Turn						
SB	Left Turn						
	Through	200	4	1	127	26	NO
	Right Turn	200	4	1	127	26	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	200	27	1	152	26	NO
	Through	200	27	1	152	26	NO
	Right Turn	220	26	2	155	26	NO

Intersection 26 **Martin Luther King Jr Way/7th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	210	10	1	208	19	NO
	Right Turn	210	10	1	208	19	NO
SB	Left Turn	170	7	1	90	20	NO
	Through	170	7	1	90	20	NO
	Right Turn						
EB	Left Turn	180	35	2	181	11	MAX
	Through	180	35	2	181	11	MAX
	Right Turn	180	39	2	187	11	MAX
WB	Left Turn						
	Through						
	Right Turn						

Intersection 27 **Martin Luther King Jr Way/8th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	180	4	1	167	55	NO
	Through	180	4	1	167	55	NO
	Right Turn						
SB	Left Turn						
	Through	200	2	0	73	18	NO
	Right Turn	200	2	0	74	18	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	300	20	2	117	15	NO
	Through	300	20	1	117	9	NO
	Right Turn	300	21	1	119	9	NO

Intersection 28 **Castro St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	180	5	1	89	37	NO
	Right Turn	180	11	2	123	37	NO
NE	Left Turn	670	43	3	222	55	NO
	Through						
	Right Turn	670	43	3	222	55	NO
EB	Left Turn	380	39	2	138	17	NO
	Through	380	39	2	138	17	NO
	Right Turn						
WB	Left Turn						
	Through						
	Right Turn						

Intersection 29 **Castro St/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn	190	5	1	119	19	NO
	Through	190	5	1	119	19	NO
	Right Turn						
SB	Left Turn						
	Through						
	Right Turn						
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn						
	Through	250	48	2	196	22	NO
	Right Turn	250	48	2	196	22	NO

Intersection 30 **Brush St-I-980 Westbound Off-Ramp/12th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
SW	Left Turn	1,000	0	0	34	60	NO
	Through						
	Right Turn	1,000	0	0	12	27	NO
SB	Left Turn						
	Through	1,000	0	0	91	11	NO
	Right Turn	1,000	0	0	52	10	NO
EB	Left Turn						
	Through						
	Right Turn						
WB	Left Turn	350	2	0	99	21	NO
	Through	350	4	1	52	14	NO
	Right Turn						

Vissim Post-Processor **A's Ballpark**

Average Results from 10 Runs **Existing & FB Non-Ballpark Development & Evening Game**

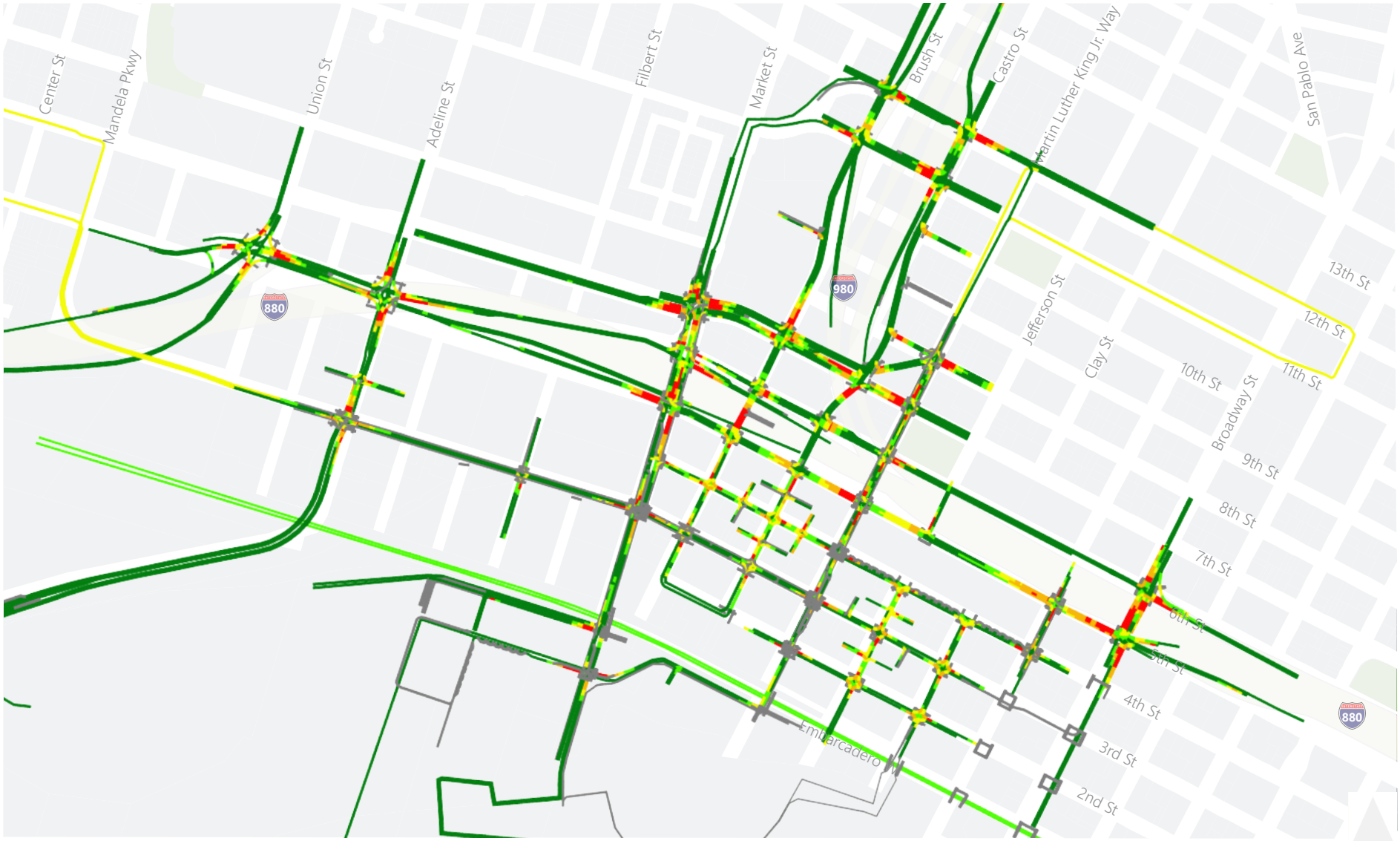
Queue Length **7 PM to 8 PM**

Intersection 31 **Brush St/11th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through						
	Right Turn						
SB	Left Turn	200	9	1	173	27	NO
	Through	200	9	1	173	27	NO
	Right Turn	200	9	1	177	27	NO
EB	Left Turn						
	Through	500	24	2	122	15	NO
	Right Turn	500	34	2	153	15	NO
WB	Left Turn						
	Through						
	Right Turn						

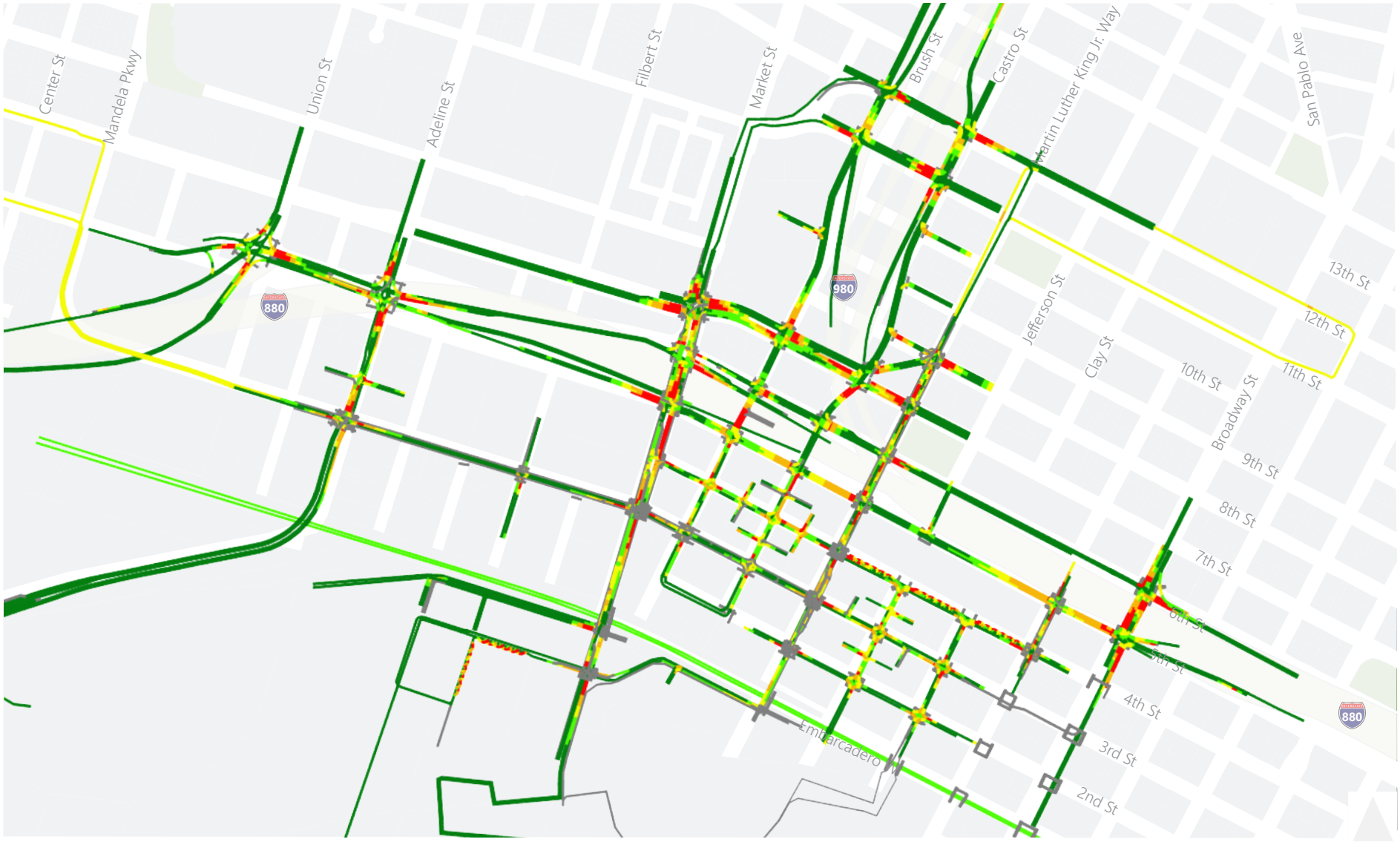
Intersection 32 **Washington St/5th St** **Signal**

Direction	Movement	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Exceeds Storage?
NB	Left Turn						
	Through	200	7	2	122	21	NO
	Right Turn	200	7	2	123	21	NO
SB	Left Turn	200	13	2	137	36	NO
	Through	200	13	2	137	36	NO
	Right Turn						
EB	Left Turn	800	46	10	385	41	NO
	Through	800	46	10	385	41	NO
	Right Turn	800	44	10	386	41	NO
WB	Left Turn						
	Through						
	Right Turn						



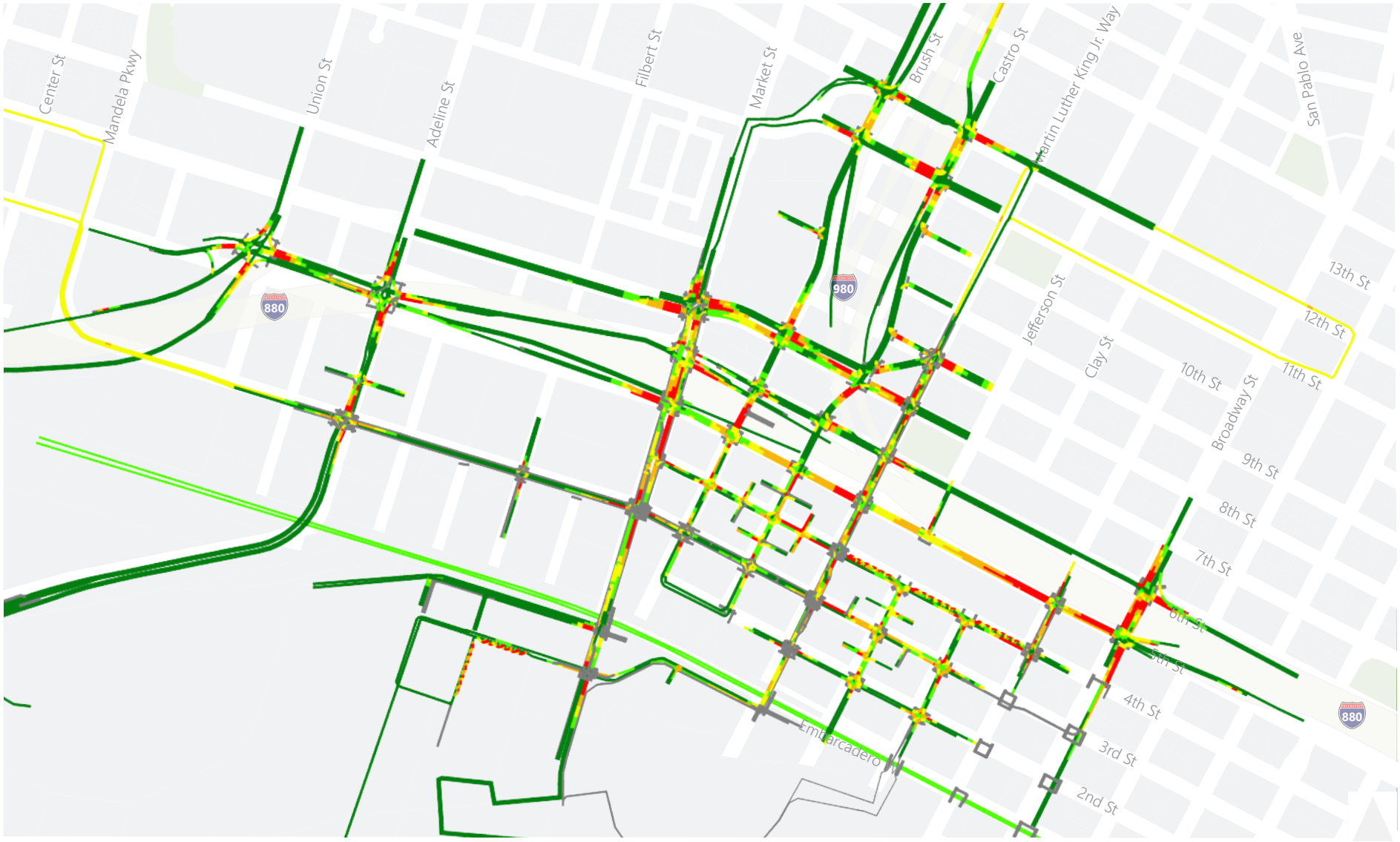
Full Build Out, Evening Ballgame - Average Motor Vehicle Speeds
3PM - 4PM

Figure J-9



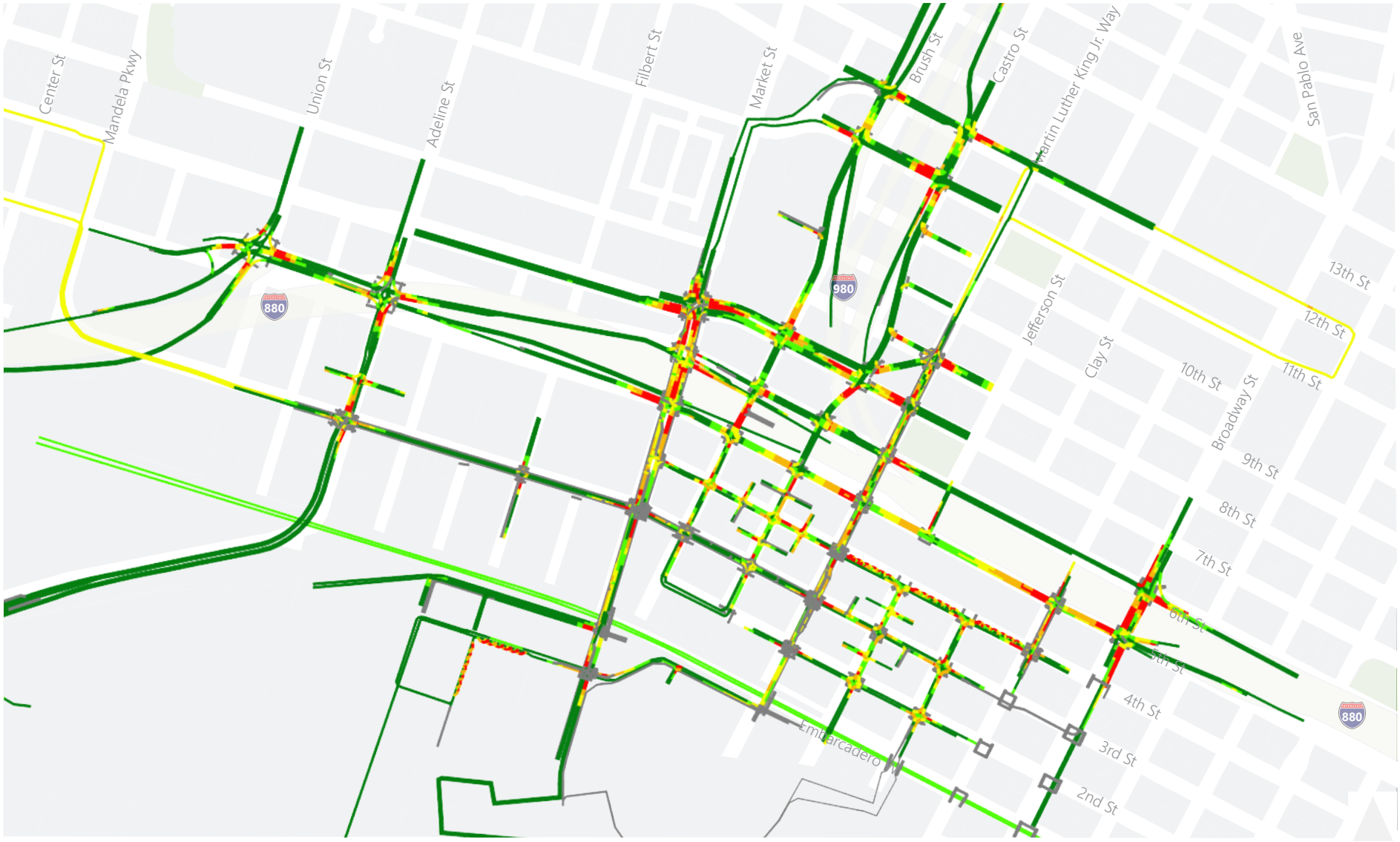
Full Build Out, Evening Ballgame - Average Motor Vehicle Speeds
4PM - 5PM

Figure J-10

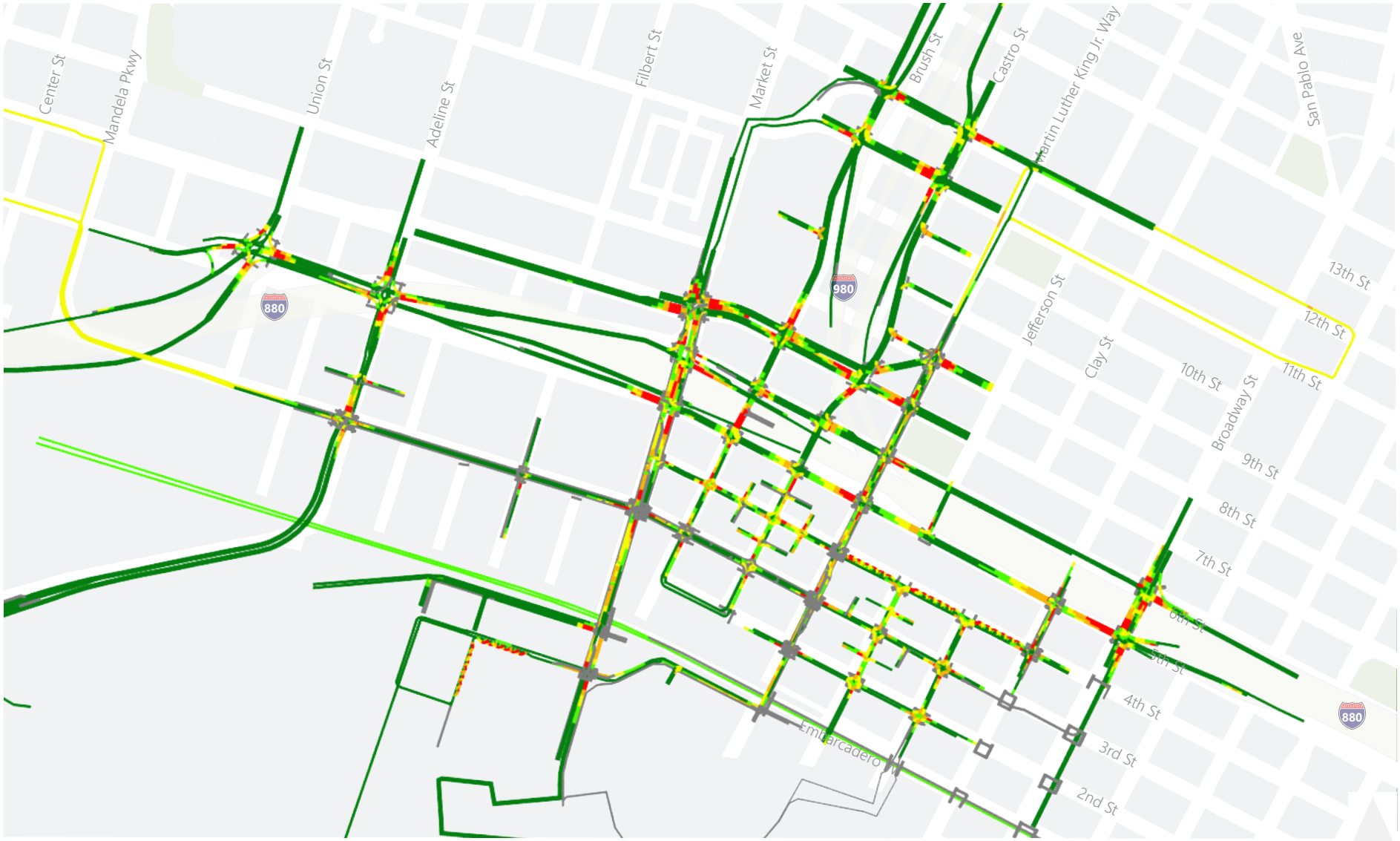


Full Build Out, Evening Ballgame - Average Motor Vehicle Speeds
5PM - 6PM

Figure J-11



Full Build Out, Evening Ballgame - Average Motor Vehicle Speeds
6PM - 7PM



Full Build Out, Evening Ballgame - Average Motor Vehicle Speeds
7PM - 8PM

Figure J-13

FEHR PEERS

Appendix K:

Freeway Lane Configuration & Volumes Summary

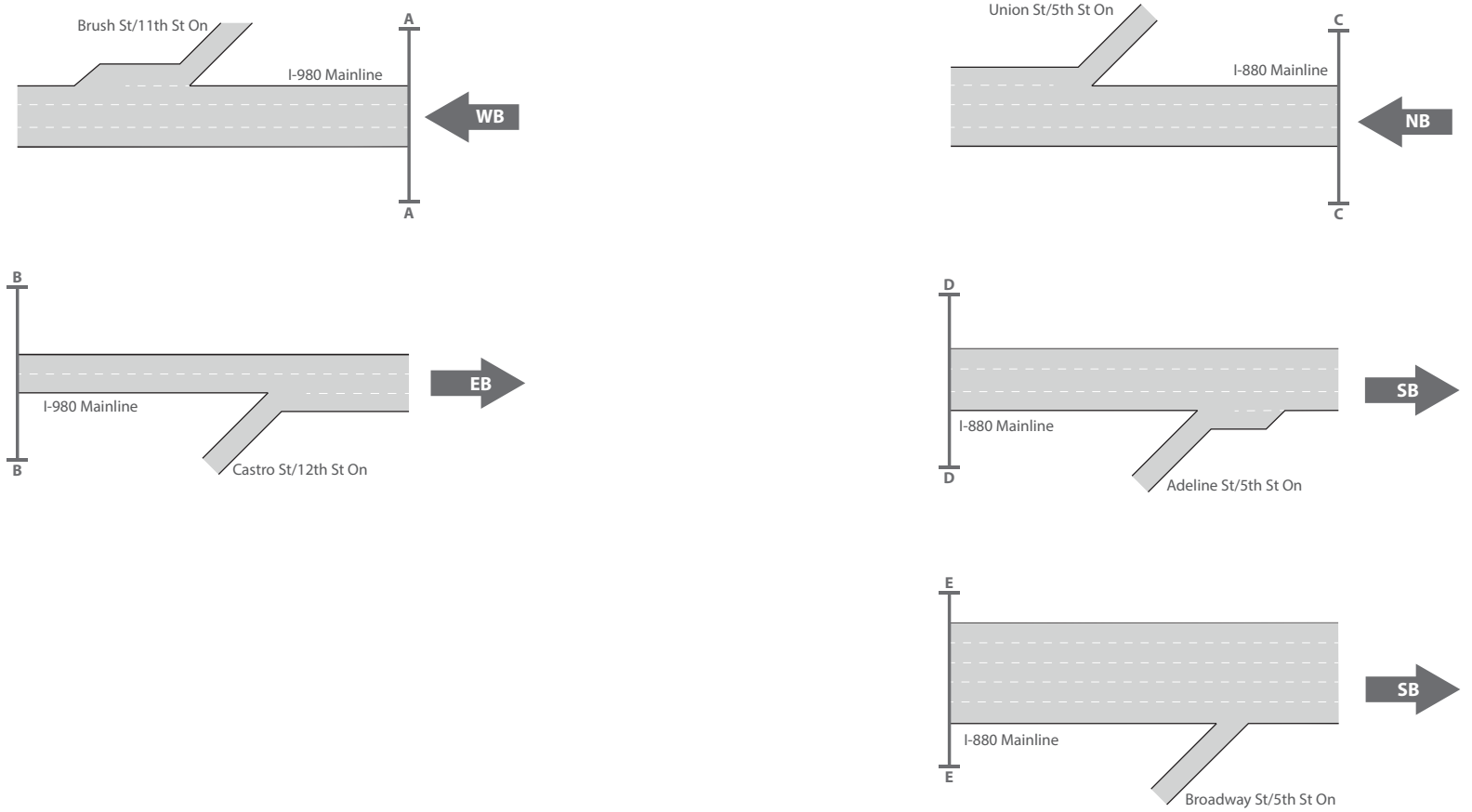


Figure K-1

Existing Merge Segments Lane Configurations for I-980 and I-880

Freeway and Ramp Volumes under Three Senarios

Segments	3-4PM		4-5PM		5-6PM		6-7PM		7-8PM	
	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp	Freeway
Existing Conditions										
I-980 Eastbound on-ramp from 12th Street	1,277	3,091	1,481	3010	1,567	2,852	1,222	2,637	1,222	2,637
I-980 Westbound on-ramp from 11th Street	202	2,491	232	2709	198	2,839	168	2,346	168	2,346
I-880 Northbound from Union Street to 7th Street	253	3,461	268	3268	299	2,938	212	2,636	212	2,636
I-880 Southbound on-ramp from Adeline Street	251	2,413	311	2305	257	1,756	222	2,323	222	2,323
I-880 Southbound on-ramp from Broadway	540	4,611	514	4457	484	3,870	342	4,063	342	4,063
Existing Plus Full Buildout Plus Midday Game										
I-980 Eastbound on-ramp from 12th Street	2,054	3,091	2,048	3010	1,848	2,852	1,464	2,637	1,396	2,637
I-980 Westbound on-ramp from 11th Street	347	2,491	363	2709	215	2,839	168	2,346	168	2,346
I-880 Northbound from Union Street to 7th Street	547	3,461	654	3268	543	2,938	262	2,636	308	2,636
I-880 Southbound on-ramp from Adeline Street	315	2,413	379	2305	300	1,756	245	2,323	241	2,323
I-880 Southbound on-ramp from Broadway	999	4,820	1,068	4656	762	3,930	493	4,086	455	4,082
Existing Plus Full Buildout Plus Evening Game										
I-980 Eastbound on-ramp from 12th Street	1,556	3,091	1,831	3010	1,794	2,852	1,464	2,637	1,397	2,637
I-980 Westbound on-ramp from 11th Street	202	2,491	232	2709	198	2,839	168	2,346	168	2,346
I-880 Northbound from Union Street to 7th Street	398	3,461	501	3268	525	2,938	262	2,636	308	2,636
I-880 Southbound on-ramp from Adeline Street	279	2,413	342	2305	291	1,756	245	2,323	241	2,323
I-880 Southbound on-ramp from Broadway	697	4,639	719	4488	708	3,904	493	4,086	456	4,082

FEHR PEERS

Appendix L:

Freeway Detailed LOS Calculation Sheets

HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4368	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1615
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2491	202
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2815	220
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.43	0.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1143
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1672	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1892	Average Density (D), pc/mi/ln	16.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4611	540
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.962
Flow Rate (vi),pc/h	5466	610
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.31

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1279
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.142	Outer Lanes Freeway Speed (SO), mi/h	62.2
Flow in Lanes 1 and 2 (v12), pc/h	1705	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2315	Average Density (D), pc/mi/ln	20.3
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3714	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1100
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.47
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2413	251
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	34.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.746
Flow Rate (vi),pc/h	2860	366
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.18

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.283
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1127
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1733	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2099	Average Density (D), pc/mi/ln	18.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4491	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1660
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2709	232
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3061	255
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1243
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1818	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2073	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4457	514
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	5283	575
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.329
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1236
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.146	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1648	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2223	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.1

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3536	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1048
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2305	311
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	57.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.637
Flow Rate (vi),pc/h	2732	531
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.27

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.286
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1656	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2187	Average Density (D), pc/mi/ln	18.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.1

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4419	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1634
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2839	198
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3208	217
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1302
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1906	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2123	Average Density (D), pc/mi/ln	19.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.2

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3870	484
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	4587	542
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.27

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.321
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1073
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.150	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1431	Ramp Junction Speed (S), mi/h	60.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	1973	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.2

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3237	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	959
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1756	257
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	17.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.855
Flow Rate (vi),pc/h	2081	327
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.34	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.270
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	820
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	1261	Ramp Junction Speed (S), mi/h	60.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1588	Average Density (D), pc/mi/ln	13.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3859	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1427
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4063	342
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4816	379
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.319
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1127
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.170	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1503	Ramp Junction Speed (S), mi/h	60.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	1882	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2848	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	844
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2323	222
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	28.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.781
Flow Rate (vi),pc/h	2754	309
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.43	0.15

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.279
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1978	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.6

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3859	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1427
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4063	342
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4816	379
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.319
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1127
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.170	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1503	Ramp Junction Speed (S), mi/h	60.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	1882	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2848	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	844
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.36
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2323	222
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.820
Flow Rate (vi),pc/h	2754	294
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.43	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.279
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	1963	Average Density (D), pc/mi/ln	16.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5145	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1902
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	31.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2491	347
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2815	377
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.45	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.309
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1143
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1672	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2049	Average Density (D), pc/mi/ln	17.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.6

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4820	999
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.962
Flow Rate (vi),pc/h	5713	1129
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.58	0.56

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.362
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1302
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.077	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1737	Ramp Junction Speed (S), mi/h	59.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2866	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4008	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1188
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2413	315
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	34.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.746
Flow Rate (vi),pc/h	2860	459
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.23

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.286
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1127
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1733	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2192	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.2

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	5058	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1870
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2709	363
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3061	399
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.20

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.315
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1243
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1818	Ramp Junction Speed (S), mi/h	59.3
Flow Entering Ramp-Infl. Area (vR12), pc/h	2217	Average Density (D), pc/mi/ln	19.4
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.9

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4656	1068
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	5519	1196
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.57	0.60

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.362
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1258
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	56.7
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.068	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1678	Ramp Junction Speed (S), mi/h	59.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2874	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	24.9

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3922	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1162
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2305	379
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	57.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.637
Flow Rate (vi),pc/h	2732	647
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.48	0.32

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.290
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.3
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1656	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	2303	Average Density (D), pc/mi/ln	18.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.9

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4700	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1738
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2839	215
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3208	236
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.12

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1302
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1906	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2142	Average Density (D), pc/mi/ln	19.3
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3930	762
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	4658	853
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.50	0.43

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.332
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1090
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.111	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1453	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2306	Average Density (D), pc/mi/ln	18.4
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.6

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3481	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1032
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1756	300
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	17.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.855
Flow Rate (vi),pc/h	2081	381
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.35	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.271
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	820
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	1261	Ramp Junction Speed (S), mi/h	60.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1642	Average Density (D), pc/mi/ln	13.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.9

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4101	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1516
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4086	493
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4843	547
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.27

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1133
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.149	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1511	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2058	Average Density (D), pc/mi/ln	17.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2898	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	859
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2323	245
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	28.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.781
Flow Rate (vi),pc/h	2754	341
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.280
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2010	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4033	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1491
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4082	455
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4839	505
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.25

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.322
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1132
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.155	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1510	Ramp Junction Speed (S), mi/h	60.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2015	Average Density (D), pc/mi/ln	17.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2944	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	872
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2323	241
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.820
Flow Rate (vi),pc/h	2754	319
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.279
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	1988	Average Density (D), pc/mi/ln	17.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.6

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4647	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1718
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2491	202
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2815	220
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.43	0.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.305
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1143
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1672	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	1892	Average Density (D), pc/mi/ln	16.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4639	697
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.962
Flow Rate (vi),pc/h	5499	788
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.54	0.39

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.341
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1287
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.119	Outer Lanes Freeway Speed (SO), mi/h	62.2
Flow in Lanes 1 and 2 (v12), pc/h	1716	Ramp Junction Speed (S), mi/h	59.6
Flow Entering Ramp-Infl. Area (vR12), pc/h	2504	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	22.2

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3859	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1144
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	3-4PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2413	279
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	34.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.746
Flow Rate (vi),pc/h	2860	407
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.46	0.20

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.284
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1127
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1733	Ramp Junction Speed (S), mi/h	59.9
Flow Entering Ramp-Infl. Area (vR12), pc/h	2140	Average Density (D), pc/mi/ln	18.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4841	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1790
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2709	232
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3061	255
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.13

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.310
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1243
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.9
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1818	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (vR12), pc/h	2073	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	17.8

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4488	719
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	5320	805
Capacity (c), pc/h	11750	2000
Volume-to-Capacity Ratio (v/c)	0.52	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.339
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1245
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.117	Outer Lanes Freeway Speed (SO), mi/h	62.3
Flow in Lanes 1 and 2 (v12), pc/h	1660	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (vR12), pc/h	2465	Average Density (D), pc/mi/ln	20.5
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	21.9

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3769	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1117
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	4-5PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2305	342
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	57.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.637
Flow Rate (vi),pc/h	2732	584
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.47	0.29

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1656	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	2240	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	16.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4646	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1718
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2839	198
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.990
Flow Rate (vi),pc/h	3208	217
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.11

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.312
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1302
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.1
Flow in Lanes 1 and 2 (v12), pc/h	1906	Ramp Junction Speed (S), mi/h	59.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	2123	Average Density (D), pc/mi/ln	19.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.2

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	3904	708
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.971
Flow Rate (vi),pc/h	4628	793
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.40

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.330
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1083
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.119	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1444	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2237	Average Density (D), pc/mi/ln	18.1
Level of Service (LOS)	C	Density in Ramp Influence Area (DR), pc/mi/ln	20.1

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	3463	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1026
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.44
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	15.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	1756	291
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	17.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.855
Flow Rate (vi),pc/h	2081	370
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.35	0.19

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.271
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	820
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.8
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	63.8
Flow in Lanes 1 and 2 (v12), pc/h	1261	Ramp Junction Speed (S), mi/h	60.4
Flow Entering Ramp-Infl. Area (vR12), pc/h	1631	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	11.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4101	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1516
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	5-6PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4086	493
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4843	547
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.27

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1133
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.149	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1511	Ramp Junction Speed (S), mi/h	60.1
Flow Entering Ramp-Infl. Area (vR12), pc/h	2058	Average Density (D), pc/mi/ln	17.9
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2898	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	859
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	6-7PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi)	2323	245
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	28.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.781
Flow Rate (vi),pc/h	2754	341
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.280
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	2010	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.8

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Eastbound at 12th Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	4034	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	1491
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-980/CA-24 Westbound at 11th Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	600
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2346	168
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	0.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	1.000
Flow Rate (vi),pc/h	2651	183
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.40	0.09

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	950	Speed Index (MS)	0.302
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1076
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.1
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.594	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1575	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (vR12), pc/h	1758	Average Density (D), pc/mi/ln	15.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	15.4

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at Broadway	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	5	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Highway/CD Roadway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	4082	456
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.980
Flow Rate (vi),pc/h	4839	506
Capacity (c), pc/h	11000	2000
Volume-to-Capacity Ratio (v/c)	0.49	0.25

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	2
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.322
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1132
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.155	Outer Lanes Freeway Speed (SO), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	1510	Ramp Junction Speed (S), mi/h	60.2
Flow Entering Ramp-Infl. Area (vR12), pc/h	2016	Average Density (D), pc/mi/ln	17.8
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	18.5

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HCS7 Basic Freeway Report

Project Information

Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Northbound at 5th Street/ Union Street	Unit	United States Customary

Geometric Data

Number of Lanes, ln	4	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	65.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2944	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.92	Flow Rate (V_p), pc/h/ln	872
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2350
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2350
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	65.0		

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HCS7 Freeway Merge Report

Project Information			
Analyst	Fehr & Peers	Date	9/13/2019
Agency		Analysis Year	2019
Jurisdiction		Time Period Analyzed	7-8PM
Project Description	BallPark_I-880 Southbound at 5th Street Adeline Street	Unit	United States Customary

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	65.0	35.0
Segment Length (L) / Acceleration Length (LA),ft	1500	1000
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity		
Demand Volume (Vi)	2323	241
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	9.00	22.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.917	0.820
Flow Rate (vi),pc/h	2754	319
Capacity (c), pc/h	7050	2000
Volume-to-Capacity Ratio (v/c)	0.44	0.16

Speed and Density			
Upstream Equilibrium Distance (LEQ), ft	-	Number of Outer Lanes on Freeway (NO)	1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (MS)	0.279
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (vOA), pc/h/ln	1085
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.606	Outer Lanes Freeway Speed (SO), mi/h	62.9
Flow in Lanes 1 and 2 (v12), pc/h	1669	Ramp Junction Speed (S), mi/h	60.0
Flow Entering Ramp-Infl. Area (vR12), pc/h	1988	Average Density (D), pc/mi/ln	17.1
Level of Service (LOS)	B	Density in Ramp Influence Area (DR), pc/mi/ln	14.6

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TRA.4 Air and Noise Forecasts

FEHR PEERS

MEMORANDUM

Date: December 1, 2020

To: Pete Vollmann, City of Oakland
Nicole Ferrara, City of Oakland

From: Lee Reis and Rob Rees, Fehr & Peers

Subject: Howard Terminal – Air, Noise, and Greenhouse Gas Forecast Inputs

OK16-0125.06

Road segment and Vehicle Miles Travelled (VMT) forecasts are required for the air, noise, and greenhouse gas assessments for the Howard Terminal project. Trips generated by the ballpark and non-ballpark development are assigned to the roadway network to determine volumes on both freeway and local roadway segments in 2020 and 2040. The forecasted 2040 segment volumes consider the Howard Terminal development in addition to development described in the Downtown Oakland Specific Plan (DOSP) and other major projects. Aligned with SB 743 guidance, the VMT analysis considers VMT due to the project's various land uses including residential, office, restaurant, retail, the ballpark, and the performance venue. This memorandum summarizes the process for developing the road segment and VMT forecasts.

1. Volume Forecasting

Volume forecasting consists of adding project vehicle volumes to existing and 2040 roadway segment volumes. These forecasts also consider the effects of known major projects as described in the City of Oakland's Major Projects list and the Downtown Oakland Specific Plan (DOSP).

The Alameda CTC Countywide Travel Demand Model released in May 2018 was used to forecast baseline vehicle volumes growth due to anticipated development in Oakland. The travel demand model reflects updated roadway network and land use projections as described in Plan Bay Area 2040. Validated to 2010 conditions, the model predicts traffic volumes for the 2020 and 2040 scenario years.

Volumes were observed at 150 downtown Oakland roadway segments in 2018 to inform the 2018 base year model. These roadway segment counts were compared to counts collected between 2010 and 2015 to form a more robust set of base year counts. We found the volumes to have remained largely constant between 2010-2015 and 2018, decreasing around two percent on average; therefore, the 2010-2015 data supplemented the base year model for the segments that were not collected in 2018. All new 2018 roadway segment counts were used in the base year model. **Table 1** compares the 2018 counts to those collected between 2010 and 2015.

Table 1: Dates of Data Collection

Project	Count Year	# Overlapping Counts		% Diff to DOSP Counts (2010-2015)		# New Counts	
		AM	PM	AM	PM	AM	PM
Howard Terminal Full Buildout	2019	80	80	-4%	-3%	38	38
Kaiser Center	2018	4	4	15%	18%	6	6
Howard Terminal Microsimulation	2018	0	24	0%	-18%	0	0
412 Madison	2018	5	5	-4%	-4%	1	1
1750 Broadway	2017	8	8	-3%	0%	2	2
1431 Jefferson	2017	0	0	0%	0%	3	3
1721 Webster	2016	5	5	3%	-1%	0	0
2015 Telegraph	2016	1	1	-16%	-3%	7	7
1314 Franklin	2016	6	6	6%	-6%	8	8
2201 Valley	2016	4	4	-9%	-8%	1	1
2 Kaiser Plaza	2016	8	8	3%	6%	10	10
2100 Telegraph	2016	5	5	5%	7%	6	6
Total		**126**	**150**	**-2%**	**-2%**	**82**	**82**

Source: Fehr & Peers, 2020.

A growth rate of approximately five percent is assumed between 2018 and 2020 to account for near-term planned developments that are under construction. The 2020 model scenario was then used as a pivot, forecasting future background growth. When comparing the 2040 No Project scenario—which assumes no additional development in downtown Oakland aside from those

outlined in the Lake Merritt Specific Plan—to the 2020 model scenario, the background growth rate is approximately 30 percent and reflects the anticipated land use changes from Plan Bay Area 2040 outside downtown Oakland.

The City of Oakland Major Project[1] land uses from April 2018 were then incorporated into the 2040 No Project model; the estimated automobile trip generation for the Major Projects equal approximately 37 percent of the DOSP auto trips. The land uses described in the DOSP were then added, corresponding to a growth rate of approximately 25 percent. We assumed the same trip assignment for DOSP and Major Project trips. To obtain the 2040 Plus Project scenario, Howard Terminal volumes were added to the 2040 model including the Major Project and DOSP land uses. The Howard Terminal volumes were distributed according to the base year Alameda CTC Travel Demand Model and assigned to the roadway network following standard routes of travel.

To forecast roadway segment volumes, two scenarios are considered. The first scenario is full buildout of the ballpark and non-ballpark development without the implementation of the TMP for the ballpark nor the TDM for the non-ballpark development; the 20 percent Vehicle Trip Reduction (VTR) is not achieved in this case. The second scenario considers full buildout with both the TDM and TMP implemented, reaching the 20 percent VTR. For further information regarding the TDM and TMP, consult the memorandum titled *Howard Terminal – Transportation and Parking Demand* (January 2020).

Table 2 shows the daily automobile trip generation for the non-ballpark development both with and without the TDM reaching the 20 percent VTR. **Table 3** shows the daily trip generation for the ballpark with and without the TMP. Automobile trips are listed for weekday evening, weekday day, and weekend games as well as concerts; as the greatest number of non-ballpark trips occur during the weekday PM peak period, analyzing roadway segment forecasts for the weekday evening scenario presents the most conservative estimate of vehicle volumes.

The following tables list the segment volumes; the road segment evaluation informs the air, noise, and greenhouse gas assessments and is provided for informational purposes only. **Appendix A** lists the daily freeway volumes with the 20 percent VTR after implementation of the TMP and TDM. **Appendix B** lists the local roadway segment volumes with both the TMP and TDM implemented for the ballpark and non-ballpark development, respectively.

[1] The City of Oakland Major Project List may be retrieved at: https://www.oaklandca.gov/resources/download-the-city-of-oakland-major-development-projects-list

Table 2: Automobile Trip Generation – Non-Ballpark Development

Land Use, ITE Code [1]	Units [2]	Daily Volume
Residential, 222 [3]	3,000 du	12,040
Office, 710 [4]	1,564 ksf	15,290
Retail, 820 [5]	180 ksf	8,970
Restaurant, 932 [6]	90 ksf	10,100
Hotel, 310 [7]	400 rooms	4,090
ITE Trip Generation Subtotal		50,490
Non-Auto Reduction (-36.7%) [8]		-18,530
Total Vehicle Trips without TDM		31,960
TDM Vehicle Trip Reduction (-20%)		-6,390
Total Vehicle Trips with TDM		25,570

Notes:

1. The performance venue was not included in this trip generation because it is expected to have about 50 events per year, many of which would occur on weekends. Additionally, it would be expected to generate negligible weekday AM peak hour trips and few PM peak hour trips due to the likely event schedules.
2. DU = Dwelling Units, KSF = 1,000 square feet.
3. ITE Trip Generation (10th Edition) land use category 222 (High Rise Housing):
   Daily: T = 3.94 * X + 211.81
   AM Peak Hour: T = 0.28 * X + 12.86 (24% in, 76% out)
   PM Peak Hour: T = 0.34 * X + 8.56 (61% in, 39% out)
4. ITE Trip Generation (10th Edition) land use category 710 (General Office)
   Daily: Ln(T) = 0.97 * ln(X) + 2.5
   AM Peak Hour: T = 0.94 * X + 26.49 (86% in, 14% out)
   PM Peak Hour: Ln(T) = 0.95 * ln(X) +0.36 (60% in, 40% out)
5. ITE Trip Generation (10th Edition) land use category 820 (Shopping Center)
   Daily: Ln(T) = 0.68 * ln(X) + 5.57
   AM Peak Hour: T = 0.5 * X + 151.78 (62% in, 38% out)
   PM Peak Hour: Ln(T) = 0.74 * ln(X) + 2.89 (48% in, 52% out)
6. ITE Trip Generation (10th Edition) land use category 820 (High-Turnover Sit-Down Restaurant)
   Daily: T = 112.18 * X
   AM Peak Hour: T = 9.94 * X (55% in, 45% out)
   PM Peak Hour: Ln(T) = 9.77 * X (62% in, 38% out)
7. ITE Trip Generation (10th Edition) land use category 310 (Hotel)
   Daily: T = 11.29 * X - 426.97
   AM Peak Hour: T = 0.5 * X - 5.34 (59% in, 41% out)
   PM Peak Hour: T = 0.75 * X - 26.02 (51% in, 49% out)
8. The 36.7% reduction is based on data from the April 2017 TIRG for development in an urban environment between 0.5 and 1.0 mile of a BART Station, Ferry or Rail Terminal, or major transit corridor.

Source: Fehr & Peers, 2020.

Table 3: Automobile Trip Generation – Ballpark

	Weekday Evening [1]		Weekday Day [1]		Weekend [1]		Concert [2]	
	Attendee Mode Share	Total Vehicle Trips [3]	Attendee Mode Share	Total Vehicle Trips [3]	Attendee Mode Share	Total Vehicle Trips [3]	Attendee Mode Share	Total Vehicle Trips [3]
Drive	57%	20,590	57%	20,360	62%	22,230	58%	20,610
Ride-sourcing [4]	18%	11,850	19%	12,600	18%	11,590	19%	12,840
Total Auto Trips w/out TMP		32,440		32,960		33,820		33,450
TMP Vehicle Trip Reduction (-20%)		-6,490		-6,590		-6,760		-6,690
Total Auto Trips with TMP		25,950		26,370		26,060		26,760

Notes:
1. Assume a 35,000-attendee game with 1,320 employees. DU = Dwelling Units, KSF = 1,000 square feet.
2. Assume a 35,000-attendee event with 1,200 employees.
3. Auto occupancy of 2.12 attendees per vehicle used for both drive and ride-sourcing trips without the TMP. Per TIRG, 63.3% of employees estimated to drive, with single occupant vehicles assumed for calculation purposes.
4. Ride sourcing involves two vehicle trips for each leg—one to pick up the passenger and one to drive to the passenger's destination.

Source: Fehr & Peers, 2020.

2. Intersection Operations Analysis

This section documents intersection operations results which were used to estimate truck idling on non-gamedays and gamedays as part of the air, noise, and greenhouse gas analysis. Intersection operations were analyzed for seven intersections near the project site using a microsimulation model that includes pedestrians to provide recommendations for pedestrian and automobile infrastructure. For further details of this analysis, reference the *Howard Terminal – Operations Analysis* (January 2020) memorandum. The existing AM truck volumes at each intersection are summarized in **Table 4** and the PM truck volumes are in **Table 5**; these volumes informed the truck idling analysis.

Table 4: Existing AM Truck Volumes for Truck Idling Analysis

Intersection	7-8 AM	8-9 AM	9-10 AM	10-11 AM	11-12 AM
Adeline Street and 3rd Street	262	448	494	512	581
Adeline Street and 5th Street	282	307	399	422	451
Market Street and 3rd Street	193	219	Vehicle volumes at these times are not available		
Market Street and 5th Street	83	104			
Martin Luther King Jr. Way and 3rd Street	105	100			
Martin Luther King Jr. Way and 5th Street	57	65			
Broadway and 5th Street	123	143			

Source: Fehr & Peers, 2020.

Table 5: Existing PM Truck Volumes for Truck Idling Analysis

Intersection	3-4 PM	4-5 PM	5-6 PM	6-7 PM	7-8 PM
Adeline Street and 3rd Street	361	472	241	171	201
Adeline Street and 5th Street	226	267	161	141	137
Market Street and 3rd Street	260	319	171	102	100
Market Street and 5th Street	93	133	97	56	41
Martin Luther King Jr. Way and 3rd Street	124	166	97	59	65
Martin Luther King Jr. Way and 5th Street	52	92	63	35	25
Broadway and 5th Street	112	140	117	79	57

Source: Fehr & Peers, 2020.

The Levels of Service (LOS) of each intersection for hours throughout the day were obtained from the microsimulation model. LOS is a qualitative description of traffic operating conditions from the vehicle driver perspective and is determined by the delay experienced by the driver at the intersection. It ranges from LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays. Reference **Appendix C** for the LOS results for each intersection.

3. VMT Analysis

3.1. Non-Ballpark Development VMT Estimate Approach

This analysis estimates VMT using travel demand models to capture the length of trips on the transportation network as well as the changes in driving behavior that may occur with the introduction of the project. This analysis uses two travel demand models to analyze the VMT impacts of the project. The VMT analysis for the residential and commercial components of the project use the MTC Travel Model while the VMT analysis for the retail component uses the Alameda CTC Countywide Travel Demand Model. The following describes how the two models estimate VMT.

3.1.1. MTC Travel Model

Neighborhoods within Oakland are expressed geographically in transportation analysis zones, or TAZs. The MTC Travel Model includes approximately 120 TAZs within Oakland that vary in size from a few city blocks in the downtown core, to multiple blocks in outer neighborhoods, to even larger geographic areas in lower density areas in the hills. TAZs are used in transportation planning models for transportation analysis and other planning purposes.

Based on the MTC Travel Model, the regional average daily VMT per capita is 15.0 under 2020 conditions and 13.8 under 2040 conditions, and the regional average daily VMT per worker is 21.8 under 2020 conditions and 20.3 under 2040 conditions. MTC has calculated these same metrics for every TAZ in the nine-county Bay Area.

3.1.2. Alameda CTC Travel Model

The MTC model does not calculate retail-based service population VMT where service population is defined as workers plus residential population, so the Alameda CTC travel model was used to estimate VMT for the retail component of the project. Like the MTC Model, neighborhoods within Oakland are expressed geographically in TAZs. The Alameda CTC Travel Model includes approximately 370 TAZs within Oakland that vary in size. Generally, Oakland TAZs in the Alameda CTC model are smaller than those in the MTC model. The Alameda CTC Model was used for the VMT analysis to capture city-level scale VMT impacts for the retail component of the project using service population, while still maintaining consistency with the MTC Model and regional planning.

3.2. Non-Ballpark VMT Analysis

3.2.1. Residential and Commercial VMT Analysis Screening

Table 6 describes the 2020 and 2040 residential and commercial VMT for the TAZs that make up the project site as well as applicable VMT thresholds of 15 percent below the regional average. As shown in Table 6, the 2020 and 2040 average daily VMT per capita and VMT per worker in the project TAZs are more than 15 percent below the regional averages. The project would generate less VMT than 15 percent below the regional averages and its impact would be less than significant for the residential and commercial portions of the project. Accordingly, the project would not result in a significant transportation impact with respect to the VMT criteria for residential and commercial development.

Table 6: Daily Vehicle Miles Travelled per Capita

Land Use	2020		2040		Weighted Average TAZ 966 and 967 [3]	
	Regional Average	Regional Average Minus 15%	Regional Average	Regional Average Minus 15%	2020	2040
Residential (VMT per capita) [1]	15.0	12.8	13.8	11.7	6.4	6.6
Commercial (VMT per worker) [2]	21.8	18.5	20.3	17.3	16.5	14.2

Notes:
1. MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerCapita and accessed in December 2018.
2. MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerWorker and accessed in December 2018.
3. VMT per resident weighted by TAZ population; VMT per worker weighted by TAZ employment.

Source: Fehr & Peers, 2020.

3.2.2. Regional Retail VMT Analysis Screening

The project proposes 270,000 square feet of retail uses which are considered regional-serving retail because it is over 80,000 square feet. A full VMT analysis is recommended for regional serving retail because larger retail projects typically reroute travel from other destinations potentially increasing total VMT in the area under consideration.

To assess the VMT generated by the retail component of the project, the total accounting method was used to understand the development's influence on overall city-wide travel behavior. As

opposed to analyzing only project trips, analyzing the project's retail VMT impacts requires understanding how the proposed development would interact with the outside world, as adding housing to a jobs-rich area could reduce average vehicle trip length on a per capita basis, while adding jobs to an area with limited residential population could increase average trip length. This is consistent with OPR guidance that recommends that "agencies should analyze the effects of a retail project by assessing the change in total VMT, because retail projects typically re-route travel from other destinations." This analysis was completed using the Alameda CTC travel demand model.

The base 2020- and 2040-year Alameda CTC Models were run for the project. Results are shown in **Table 7** for the Total Accounting Method[2] (or Origin-Destination Method) for the retail component of the project. The city of Oakland VMT per service population (defined as total number of residents plus workers within the city) is approximately 17.3 miles in 2020 and 17.1 miles in 2040 with or without the retail component of the project. While the VMT per service population would experience a slight reduction, the project would result in a marginal (i.e., less than 1 percent) overall increase in total VMT.

Table 7: City of Oakland VMT per Service Population – Full Accounting

	2020			2040		
	No Project	Plus Project	Difference	No Project	Plus Project	Difference
Population	487,700	487,700	0	678,400	678,400	0
Employment	243,600	244,140	540	335,630	336,170	540
Service Population	731,300	731,840	540	1,014,030	1,014,570	540
VMT [1]	12,643,000	12,659,000	16,000	17,369,000	17,394,000	25,000
VMT/Service Population	17.3	17.3	0.0	17.1	17.1	0.0

Notes:
Citywide VMT generated by City of Oakland as estimated by the Alameda CTC Model
Source: Alameda CTC Model and Fehr & Peers, 2020.

[2] The total account method, also known as origin-destination method, tracks all vehicle trips generated by the city of Oakland (including the proposed Project) across the entire regional network. These trips are then multiplied by the distance traveled to determine the total VMT, and this total is then divided by the total residential and employment populations to establish the VMT per service population.

3.2.3. Performance Venue VMT Analysis Screening

Due to its relatively unique use, VMT per attendee for the 3,500-seat performance venue component of the project cannot be assessed using the screening criteria or the regional travel demand models used for the other components of the project. The threshold this study uses for assessing substantial additional VMT is if the VMT per attendee at the performance venue exceeds the existing VMT per attendee at similar events, as represented by concerts at Oakland Arena, minus 15 percent.

Data from Oakland Arena was used to estimate the travel mode characteristics for the project's performance venue. **Table 8** presents the Oakland Arena travel characteristics which differs from the baseball games at the Oakland-Alameda Coliseum. The geographic distribution of the arena attendees also differs from baseball game attendees. Concert attendees use the San Francisco BART stations and drive from San Francisco in greater numbers than the baseball attendees while there are fewer arena attendees using BART or driving from the Castro Valley and Dublin/Pleasanton areas.

Table 8: Existing Oakland-Alameda Coliseum Ballpark Mode of Access

Mode	Weekday Evening [1]	Weekday Day [1]	Weekend [1]	Oakland Arena Event [2]
Drive	70%	72%	75%	74%
TNC [3]	6%	6%	6%	6%
BART	24%	22%	19%	20%
Walk/Bike/Other Transit [4]	*	*	*	*

Notes:
1. Reflects average mode of travel during 2017 baseball season. The most recent set of data prior to the Notice of Preparation.
2. Based on BART and Billboard data for the following high demand concerts at Oakland Arena in 2017:
    - Red Hot Chili Peppers (3/12)
    - Panic! At the Disco (3/25)
    - Roger Waters (6/10)
    - Arcade Fire (10/21)
    - Enrique Iglesias and Pitbull (10/28)
    - Jay-Z (12/16)
3. Based on driveway count data.
4. Negligible use of other modes observed during field visits.

Source: BART and Fehr & Peers, 2020.

Average trip lengths for the studied events were calculated using shortest network distance between trip origin/destination locations and Oakland Arena established from location-based

services cell phone data. Estimated trip lengths for the performance venue were calculated using shortest network distance between these trip origin/destination locations and the project site for the studied events, with the trip distribution modified to account for a changed geographic composition of attendees and a shifted travel mode for attendees near the project site. **Table 9** presents the existing travel characteristics and VMT of concerts at Oakland Arena and the estimated travel characteristics and VMT of events at the project's performance venue.

Table 9: Travel Characteristics of Oakland Arena and the Performance Venue

Mode	Travel Mode			Average Trip Length (mi)	VMT per Attendee
	Drive	TNC	Other Modes		
Concerts at Oakland Arena (existing) [1]	74%	6%	20%	12	10.5
Events at Project Performance Venue (estimated)	58%	19%	23%	11	9.0
				VMT per Attendee Reduction	**-14%**

Notes:
1. Represented by high-demand concerts at Oakland Arena in 2017: Red Hot Chili Peppers (3/12), Panic! At the Disco (3/25), Roger Waters (6/10), Arcade Fire (10/21), Enrique Iglesias and Pitbull (10/28), and Jay-Z (12/16).

Source: Fehr & Peers, 2020.

Although attendees to events at the performance center are expected to have lower average VMT than attendees at concerts at Oakland Arena, the estimated VMT per attendee reduction does not meet the threshold used in this analysis which is to reduce VMT to a level of 15 percent below similar existing uses. Implementation of the TDM plan discussed previously would substantially reduce VMT for the entire development, of which the performance venue is one component. **Table 10** presents the total daily VMT of the at-capacity performance venue on event days and calculates the percentage reduction in VMT.

Table 10: TDM Plan VMT Reduction for Performance Venue Event Days

Event Type	Daily Trips	Average Trip Length (mi)	Total VMT
Without TDM Plan			
Performance Venue	2,860	11.4	32,700
With TDM Plan			
Performance Venue	2,290	11.8	27,000
		TDM Plan VMT Reduction (mi)	**-5,700**
		TDM Plan VMT Reduction (%)	**-17%**

Source: Fehr & Peers, 2020.

3.2.4. VMT Reduction with TDM Plan for Non-Ballpark Development

Per AB 734, the project would be required to incorporate a TDM Plan that would reduce vehicle trip generation by at least 20 percent. By reducing vehicle trips, the VMT would also be reduced by approximately the same amount because the average trip length for the non-ballpark development trips is assumed to not change when reducing vehicle trips. This means that reducing vehicle trips would reduce VMT to a level of at least 15 percent below similar existing uses. As stated previously, the TDM Plan incorporates a wide variety of measures to reduce vehicle demand and other transportation-related impacts of the non-ballpark development. The TDM programs illustrate a mix of strategies that could be employed with a TDM Plan that would reduce vehicle trips and the associated VMT to below the VMT screening criteria threshold.

Table 11 presents the total daily VMT of the non-ballpark development during Phase 1, which does not include the performance venue. The table lists VMT both with and without the TDM. **Table 12** shows the daily VMT for each of the project's land uses at Full Buildout of the non-ballpark development, both with and without the TDM. The TDM Plan was assumed to reduce vehicle trips by 20 percent consistent with requirements of AB 734. Total VMT for the development on both weekdays and weekends would be reduced by 20 percent compared to without the TDM Plan. The VMT reduction from the TDM Plan is in addition to the VMT reductions attributable to the project's location.

Table 11: Non-Ballpark Development Phase 1 Daily VMT

Land Use	Without TDM				With TDM			
	Weekday		Weekend		Weekday		Weekend	
	Trips	VMT	Trips	VMT	Trips	VMT	Trips	VMT
Residential	1,500	18,000	1,400	16,800	1,200	14,400	1,100	13,200
Office	2,100	25,200	300	3,600	1,700	20,400	300	3,600
Retail	1,300	15,600	1,600	19,200	1,100	13,200	1,300	15,600
Restaurant	800	9,600	900	10,800	600	7,200	700	8,400
Hotel	2,600	31,200	2,100	25,200	2,100	25,200	1700	20,400
Performance Venue	-	-	-	-	-	-	-	-
Total with Venue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Without Venue	**8,300**	**99,600**	**6,300**	**75,600**	**6,700**	**80,400**	**5,100**	**61,200**

Source: Fehr & Peers, 2020.

Table 12: Non-Ballpark Development Full Buildout Daily VMT

Land Use	Without TDM				With TDM			
	Weekday		Weekend		Weekday		Weekend	
	Trips	VMT	Trips	VMT	Trips	VMT	Trips	VMT
Residential	7,700	92,500	7,100	85,300	6,100	73,300	5,700	68,500
Office	9,700	116,600	1,500	18,000	7,800	93,700	1,200	14,400
Retail	5,700	68,500	6,000	72,100	4,600	55,300	4,800	57,700
Restaurant	6,400	76,900	7,500	90,100	5,200	62,500	6,000	72,100
Hotel	2,600	31,200	2,100	25,200	2,100	25,200	1,700	20,400
Performance Venue	2,900	34,200	2,900	34,200	2,400	28,300	2,400	28,300
Total with Venue	**35,000**	**419,900**	**27,100**	**324,900**	**28,200**	**338,300**	**21,800**	**261,400**
Total Without Venue	**32,100**	**385,700**	**24,200**	**290,700**	**25,800**	**310,000**	**19,400**	**233,100**

Source: Fehr & Peers, 2020.

3.3. Ballpark VMT Analysis

Due to its unique use and size, VMT per attendee for the 35,000-attendee capacity ballpark component of the project cannot be assessed using the screening criteria or the regional travel demand models used for the other components of the project.

The project would replace the existing 47,100-attendee[3] capacity ballpark at the Oakland-Alameda Coliseum as the home field of the Oakland A's. For Oakland A's home games, trips that previously would have begun or ended at the Oakland-Alameda Coliseum would instead be replaced with trips to or from the project site, to the extent that the ballpark's smaller seating capacity would be able to accommodate them. The project's ballpark would also compete with Oakland Arena for some special events. As such, the threshold this study uses for assessing substantial additional VMT is if the VMT per attendee at the project's ballpark exceeds the existing VMT per attendee at similar events at the Oakland-Alameda Coliseum or Oakland Arena minus 15 percent.

Average trip lengths for the Oakland-Alameda Coliseum were calculated using shortest network distance between each trip origin/destination and the Oakland-Alameda Coliseum for baseball games in 2017. The estimated trip lengths from these origins and destinations were then recalculated for the project site using the shortest network distance for the same games, with the trip distribution modified to account for a changed geographic composition of attendees and a shifted travel mode for attendees near the project site. Similar methods were used for Oakland Arena.

Table 13 presents the existing travel characteristics of attendees of baseball games at the Oakland-Alameda Coliseum and concerts at Oakland Arena; it also presents NFL games, Monster Jam, and moto-cross at the Oakland-Alameda Coliseum. Table 13 also lists the total vehicle trips and VMT based on maximum attendance at the proposed Howard Terminal Ballpark. **Table 14** presents these estimates for the project's ballpark without a TDM Plan, along with a comparison of the VMT per attendee to the equivalent existing conditions at the Oakland-Alameda Coliseum or Oakland Arena. Baseball games at the project site are expected to have a lower VMT per attendee than games at the Oakland-Alameda Coliseum, and concerts at the ballpark are expected to have a lower VMT per attendee than similar events at Oakland Arena.

[3] Capacity can expand to 63,000 for Raider games and other larger events – generally 10 events per year.

Table 13: Existing Travel Characteristics at the Oakland-Alameda Coliseum and Oakland Arena (Howard Terminal Ballpark Capacity Attendance)

Event Type	Travel Mode			Attendees [1]	Total Vehicle Trips[2,3]	Average Trip Length (mi)[4]	Vehicle-Miles Traveled
	Drive	TNC	Other Modes				
Baseball Games							
Weekday Evening	70%	6%	24%	35,000	28,900	13.3	359,000
Weekday Day	71%	6%	23%	35,000	29,300	13.8	377,000
Weekend	75%	6%	19%	35,000	30,600	14.2	405,000
Large Concerts [5]	74%	6%	20%	35,000	30,000	12.1	339,000
NFL Games	69%	6%	25%	54,664	33,000	16.6	495,000
Monster Jam	78%	7%	15%	47,500	32,200	18.5	546,000
Moto-Cross [6]	78%	7%	15%	47,500	32,200	18.5	546,000

Notes:
1. Ballpark attendance equivalent to maximum attendance at Howard Terminal. NFL, Monster Jam, and Moto-Cross attendance based on average attendance for 2017.
2. Average vehicle occupancy of 2.12. Attendee use of a TNC results in two vehicle trips—one one-mile trip to pick up attendee and one at the average trip length to take them to their destination.
3. Vehicle trips include trips by event staff of 760 for ballgames and 1,200 for large concerts, with an assumed mode share of 53.1% driving in single-occupancy vehicles, per the TIRG.
4. Does not include TNC trips to pick up attendees.
5. Represented by high-demand concerts at Oakland Arena in 2017: Red Hot Chili Peppers (3/12), Panic! At the Disco (3/25), Roger Waters (6/10), Arcade Fire (10/21), Enrique Iglesias and Pitbull (10/28), and Jay-Z (12/16).
6. Moto-Cross travel characteristics based on Monster Jam travel characteristics because moto-cross travel characteristics were not available.

Source: Fehr & Peers, 2020.

Table 14: Project Ballpark Travel Characteristics – Without TMP

Event Type	Travel Mode			Attendees (Capacity)[1]	Total Vehicle Trips[2, 3]	Average Trip Length (mi)[4]	Vehicle-Miles Traveled	VMT per Attendee	VMT per Attendee Reduction[5]
	Drive	TNC	Other Modes						
Baseball Games									
Weekday Evening	57%	18%	25%	35,000	32,400	13.3	358,000	10.2	-3%
Weekday Day	57%	19%	24%	35,000	33,000	13.3	360,000	10.3	-10%
Weekend	62%	18%	20%	35,000	33,800	14.1	400,000	11.4	-1%
Large Concerts [6]	58%	19%	23%	35,000	33,500	11.4	315,000	9.0	-14%
Other Events [7, 8]	58%	19%	23%	7,500	7,500	11.4	71,000	9.4	* [9]
Corporate/Community Events [7, 8]	58%	19%	23%	2,000	1,900	11.4	17,000	8.7	* [9]
Plaza Events [7, 8]	58%	19%	23%	4,000	3,700	11.4	34,000	8.6	* [9]

Notes:
1. At-capacity crowd at Howard Terminal was assumed for ballgames and concerts for purposes of these calculations.
2. Average vehicle occupancy of 2.12. Attendee use of a TNC results in two vehicle trips—one one-mile trip to pick up attendee and one at the average trip length to take them to their destination.
3. Vehicle trips include trips by event staff of 1,320 for ballgames, 1,200 for large concerts, 480 for other events, and 25 for corporate/community events and plaza events, with an assumed mode share of 63.3% driving in single-occupancy vehicles, per the TIRG.
4. The average trip lengths presented in this table represent the average length of primary trips and does not include TNC deadhead trips to pick up attendees. The deadhead trips are not included in this column to allow for a representation of the distances between origins/destinations and the Coliseum/Howard Terminal. However, one-mile deadhead trips are included for TNCs in the calculations of total VMT.
5. Compared to existing conditions at the Oakland-Alameda Coliseum and Oakland Arena.
6. There are about 9 concerts per year each with 1,200 staff
7. The VMT calculations in this table assume that there are 35 other events per year (480 staff), 100 corporate / community events per year (25 staff), and 16 plaza events (25 staff) per year. Combined these events would generate 526,000 annual visitors at maximum attendance levels and 243,400 annual visitors at average attendance levels. For purposes of analysis the maximum attendance levels are assumed. The Project's parks and open spaces would attract some visitors. Non-local visitors would presumably travel to the site by the same modes as others visiting the Project; of these, most would be linked to shared trips with other Project components or with trips to nearby neighborhoods (e.g. Jack London Square). Local visitors would travel on foot or by bike. For these reasons, VMT associated solely with park and open space uses would be minimal.
8. Large concert travel characteristics used for the smaller events proposed for the ballpark.
9. No corresponding event at the Oakland–Alameda County Coliseum or the Oakland Arena.

Source: Fehr & Peers, 2020

3.3.1. VMT Reduction with Ballpark and a Transportation Management Plan (TMP)

Per AB 734, the project would be required to incorporate a TMP that would reduce vehicle trip generation by at least 20 percent. See the *Howard Terminal Draft Transportation Management Plan*

(February 2020) document for additional detail regarding strategies for reducing ballpark-generated vehicle trips. Reducing vehicle trips leads to reduced VMT per attendee.

To achieve VMT per attendee levels less than the existing uses minus 15 percent, the project would need to incorporate a TMP that would reduce VMT per attendee compared to similar existing uses. The TMP would incorporate a wide variety of measures to reduce vehicle demand and other transportation-related impacts. These measures would change travel behavior and trip generation and eventually VMT through incentives such as bus-only lanes, high capacity transportation hub, and transit fare reductions and disincentives like reduced parking supply and parking pricing.

Table 15 presents the estimated travel characteristics and VMT per attendee for the ballpark with implementation of the strategies described in this chapter. With these TMP strategies, at full buildout, the project's ballpark would reduce the estimated VMT per attendee for all baseball game types and concerts to levels more than 15 percent below similar existing uses. The VMT per attendee reductions shown in Table 15 are applicable with both Phase 1 when 3,500 parking spaces are provided on-site for the ballpark and buildout when 2,000 parking spaces are provided because the ballpark is required to meet at least a 20 percent vehicle trip reduction.

The ballpark is expected to host up to nine concerts per year, compared to a minimum of 81 baseball games, all of which would have VMT per attendee reductions greater than the threshold level. **Table 16** presents the annualized VMT per attendee at the ballpark with the implementation of TMP strategies for all baseball games and concerts. The annual VMT per attendee with TMP strategies would also be reduced to a level more than 15 percent below similar existing uses.

Table 15: Project Ballpark Travel Characteristics – With TMP

Event Type	Travel Mode			Attendees (Capacity)[1]	Total Vehicle Trips[2, 3]	Average Trip Length (mi)[4]	Vehicle-Miles Traveled	VMT per Attendee	VMT per Attendee Reduction[5]
	Drive	TNC	Other Modes						
Baseball Games									
Weekday Evening	50%	16%	34%	35,000	25,900	13.7	290,000	8.3	-22%
Weekday Day	49%	16%	35%	35,000	26,400	13.7	291,000	8.3	-27%
Weekend	54%	15%	31%	35,000	27,100	14.5	323,000	9.2	-20%
Large Concerts [6]	50%	17%	33%	35,000	26,800	11.8	254,000	7.3	-31%
Other Events [7, 8]	50%	17%	33%	7,500	6,000	11.8	58,000	7.7	* [9]
Corporate/Community Events [7, 8]	50%	17%	33%	2,000	1,500	11.8	14,000	7.0	* [9]
Plaza Events [7, 8]	50%	17%	33%	4,000	2,900	11.8	27,000	6.9	* [9]

Notes:

1. At-capacity crowd at Howard Terminal was assumed for ballgames and concerts for purposes of these calculations.
2. Average vehicle occupancy of 2.3. Attendee use of a TNC results in two vehicle trips—one one-mile trip to pick up attendee and one at the average trip length to take them to their destination.
3. Vehicle trips include trips by event staff of 1,320 for ballgames, 1,200 for large concerts, 480 for other events, and 25 for corporate/community events and plaza events, with an assumed mode share of 63.3% driving in single-occupancy vehicles, per the TIRG.
4. The average trip lengths presented in this table represent the average length of primary trips and does not include TNC deadhead trips to pick up attendees. The deadhead trips are not included in this column to allow for a representation of the distances between origins/destinations and the Coliseum/Howard Terminal. However, one-mile deadhead trips are included for TNCs in the calculations of total VMT.
5. Compared to existing conditions at the Oakland-Alameda Coliseum and Oakland Arena.
6. There are about 9 concerts per year each with 1,200 staff
7. The VMT calculations in this table assume that there are 35 other events per year (480 staff), 100 corporate / community events per year (25 staff), and 16 plaza events (25 staff) per year. Combined these events would generate 526,000 annual visitors at maximum attendance levels and 243,400 annual visitors at average attendance levels. For purposes of analysis the maximum attendance levels are assumed. The Project's parks and open spaces would attract some visitors. Non-local visitors would presumably travel to the site by the same modes as others visiting the Project; of these, most would be linked to shared trips with other Project components or with trips to nearby neighborhoods (e.g. Jack London Square). Local visitors would travel on foot or by bike. For these reasons, VMT associated solely with park and open space uses would be minimal.
8. Large concert travel characteristics used for the smaller events proposed for the ballpark.
9. No corresponding event at the Oakland–Alameda County Coliseum or the Oakland Arena.

Source: Fehr & Peers, 2020.

Table 16: Project Ballpark – Annual VMT per Attendee

Event Type	Events per Year at Howard Terminal	VMT per Attendee	
		Existing at Coliseum/ Oakland Arena	Howard Terminal with TMP
Baseball Games			
Weekday Evening	41	10.6	8.3
Weekday Day	13	11.4	8.3
Weekend	27	11.6	9.2
Concerts	9	10.5	7.3
Annualized VMT per Attendee [1]		**11.0**	**8.4**
Annualized VMT per Attendee Reduction		**-23%**	

Note:
1. Annualized number based on equal attendance at the number of events presented in this table.
Source: Fehr & Peers, 2020.

3.3.2. VMT Reductions due to the Gondola

The A's are considering a gondola between the 12th Street Oakland City Center BART station and the Howard Terminal to improve access between the Ballpark and the BART station, which, if implemented, will reduce the need for shuttle service to the 12th Street station. A gondola would overcome the existing infrastructure barriers that separate Downtown Oakland and the Ballpark and Jack London District, including railroad tracks, BART tracks, and the I-880 elevated freeway. Trip and VMT reductions with the gondola are summarized in **Table 17**.

3.3.3. Ballpark VMT Analysis Conclusions

Projects that reduce VMT to a level 15 percent below similar existing uses are considered to have a less-than-significant impact on VMT. The combination of a TMP as well as the project sponsor's decision to incorporate parking maximums for ballpark parking (up to 3,500 spaces with Phase 1 and 2,000 spaces at buildout) would result in VMT reductions for ballpark attendees that would result in a less-than-significant impact on VMT.

Table 17: VTR and VMT Impact of Gondola at Howard Terminal Ballpark

Event Type	VTR [1]	VMT [2]
Ballpark Events – Compared to Scenario with BART Shuttles		
Weekday Evening	3%	-8,700
Weekday Day	3%	-7,300
Weekend	2%	-4,800
Large Concerts [3]	3%	-5,900
Ballpark Events – Compared to Scenario without BART Shuttles		
Weekday Evening	4%	-12,300
Weekday Day	6%	-14,300
Weekend	3%	-7,300
Large Concerts [3]	3%	-8,800
Non-Ballpark Development [4]– Phase 1		
Weekday	13%	-10,400
Weekend	13%	-7,900
Non-Ballpark Development [4]– Full Buildout		
Weekday	13%	-40,000
Weekend	13%	-30,000

Note:
1. VTR is vehicle trip reduction and represents additional trip reduction when measure is added to current project with a TDM Plan for the non-ballpark development and a TMP for the ballpark.
2. VMT is vehicle miles traveled and represents change in total VMT when measure is added to current project with a TDM Plan for the non-ballpark development and a TMP for the ballpark.
3. For other events, scale the estimates for large concerts.
4. VTR percentage for non-ballpark development does not include performance venue.

Source: Fehr & Peers, 2020.

3.4. VMT Analysis Conclusions

Overall, the project would have a less-than-significant impact on VMT because:

- VMT per capita generated by the project would be more than 15 percent below the regional averages and would thus be less than significant for the residential and commercial components of the project.

- Citywide VMT per service population would remain the same without and with the retail component of the project which would be less than significant for the regional retail component of the project.
- VMT generated by the project for the performance venue would be more than 15 percent below existing similar uses with a comprehensive TDM Plan encompassing the entirety of the non-ballpark development including the parking maximums described in Chapter 3, *Project Description,* of the EIR.
- VMT generated by the ballpark component of the project would be more than 15 percent below existing similar uses with a comprehensive TMP for full buildout of the project including a 2,000-parking space maximum and for Phase 1 assuming a 3,500-space maximum.

Attachments:

Appendix A - Daily Freeway Volumes - Ballpark with TMP and Non-Ballpark with TDM

Appendix B - Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

Appendix C – Microsimulation Vehicle Delay and LOS at Select Intersections

Appendix A – Daily Freeway Volumes – Ballpark with TMP and Non-Ballpark with TDM

Appendix A: Daily Freeway Volumes - Ballpark with TMP and Non-Ballpark with TDM

					Year 2020		Year 2040			Ballpark	
Link Location	Segment Limits		HT Non-Ballpark Trips	No Project Volumes	No Project + HT Volumes	No Project Volume	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures
I-580 Eastbound										
Between	I-80/I-580	MacArthur Blvd	400	90,900	91,300	103,000	108,000	108,400	280	21
Between	MacArthur Blvd	I-980/SR 24	400	86,600	87,000	91,700	96,700	97,100	280	21
Between	I-980/SR 24	Oakland Avenue	1,000	78,400	79,400	90,000	96,000	97,000	730	54
Between	Oakland Avenue	Grand Avenue	700	84,700	85,400	96,700	101,200	101,900	511	38
Between	Grand Avenue	Lakeshore Avenue	900	73,900	74,800	89,800	95,300	96,200	669	50
Between	Lakeshore Avenue	Park Blvd	700	87,200	87,900	105,600	111,600	112,300	511	38
Between	Park Blvd	Fruitvale Avenue	700	83,100	83,800	109,600	115,600	116,300	511	38
Between	Fruitvale Avenue	35th Avenue	600	74,400	75,000	100,900	105,400	106,000	438	33
Between	35th Avenue	High Street	500	67,000	67,500	86,500	91,000	91,500	365	28
Between	High Street	MacArthur Blvd	400	60,700	61,100	78,900	82,400	82,800	292	22
Between	MacArthur Blvd	SR 13	300	57,200	57,500	71,000	74,000	74,300	365	28
I-580 Westbound										
Between	SR 13	MacArthur Blvd	600	41,200	41,800	57,200	61,200	61,800	822	63
Between	MacArthur Blvd	High Street	800	42,900	43,700	60,800	64,800	65,600	881	67
Between	High Street	35th Avenue	1,000	45,500	46,500	63,700	68,700	69,700	940	71
Between	35th Avenue	Fruitvale Avenue	1,100	51,000	52,100	69,400	74,400	75,500	999	75
Between	Fruitvale Avenue	Park Blvd	1,200	59,500	60,700	78,300	83,300	84,500	1,058	79
Between	Park Blvd	Lakeshore Avenue	1,200	61,200	62,400	80,800	85,800	87,000	1,058	79
Between	Lakeshore Avenue	Grand Avenue	1,200	57,600	58,800	72,800	76,800	78,000	1,058	79
Between	Grand Avenue	Oakland Avenue	1,250	64,700	65,950	81,000	86,000	87,250	1,117	83
Between	Oakland Avenue	I-980/SR 24	1,300	62,000	63,300	73,100	80,100	81,400	1,270	94
Between	I-980/SR 24	I-580/I-880	800	41,100	41,900	47,200	59,200	60,000	740	55
I-980 Eastbound										
Between	I-880	12th Street	0	27,200	27,200	32,000	38,500	38,500	374	50
Between	12th Street	27th Street	4,000	37,500	41,500	41,800	63,300	67,300	2,811	209
Between	27th Street	I-580	4,000	49,900	53,900	62,500	84,000	88,000	2,811	209
I-980 Westbound										
Between	I-580	27th Street	3,100	30,900	34,000	35,500	50,500	53,600	2,965	221
Between	27th Street	12th Street	3,100	22,400	25,500	33,100	45,100	48,200	1,755	177
Between	12th Street	I-880	0	26,500	26,500	38,300	42,300	42,300	1,115	52

Appendix A: Daily Freeway Volumes - Ballpark with TMP and Non-Ballpark with TDM

					Year 2020		Year 2040			Ballpark	
Link Location	Segment Limits			HT Non-Ballpark Trips	No Project Volumes	No Project + HT Volumes	No Project Volume	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures
I-880 Northbound											
Between	42nd Avenue	29th Avenue		1,850	70,100	71,950	80,100	91,100	92,950	3,609	271
Between	29th Avenue	23rd Avenue		1,850	64,500	66,350	70,400	81,400	83,250	3,609	271
Between	23rd Avenue	Embarcadero		1,850	70,200	72,050	78,800	89,800	91,650	3,609	271
Between	Embarcadero	Oak Street		1,850	68,500	70,350	75,400	86,400	88,250	3,609	271
Between	Oak Street	Broadway		1,850	63,200	65,050	70,700	77,700	79,550	3,081	179
Between	Broadway	I-980		1,300	61,900	63,200	70,700	81,700	83,000	1,851	71
Between	I-980	Market Street		1,300	48,900	50,200	53,400	61,400	62,700	1,477	21
Between	Market Street	Union Street		0	46,200	46,200	48,700	54,700	54,700	77	21
Between	Union Street	7th Street		2,150	47,500	49,650	52,900	61,900	64,050	1,443	107
Between	7th Street	I-80		2,200	42,000	44,200	40,800	51,800	54,000	1,443	107
I-880 Southbound											
Between	I-80	7th Street		1,650	42,600	44,250	50,600	59,100	60,750	1,066	74
Between	7th Street	Union Street		1,650	46,300	47,950	56,800	65,300	66,950	1,066	74
Between	Union Street	Market Street		0	39,400	39,400	56,300	61,300	61,300	0	0
Between	Market Street	I-980		950	41,500	42,450	47,800	52,800	53,750	0	0
Between	I-980	Broadway		1,700	26,500	28,200	38,300	46,800	48,500	1,115	52
Between	Broadway	Oak Street		2,400	62,700	65,100	75,000	86,000	88,400	2,985	197
Between	Oak Street	Embarcadero		2,400	73,700	76,100	88,600	104,600	107,000	3,538	263
Between	Embarcadero	23rd Avenue		2,400	74,300	76,700	82,500	100,500	102,900	3,538	263
Between	23rd Avenue	42nd Avenue		2,400	73,200	75,600	89,600	107,600	110,000	3,538	263
SR 24 Eastbound											
Between	I-580	MLK Jr. Way		2,200	46,300	48,500	69,800	80,800	83,000	1,340	100
Between	MLK Jr. Way	Claremont Avenue		2,200	65,300	67,500	84,800	95,800	98,000	1,340	100
Between	Claremont Avenue	Broadway		1,700	73,100	74,800	93,000	104,000	105,700	1,035	77
Between	Broadway	SR 13		1,400	78,000	79,400	98,700	108,450	109,850	852	63
Between	SR 13	Tunnel Lane		1,200	87,400	88,600	113,300	121,800	123,000	730	54
Between	Tunnel Lane	Caldecott Tunnel		1,200	90,700	91,900	120,800	129,300	130,500	730	54
SR 24 Westbound											
Between	Caldecott Tunnel	Tunnel Lane		700	58,600	59,300	69,900	78,400	79,100	659	49
Between	Tunnel Lane	SR 13		700	58,400	59,100	64,700	73,200	73,900	659	49
Between	SR 13	Broadway		700	40,500	41,200	47,800	55,300	56,000	659	49
Between	Broadway	Telegraph Avenue		1,000	38,100	39,100	46,100	53,600	54,600	941	70
Between	Telegraph Avenue	I-580		1,400	43,900	45,300	52,700	60,200	61,600	1,412	105

Source: Alameda CTC Travel Demand Model for No Project Volumes, Fehr & Peers, 2020.

Appendix B – Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020			Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
Brush Street	3rd Street	5th Street	1,015	2,070	3,050	3,100	4,100	4,750	0	0	0	0	0
Brush Street	5th Street	6th Street	1,195	5,780	6,950	8,850	10,050	11,950	1,149	0	165	330	228
Brush Street	6th Street	7th Street	1,275	5,820	7,100	8,750	10,050	11,900	959	0	133	265	203
Brush Street	7th Street	11th Street	3,535	13,980	17,500	21,200	24,750	29,300	1,202	0	264	529	0
Brush Street	11th Street	12th Street	3,635	21,170	24,800	32,050	35,700	42,600	2,031	229	405	810	108
Brush Street	12th Street	14th Street	1,315	5,690	7,000	8,600	9,950	11,750	826	0	182	363	0
Brush Street	14th Street	17th Street	1,255	10,160	11,400	15,300	16,550	19,850	985	44	217	433	0
Brush Street	17th Street	19th Street	1,255	21,560	22,800	32,700	33,950	41,000	962	44	212	423	0
Brush Street	19th Street	20th Street	0	0	0	0	0	0					
Brush Street	20th Street	21st Street	0	0	0	0	0	0					
Brush Street	21st Street	Grand Avenue	0	0	0	0	0	0					
Castro Street	3rd Street	5th Street	760	1,560	2,350	2,350	3,100	3,550	0	0	0	0	0
Castro Street	5th Street	6th Street	885	1,720	2,600	2,700	3,600	4,150	798	0	81	162	245
Castro Street	6th Street	7th Street	885	2,770	3,650	4,200	5,100	5,950	1,266	0	72	144	535
Castro Street	7th Street	8th Street	1,260	5,240	6,500	7,950	9,250	10,850	1,719	44	85	171	759
Castro Street	8th Street	11th Street	1,135	8,800	9,950	13,300	14,450	17,150	2,005	99	78	157	940
Castro Street	11th Street	12th Street	1,645	10,610	12,300	16,050	17,700	21,000	2,352	91	49	98	1,214
Castro Street	12th Street	14th Street	260	2,610	2,900	3,950	4,200	5,000	950	92	49	98	414
Castro Street	14th Street	17th Street	810	7,170	8,000	10,800	11,600	13,850	637	62	0	0	363
Castro Street	17th Street	19th Street	680	12,640	13,350	19,000	19,700	23,650	681	62	0	0	388
Castro Street	19th Street	20th Street	545	0	0	0	0	0					
Castro Street	20th Street	San Pablo Avenue	545	0	0	0	0	0					
MLK	Embarcadero	3rd Street	4,830	1,630	6,450	2,450	7,300	7,800	3,200	0	352	704	912
MLK	3rd Street	5th Street	5,110	2,420	7,550	3,650	8,750	9,500	3,214	0	355	710	912
MLK	5th Street	6th Street	3,725	2,230	5,950	3,500	7,200	7,950	3,388	39	360	719	999
MLK	6th Street	7th Street	3,275	1,730	5,000	2,700	5,950	6,500	3,648	66	441	882	937
MLK	7th Street	8th Street	3,175	2,080	5,250	3,150	6,350	7,000	3,384	83	370	740	971
MLK	8th Street	11th Street	2,820	2,060	4,900	3,200	6,000	6,700	3,403	146	393	786	921
MLK	11th Street	12th Street	2,200	2,980	5,150	4,500	6,700	7,650	3,267	185	372	744	898
MLK	12th Street	14th Street	1,660	3,200	4,850	4,900	6,600	7,600	2,141	90	367	733	270
MLK	14th Street	17th Street	1,235	3,340	4,600	5,000	6,250	7,300	644	0	66	133	195
MLK	17th Street	19th Street	995	2,390	3,350	3,600	4,600	5,350	626	0	66	133	185
MLK	19th Street	20th Street	0	0	0	0	0	0	626	0	66	133	185
MLK	20th Street	San Pablo Avenue	0	0	0	0	0	0	626		66	133	185
Jefferson Street	Embarcadero	3rd Street	380	460	850	750	1,100	1,250	0	0	0	0	0
Jefferson Street	5th Street	6th Street	0	1,730	1,700	2,600	2,600	3,150	562	66	75	150	126
Jefferson Street	6th Street	7th Street	0	1,730	1,700	2,600	2,600	3,150	562	66	75	150	126
Jefferson Street	7th Street	8th Street	0	1,740	1,750	2,650	2,650	3,200	339	68	31	62	112
Jefferson Street	8th Street	11th Street	0	1,810	1,800	2,750	2,750	3,350	284	68	31	62	81
Jefferson Street	11th Street	12th Street	0	0	0	0	0	0	142	34	16	31	40
Jefferson Street	12th Street	14th Street	0	2,850	2,850	4,350	4,350	5,250	107	26	12	23	30
Jefferson Street	14th Street	17th Street	0	3,200	3,200	4,900	4,900	5,950	107	26	12	23	30
Jefferson Street	17th Street	San Pablo Avenue	0	1,510	1,500	2,300	2,300	2,800					
Clay Street	Embarcadero	3rd Street	0	2,240	2,250	3,500	3,500	4,200	0	0	0	0	0
Clay Street	7th Street	8th Street	0	1,340	1,350	2,050	2,050	2,500	327	40	48	97	61
Clay Street	8th Street	11th Street	0	1,900	1,900	2,850	2,850	3,450	836	132	84	168	259
Clay Street	11th Street	12th Street	0	4,030	4,050	6,100	6,100	7,350	752	119	75	151	233
Clay Street	12th Street	14th Street	0	3,470	3,450	5,200	5,200	6,300	376	59	38	75	117
Clay Street	14th Street	17th Street	0	4,110	4,100	6,300	6,300	7,650	376	59	38	75	117
San Pablo Avenue	17th Street	19th Street	0	4,430	4,450	6,650	6,650	8,000					
San Pablo Avenue	19th Street	20th Street	0	6,180	6,200	9,400	9,400	11,350					

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020		Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
San Pablo Avenue	20th Street	21st Street	0	9,470	9,500	14,350	14,350	17,400					
San Pablo Avenue	21st Street	Grand Avenue	0	8,950	8,950	13,550	13,550	16,350	125	0	13	27	37
Washington Street	Embarcadero	3rd Street	0	1,330	1,350	2,100	2,100	2,500	1,353	0	149	297	386
Washington Street	3rd Street	5th Street	0	2,520	2,500	3,850	3,850	4,650	1,355	0	143	286	402
Washington Street	5th Street	6th Street	0	2,450	2,450	3,700	3,700	4,450	816	0	93	187	223
Washington Street	6th Street	7th Street	0	2,320	2,350	3,550	3,550	4,300	297	0	65	131	0
Washington Street	7th Street	8th Street	0	1,740	1,750	2,650	2,650	3,200	297	0	65	131	0
Washington Street	8th Street	10th Street	0	1,340	1,350	2,100	2,100	2,500	10	0	2	4	0
Telegraph Avenue	15th Street	17th Street	0	4,170	4,150	6,300	6,300	7,600					
Telegraph Avenue	17th Street	19th Street	0	3,870	3,850	5,900	5,900	7,150					
Telegraph Avenue	19th Street	20th Street	0	5,100	5,100	7,650	7,650	9,250					
Telegraph Avenue	20th Street	21st Street	0	8,570	8,600	13,000	13,000	15,750					
Telegraph Avenue	21st Street	Grand Avenue	0	9,270	9,250	13,950	13,950	16,900					
Telegraph Avenue	Grand Avenue	27th Street	0	8,770	8,750	13,300	13,300	16,100					
Telegraph Avenue	27th Street	29th Street	0	11,340	11,350	17,200	17,200	20,800					
Telegraph Avenue	29th Street	34th Street	0	0	0	0	0	0					
Broadway	Embarcadero	3rd Street	0	2,810	2,800	4,300	4,300	5,200	249	0	5	11	128
Broadway	3rd Street	5th Street	345	7,380	7,700	11,050	11,400	13,700	1,712	0	182	364	504
Broadway	5th Street	6th Street	0	8,130	8,150	12,300	12,300	14,850	1,638	66	159	318	522
Broadway	6th Street	7th Street	0	10,960	10,950	16,550	16,550	20,050	1,580	120	167	334	468
Broadway	7th Street	8th Street	0	9,510	9,550	14,450	14,450	17,500	1,886	120	255	510	414
Broadway	8th Street	11th Street	0	9,860	9,850	14,900	14,900	18,000	2,481	144	252	504	762
Broadway	11th Street	12th Street	0	11,220	11,250	16,950	16,950	20,500					
Broadway	12th Street	14th Street	0	10,710	10,700	16,200	16,200	19,600					
Broadway	14th Street	17th Street	0	8,250	8,300	12,450	12,450	15,050					
Broadway	17th Street	19th Street	0	8,910	8,900	13,500	13,500	16,350					
Broadway	19th Street	20th Street	0	9,550	9,600	14,400	14,400	17,450					
Broadway	20th Street	21st Street	0	9,540	9,550	14,400	14,400	17,450					
Broadway	21st Street	Grand Avenue	0	9,980	10,000	15,100	15,100	18,250					
Broadway	Grand Avenue	27th Street	0	11,250	11,250	16,950	16,950	20,500					
Broadway	27th Street	29th Street	0	16,600	16,600	25,100	25,100	30,350					
Broadway	29th Street	34th Street	0	0	0	0	0	0					
Franklin Street	Embarcadero	3rd Street	0	0	0	0	0	0	497	0	109	219	0
Franklin Street	3rd Street	5th Street	0	0	0	0	0	0	840	0	123	247	159
Franklin Street	6th Street	7th Street	0	740	700	1,200	1,200	1,450	0	0	0	0	0
Franklin Street	7th Street	8th Street	0	1,770	1,750	2,650	2,650	3,200	0	0	0	0	0
Franklin Street	8th Street	11th Street	0	3,000	3,000	4,500	4,500	5,450	121	34	27	53	0
Franklin Street	11th Street	12th Street	0	2,980	3,000	4,450	4,450	5,400	121	34	27	53	0
Franklin Street	12th Street	14th Street	0	3,560	3,600	5,400	5,400	6,550	121	34	27	53	0
Franklin Street	14th Street	17th Street	0	2,530	2,550	3,800	3,800	4,600	121	34	27	53	0
Franklin Street	17th Street	19th Street	0	5,980	6,000	9,050	9,050	10,950	121	34	27	53	0
Franklin Street	19th Street	20th Street	0	5,430	5,400	8,150	8,150	9,850	121	34	27	53	0
Franklin Street	20th Street	21st Street	0	3,530	3,500	5,350	5,350	6,450	121	34	27	53	0
Franklin Street	21st Street	Broadway	0	4,190	4,150	6,350	6,350	7,650	121	34	27	53	0
Webster Street	Embarcadero	3rd Street	0	0	0	0	0	0	38	0	0	0	22
Webster Street	3rd Street	5th Street	0	0	0	0	0	0	34	0	0	0	19
Webster Street	5th Street	6th Street	0	0	0	0	0	0	34	0	0	0	19
Webster Street	6th Street	7th Street	535	13,960	14,500	21,150	21,700	26,100	333	17	0	0	190
Webster Street	7th Street	8th Street	35	9,110	9,150	13,800	13,850	16,750	95	17	0	0	54
Webster Street	8th Street	11th Street	0	7,430	7,400	11,250	11,250	13,600	302	10	7	15	153
Webster Street	11th Street	12th Street	0	5,980	6,000	9,100	9,100	11,000	302	10	7	15	153

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020		Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
Webster Street	12th Street	14th Street	0	4,940	4,950	7,450	7,450	9,000	302	10	7	15	153
Webster Street	14th Street	17th Street	0	6,890	6,900	10,450	10,450	12,650	302	10	7	15	153
Webster Street	17th Street	19th Street	0	5,270	5,300	7,950	7,950	9,600	302	10	7	15	153
Webster Street	19th Street	20th Street	0	6,070	6,050	9,200	9,200	11,100	302	10	7	15	153
Webster Street	20th Street	21st Street	0	4,490	4,500	6,750	6,750	8,150	302	10	7	15	153
Webster Street	21st Street	Grand Avenue	0	5,410	5,400	8,200	8,200	9,950	302	10	7	15	153
Webster Street	Grand Avenue	Broadway	0	3,850	3,850	5,850	5,850	7,100					
Lakeside Drive	14th Street	17th Street	0	0	0	0	0	0					
Lakeside Drive	17th Street	19th Street	0	7,380	7,400	11,200	11,200	13,550					
Lakeside Drive	19th Street	20th Street	0	8,890	8,900	13,450	13,450	16,250					
Harrison Street	2nd Street	3rd Street	0	0	0	0	0	0	15	0	3	7	0
Harrison Street	3rd Street	5th Street	0	0	0	0	0	0	15	0	3	7	0
Harrison Street	6th Street	7th Street	700	7,530	8,200	11,450	12,150	14,600	647	47	142	285	0
Harrison Street	7th Street	8th Street	700	9,920	10,600	15,050	15,750	18,950	740	45	142	283	55
Harrison Street	8th Street	10th Street	0	8,640	8,650	13,050	13,050	15,850	223	34	28	56	55
Harrison Street	10th Street	11th Street	0	7,930	7,950	12,000	12,000	14,550	223	34	28	56	55
Harrison Street	11th Street	12th Street	0	6,850	6,850	10,400	10,400	12,600	223	34	28	56	55
Harrison Street	12th Street	14th Street	0	6,360	6,350	9,600	9,600	11,600	223	34	28	56	55
Harrison Street	14th Street	17th Street	0	7,870	7,850	11,950	11,950	14,500	223	34	28	56	55
Harrison Street	17th Street	19th Street	0	0	0	0	0	0	223	34	28	56	55
Harrison Street	19th Street	20th Street	0	8,480	8,500	12,800	12,800	15,500	223	34	28	56	55
Harrison Street	20th Street	21st Street	0	21,910	21,950	33,250	33,250	40,250	223	34	28	56	55
Harrison Street	21st Street	Grand Avenue	0	19,300	19,300	29,150	29,150	35,250	223	34	28	56	55
Harrison Street	Grand Avenue	27th Street	0	13,570	13,600	20,600	20,600	24,950	223	34	28	56	55
Alice Street	2nd Street	5th Street	0	0	0	0	0	0	0	0	0	0	0
Alice Street	6th Street	7th Street	0	0	0	0	0	0	0	0	0	0	0
Alice Street	7th Street	8th Street	0	0	0	0	0	0	24	0	5	11	0
Alice Street	8th Street	10th Street	0	0	0	0	0	0	24	0	5	11	0
Alice Street	11th Street	12th Street	0	0	0	0	0	0					
Alice Street	12th Street	14th Street	0	0	0	0	0	0					
Alice Street	14th Street	17th Street	0	0	0	0	0	0					
Alice Street	17th Street	19th Street	0	0	0	0	0	0					
Jackson Street	2nd Street	3rd Street	0	0	0	0	0	0	304	0	0	0	173
Jackson Street	3rd Street	5th Street	0	8,080	8,100	12,150	12,150	14,700	363	0	0	0	207
Jackson Street	5th Street	6th Street	0	7,450	7,450	11,250	11,250	13,600	363	0	0	0	207
Jackson Street	6th Street	7th Street	0	4,570	4,600	6,950	6,950	8,450	850	108	66	131	315
Jackson Street	7th Street	8th Street	0	5,530	5,550	8,400	8,400	10,200	839	108	46	92	359
Jackson Street	8th Street	11th Street	0	5,290	5,300	8,050	8,050	9,750	827	142	55	109	330
Jackson Street	11th Street	12th Street	0	0	0	0	0	0					
Jackson Street	12th Street	14th Street	0	0	0	0	0	0					
Jackson Street	14th Street	17th Street	0	0	0	0	0	0					
Jackson Street	17th Street	19th Street	0	0	0	0	0	0					
Jackson Street	19th Street	Lakeside Drive	0	0	0	0	0	0					
Madison Street	2nd Street	3rd Street	0	0	0	0	0	0	0	0	0	0	0
Madison Street	3rd Street	5th Street	0	1,350	1,350	2,000	2,000	2,400	0	0	0	0	0
Madison Street	5th Street	6th Street	0	6,600	6,600	10,000	10,000	12,100					
Madison Street	6th Street	7th Street	0	9,310	9,300	14,050	14,050	17,000	0	0	0	0	0
Madison Street	7th Street	8th Street	0	8,600	8,600	12,900	12,900	15,600	0	0	0	0	0
Madison Street	8th Street	11th Street	0	7,810	7,800	11,750	11,750	14,200	35	10	0	0	20
Madison Street	11th Street	12th Street	0	6,710	6,700	10,200	10,200	12,350					
Madison Street	12th Street	14th Street	0	5,490	5,500	8,350	8,350	10,100					

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020		Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
Madison Street	14th Street	17th Street	0	5,330	5,300	8,050	8,050	9,750					
Madison Street	17th Street	19th Street	0	4,820	4,800	7,350	7,350	8,900					
Oak Street	Embarcadero	3rd Street	0	0	0	0	0	0	0	0	0	0	0
Oak Street	3rd Street	5th Street	0	6,230	6,200	9,450	9,450	11,450	24	0	0	0	14
Oak Street	5th Street	6th Street	0	7,010	7,050	10,600	10,600	12,800	24	0	0	0	14
Oak Street	6th Street	7th Street	0	10,930	10,900	16,550	16,550	20,050	906	134	194	388	14
Oak Street	7th Street	8th Street	0	8,890	8,850	13,350	13,350	16,150	898	138	198	395	0
Oak Street	8th Street	11th Street	0	8,710	8,750	13,250	13,250	16,050	137	38	30	60	0
Oak Street	11th Street	12th Street	0	8,240	8,200	12,500	12,500	15,150					
Oak Street	12th Street	14th Street	0	5,920	5,900	8,950	8,950	10,850					
Embarcadero	Market Street	MLK	-445	430	0	0	0	0	0	0	0	0	0
Embarcadero	MLK	Clay Street	-805	1,030	0	0	0	0	0	0	0	0	0
Embarcadero	Clay Street	Washington Street	0	1,860	0	0	0	0	0	0	0	0	0
Embarcadero	Washington Street	Broadway	0	2,120	0	0	0	0	0	0	0	0	0
Embarcadero	Broadway	Franklin Street	0	2,680	2,650	4,050	4,050	4,900	15	0	3	7	0
Embarcadero	Franklin Street	Webster Street	0	0	0	0	0	0	15	0	3	7	0
Embarcadero	Webster Street	Oak Street	0	0	0	0	0	0	15	0	3	7	0
3rd Street	Brush Street	Castro Street	455	5,040	5,850	7,650	8,450	10,000	0	0	0	0	0
3rd Street	Castro Street	MLK	375	4,780	5,450	7,250	7,950	9,450	0	0	0	0	0
3rd Street	MLK	Jefferson Street	860	4,220	5,250	6,400	7,400	8,700	14	0	3	6	0
3rd Street	Jefferson Street	Clay Street	475	4,070	4,700	6,250	6,900	8,200	14	0	3	6	0
3rd Street	Clay Street	Washington Street	475	3,700	4,350	5,600	6,250	7,400	90	0	7	14	33
3rd Street	Washington Street	Broadway	475	3,410	4,050	5,150	5,800	6,850	398	0	58	116	76
3rd Street	Broadway	Franklin Street	135	3,120	3,300	4,750	5,000	6,000	901	0	111	222	226
3rd Street	Franklin Street	Webster Street	135	0	0	0	0	0	293	0	39	77	67
3rd Street	Webster Street	Harrison	135	0	0	0	0	0	258	0	39	77	47
3rd Street	Harrison	Alice Street	95	0	0	0	0	0	258	0	39	77	47
3rd Street	Alice Street	Jackson Street	95	0	0	0	0	0	258	0	39	77	47
3rd Street	Jackson Street	Madison Street	95	0	0	0	0	0	24	0	0	0	14
3rd Street	Madison Street	Oak Street	95	0	0	0	0	0	24	0	0	0	14
5th Street	Brush Street	Castro Street	1,490	11,110	13,000	16,850	18,750	22,300	2,751	0	279	558	845
5th Street	Castro Street	MLK	1,365	10,510	12,200	15,900	17,600	20,950	1,953	0	198	396	600
5th Street	MLK	Jefferson Street	1,315	9,580	11,250	14,450	16,150	19,200	2,425	39	144	289	1,008
5th Street	Jefferson Street	Clay Street	1,315	9,800	11,500	14,800	16,500	19,600	2,567	79	144	289	1,089
5th Street	Clay Street	Washington Street	1,315	9,800	11,500	14,800	16,500	19,600	2,567	79	144	289	1,089
5th Street	Washington Street	Broadway	1,315	10,360	12,050	15,700	17,400	20,700	2,669	79	98	195	1,268
5th Street	Broadway	Franklin Street	1,575	4,050	6,050	6,150	8,150	9,450	2,196	145	0	0	1,252
5th Street	Franklin Street	Webster Street	0	0	0	0	0	0					
5th Street	Webster Street	Harrison	0	0	0	0	0	0					
5th Street	Harrison	Alice Street	0	0	0	0	0	0					
5th Street	Alice Street	Jackson Street	0	12,530	12,550	19,000	19,000	23,050					
5th Street	Jackson Street	Madison Street	0	6,730	6,750	10,250	10,250	12,400					
5th Street	Madison Street	Oak Street	0	11,970	12,000	18,100	18,100	21,900	553	66	0	0	315
6th Street	Brush Street	Castro Street	230	320	600	550	900	1,000	845	0	48	96	357
6th Street	Castro Street	MLK	230	1,370	1,650	2,050	2,400	2,800	1,313	0	39	79	646
6th Street	MLK	Jefferson Street	455	1,120	1,750	1,700	2,300	2,650	2,007	27	230	459	549
6th Street	Jefferson Street	Washington Street	455	1,680	2,300	2,450	3,050	3,550	1,928	54	230	459	504
6th Street	Washington Street	Broadway	455	2,120	2,750	3,200	3,800	4,450	1,516	54	225	451	280
6th Street	Broadway	Jackson Street	0	0	0	0	0	0					
6th Street	Jackson Street	Madison Street	0	4,010	4,000	6,050	6,050	7,300					
6th Street	Madison Street	Oak Street	0	7,050	7,050	10,600	10,600	12,850					

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				Year 2020		Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
7th Street	Brush Street	Castro Street	1,105	13,730	15,150	20,850	22,250	26,550	3,529	186	351	702	1,102
7th Street	Castro Street	MLK	460	9,440	10,050	14,200	14,800	17,700	1,171	46	191	381	174
7th Street	MLK	Jefferson Street	535	10,270	10,950	15,500	16,150	19,350	1,595	55	228	456	319
7th Street	Jefferson Street	Clay Street	535	10,850	11,500	16,450	17,100	20,450	1,189	53	164	329	252
7th Street	Clay Street	Washington Street	535	10,850	11,500	16,450	17,100	20,450	1,189	53	164	329	252
7th Street	Washington Street	Broadway	535	10,050	10,750	15,200	15,850	18,950	1,076	72	116	232	313
7th Street	Broadway	Franklin Street	535	13,560	14,250	20,600	21,250	25,500	580	19	28	55	259
7th Street	Franklin Street	Webster Street	535	12,350	13,050	18,700	19,350	23,150	580	19	28	55	259
7th Street	Webster Street	Harrison	215	6,730	7,000	10,200	10,450	12,550	342	2	28	55	123
7th Street	Harrison	Alice Street	215	19,470	19,750	29,550	29,800	36,000	249	4	28	57	68
7th Street	Alice Street	Jackson Street	215	10,380	10,650	15,650	15,900	19,150	225	4	23	46	68
7th Street	Jackson Street	Madison Street	215	11,290	11,550	17,100	17,350	20,900	58	4	4	7	24
7th Street	Madison Street	Oak Street	215	10,580	10,800	16,000	16,250	19,550	58	4	4	7	24
8th Street	Castro Street	MLK	60	2,570	2,650	3,850	3,950	4,750	767	84	28	55	366
8th Street	MLK	Jefferson Street	615	3,820	4,600	5,850	6,650	7,900	2,060	113	154	308	776
8th Street	Jefferson Street	Clay Street	855	3,890	4,900	5,900	6,900	8,150	2,022	113	154	308	754
8th Street	Clay Street	Washington Street	855	3,890	4,900	5,900	6,900	8,150	2,022	113	154	308	754
8th Street	Washington Street	Broadway	615	4,260	5,000	6,450	7,250	8,600	2,063	93	239	478	556
8th Street	Broadway	Franklin Street	615	5,090	5,900	7,700	8,500	10,150	1,393	47	226	452	209
8th Street	Franklin Street	Webster Street	615	6,370	7,150	9,550	10,350	12,350	1,514	82	253	505	209
8th Street	Webster Street	Harrison	700	8,050	8,950	12,150	13,050	15,650	1,306	88	245	491	109
8th Street	Harrison	Alice Street	0	6,770	6,750	10,200	10,200	12,350	790	77	132	263	109
8th Street	Alice Street	Jackson Street	0	5,980	5,950	9,000	9,000	10,900	791	77	132	264	109
8th Street	Jackson Street	Madison Street	0	5,370	5,400	8,150	8,150	9,850	837	111	176	353	20
8th Street	Madison Street	Oak Street	0	6,620	6,650	10,000	10,000	12,100	803	101	177	353	0
11th Street	Brush Street	Castro Street	760	8,080	9,000	12,150	13,100	15,700	1,141	177	141	282	286
11th Street	Castro Street	MLK	250	7,840	8,150	11,850	12,200	14,700	891	211	191	383	12
11th Street	MLK	Jefferson Street	630	7,390	8,200	11,100	11,900	14,250	1,012	171	213	425	26
11th Street	Jefferson Street	Clay Street	630	0	0	0	0	0	1,012	171	213	425	26
11th Street	Clay Street	Broadway	630	6,510	7,300	9,800	10,600	12,650	1,012	171	213	425	26
11th Street	Broadway	Franklin Street	630	6,150	6,950	9,300	10,100	12,050	1,012	171	213	425	26
11th Street	Franklin Street	Webster Street	630	7,170	7,950	10,900	11,700	13,950	1,012	171	213	425	26
11th Street	Webster Street	Harrison	630	7,280	8,050	11,050	11,850	14,150	1,012	171	213	425	26
11th Street	Harrison	Alice Street	630	8,750	9,550	13,200	14,000	16,750	1,012	171	213	425	26
11th Street	Alice Street	Jackson Street	630	0	0	0	0	0	1,012	171	213	425	26
11th Street	Jackson Street	Madison Street	630	5,580	6,350	8,450	9,250	11,000	1,012	171	213	425	26
11th Street	Madison Street	Oak Street	630	4,770	5,550	7,300	8,100	9,600	1,012	171	213	425	26
12th Street	Brush Street	Castro Street	120	1,930	2,100	2,850	3,000	3,600	265	57	0	0	151
12th Street	Castro Street	MLK	780	5,780	6,800	8,800	9,850	11,650	716	181	0	0	408
12th Street	MLK	Jefferson Street	0	6,020	6,000	9,050	9,050	10,900	1,842	277	5	11	1,036
12th Street	Jefferson Street	Clay Street	0	6,160	6,150	9,400	9,400	11,350	1,842	277	5	11	1,036
12th Street	Clay Street	Broadway	0	6,550	6,550	9,950	9,950	12,050	1,842	277	5	11	1,036
12th Street	Broadway	Franklin Street	0	7,160	7,150	10,800	10,800	13,100	1,842	277	5	11	1,036
12th Street	Franklin Street	Webster Street	0	6,710	6,700	10,050	10,050	12,150	1,842	277	5	11	1,036
12th Street	Webster Street	Harrison	0	7,730	7,700	11,700	11,700	14,200	1,842	277	5	11	1,036
12th Street	Harrison	Alice Street	0	7,210	7,250	10,850	10,850	13,150	1,842	277	5	11	1,036
12th Street	Alice Street	Jackson Street	0	0	0	0	0	0	1,842	277	5	11	1,036
12th Street	Jackson Street	Madison Street	0	7,020	7,000	10,700	10,700	13,000	1,842	277	5	11	1,036
12th Street	Madison Street	Oak Street	0	8,260	8,250	12,500	12,500	15,150	1,842	277	5	11	1,036
14th Street	Brush Street	Castro Street	740	11,450	12,350	17,350	18,300	21,950	430	53	71	141	62
14th Street	Castro Street	MLK	190	11,230	11,500	16,950	17,200	20,750	743	83	120	239	113

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020			Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
14th Street	MLK	Jefferson Street	615	10,730	11,500	16,200	16,950	20,400	2,276	173	420	840	209
14th Street	Jefferson Street	Clay Street	615	10,440	11,250	15,850	16,600	19,950	2,276	173	420	840	209
14th Street	Clay Street	Broadway	615	0	0	0	0	0	2,276	173	420	840	209
14th Street	Broadway	Franklin Street	615	9,050	9,850	13,650	14,400	17,250	2,276	173	420	840	209
14th Street	Franklin Street	Webster Street	615	8,950	9,750	13,550	14,300	17,150	2,276	173	420	840	209
14th Street	Webster Street	Harrison	615	9,060	9,800	13,650	14,400	17,250	2,276	173	420	840	209
14th Street	Harrison	Alice Street	615	9,040	9,800	13,650	14,400	17,300	2,276	173	420	840	209
14th Street	Alice Street	Jackson Street	615	0	0	0	0	0	2,276	173	420	840	209
14th Street	Jackson Street	Madison Street	615	6,070	6,850	9,150	9,900	11,800	2,276	173	420	840	209
14th Street	Madison Street	Oak Street	615	6,380	7,150	9,550	10,300	12,300	2,276	173	420	840	209
17th Street	Brush Street	Castro Street	0	9,680	9,650	14,700	14,700	17,900	62	0	0	0	35
17th Street	Castro Street	MLK	130	8,800	8,950	13,250	13,400	16,250	18	0	0	0	10
17th Street	MLK	Jefferson Street	130	7,640	7,800	11,600	11,750	14,250	0	0	0	0	0
17th Street	Jefferson Street	San Pablo Avenue	130	7,450	7,600	11,250	11,400	13,850	0	0	0	0	0
17th Street	San Pablo Avenue	Telegraph Avenue	130	5,930	6,100	8,950	9,100	11,000	0	0	0	0	0
17th Street	Telegraph Avenue	Broadway	130	5,090	5,250	7,750	7,900	9,550	0	0	0	0	0
17th Street	Broadway	Franklin Street	130	5,620	5,800	8,500	8,650	10,450	0	0	0	0	0
17th Street	Franklin Street	Webster Street	130	5,040	5,200	7,600	7,750	9,350	0	0	0	0	0
17th Street	Webster Street	Harrison Street	130	3,420	3,600	5,150	5,300	6,400	0	0	0	0	0
17th Street	Harrison Street	Alice Street	130	0	0	0	0	0	0	0	0	0	0
17th Street	Alice Street	Jackson Street	130	0	0	0	0	0	0	0	0	0	0
17th Street	Jackson Street	Madison Street	130	1,160	1,300	1,800	1,950	2,300	0	0	0	0	0
17th Street	Madison Street	Lakeside Drive	130	710	850	1,150	1,300	1,550	0	0	0	0	0
19th Street	Castro Street	MLK	0	0	0	0	0	0	0	0	0	0	0
19th Street	San Pablo Avenue	Telegraph Avenue	0	4,110	4,150	6,150	6,150	7,450					
19th Street	Telegraph Avenue	Broadway	0	4,080	4,050	6,300	6,300	7,600					
19th Street	Broadway	Franklin Street	0	5,020	5,000	7,700	7,700	9,300					
19th Street	Franklin Street	Webster Street	0	5,650	5,650	8,550	8,550	10,350					
19th Street	Webster Street	Harrison Street	0	3,320	3,300	5,050	5,050	6,100					
19th Street	Harrison Street	Alice Street	0	0	0	0	0	0					
19th Street	Alice Street	Jackson Street	0	0	0	0	0	0					
19th Street	Jackson Street	Madison Street	0	0	0	0	0	0					
20th Street	Castro Street	San Pablo Avenue	0	1,310	1,300	2,050	2,050	2,500					
20th Street	San Pablo Avenue	Telegraph Avenue	0	4,280	4,250	6,500	6,500	7,850					
20th Street	Telegraph Avenue	Broadway	0	5,800	5,800	8,800	8,800	10,650					
20th Street	Broadway	Franklin Street	0	5,430	5,450	8,300	8,300	10,050					
20th Street	Franklin Street	Webster Street	0	6,800	6,800	10,250	10,250	12,400					
20th Street	Webster Street	Harrison Street	0	6,240	6,250	9,500	9,500	11,500					
21st Street	San Pablo Avenue	Telegraph Avenue	0	1,050	1,050	1,600	1,600	1,950					
21st Street	Telegraph Avenue	Broadway	0	1,090	1,100	1,750	1,750	2,150					
21st Street	Broadway	Franklin Street	0	2,320	2,350	3,500	3,500	4,200					
21st Street	Franklin Street	Webster Street	0	3,500	3,500	5,250	5,250	6,350					
21st Street	Webster Street	Harrison Street	0	5,080	5,100	7,650	7,650	9,250					
Grand Avenue	Brush Street	San Pablo Avenue	0	12,250	12,250	18,500	18,500	22,400	0	0	0	0	0
Grand Avenue	San Pablo Avenue	MLK	0	13,120	13,100	19,850	19,850	24,000					
Grand Avenue	MLK	Telegraph Avenue	0	17,660	17,650	26,700	26,700	32,350					
Grand Avenue	Telegraph Avenue	Broadway	0	13,750	13,750	20,750	20,750	25,100					
Grand Avenue	Broadway	Webster Street	0	13,090	13,050	19,750	19,750	23,900					
Grand Avenue	Webster Street	Harrison/Lakeside	0	11,820	11,800	17,900	17,900	21,650					
27th Street	MLK	Telegraph Avenue	0	13,020	13,050	19,700	19,700	23,850					
27th Street	Telegraph Avenue	Broadway	0	9,870	9,900	14,950	14,950	18,100					

Appendix B: Two-Way Road Segment Traffic Volume Forecasts - Ballpark with TMP and Non-Ballpark with TDM

				Year 2020			Year 2040			Ballpark				
Street	From	To	HT Non-Ballpark Trips with Rerouting	No Project Volumes	No Project + HT Volumes	No Project Volumes	No Project + HT Volumes	No Project + DOSP + HT Volumes	Ballpark Attendee Trips Arrivals + Departures	Ballpark Employee Trips Arrivals + Departures	5-6 PM Attendee Arrivals	6-7 PM Attendee Arrivals	10-11 PM Attendee Departures
27th Street	Broadway	Harrison/Lakeside	0	8,870	8,850	13,400	13,400	16,200					
29th Street	MLK	Telegraph Avenue	0	0	0	0	0	0					
29th Street	Telegraph Avenue	Broadway	0	0	0	0	0	0					
34th Street	MLK	Telegraph Avenue	0	0	0	0	0	0					
34th Street	Telegraph Avenue	Broadway	0	0	0	0	0	0					
International Boulevard	1st Avenue	5th Avenue	0	8,130	8,150	12,250	12,250	14,850					
E. 12th Street	1st Avenue	5th Avenue	0	0	0	0	0	0					
Lake Merritt Boulevard	Oak Street	12th Street	0	8,780	8,800	13,350	13,350	16,150					
1st Avenue	E. 12th Street	International Boulevard	0	19,170	19,200	28,950	28,950	35,050					
7th Street	Fallon Street	5th Avenue	0	13,420	13,450	20,350	20,350	24,600					
E. 8th Street	5th Avenue	E. 12th Street	0	10,880	10,900	16,400	16,400	19,850					
Posey Tube NB	Willie Stargell Avenue	6th Street	700	24,440	25,300	36,950	37,850	45,750	647	47	142	285	0
Posey Tube SB	6th Street	Willie Stargell Avenue	535	26,350	27,000	39,800	40,450	48,750	496	17	0	0	283
Webster Street	Atlantic Avenue	Willie Stargell Avenue	535	18,660	19,350	28,300	28,950	34,900					
Constitution Way	Atlantic Avenue	Marina Village Parkway	700	15,560	16,450	23,500	24,400	29,300					
3rd Street	Adeline Street	Market Street	-795	6,770	6,050	10,250	9,550	11,700	5	0	1	2	0
3rd Street	Market Street	Brush Street	720	5,940	7,050	9,000	10,150	12,000	0	0	0	0	0
7th Street	Union Street	Adeline Street	640	14,510	15,250	22,000	22,750	27,350	968	166	111	223	263
7th Street	Adeline Street	Market Street	510	15,930	16,550	24,050	24,650	29,700	1,434	173	131	262	478
7th Street	Market Street	Brush Street	3,550	15,370	19,750	23,200	27,650	32,550	3,364	186	393	786	899
Market Street	Embarcadero	3rd Street	13,805	1,300	18,750	2,000	19,450	19,850	7,001	0	770	1,540	1,996
Market Street	3rd Street	7th Street	13,150	3,530	19,950	5,350	21,800	22,950	6,996	0	769	1,538	1,995
Middle Harbor Road	Maritime Street	3rd Street	655	5,940	6,600	9,000	9,650	11,550	0	0	0	0	0
Adeline Street	3rd Street	7th Street	1,300	4,880	6,250	7,400	8,800	10,350	0	0	0	0	0
5th Street	Union Street	Adeline Street	3,260	11,040	15,150	16,600	20,700	24,200	1,646	0	138	277	580
5th Street	Adeline Street	Market Street	3,285	12,440	16,500	18,800	22,850	26,850	1,333	0	138	277	401
5th Street	Market Street	Brush Street	1,305	6,760	8,400	10,300	11,950	14,100	1,602	0	114	229	617
Market Street	7th Street	12th Street	3,795	5,390	10,100	9,500	14,250	18,850	2,942	13	286	571	937
Market Street	12th Street	18th Street	2,630	6,000	9,250	8,900	12,200	13,650	1,073	18	144	287	239
Market Street	18th Street	Grand Avenue	1,835	6,340	8,650	10,950	13,250	17,900	487	22	54	108	137
Market Street	Grand Avenue	Grand North	1,490	4,660	6,500	7,400	9,300	11,500	430	22	47	95	123

Source: Alameda CTC Travel Demand Model for No Project Volumes, Fehr & Peers, 2020.

Appendix C – Microsimulation Vehicle Delay and LOS at Select Intersections

Appendix C: Microsimulation Vehicle Delay and LOS at Select Intersections

Intersection	3-4 PM		4-5 PM		5-6 PM		6-7 PM		7-8 PM	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Existing										
Adeline Street and 3rd Street	6	A	17	C	36	E	5	A	4	A
Adeline Street and 5th Street	18	B	20	B	23	C	16	B	14	B
Market Street and 3rd Street	4 (14)	A (B)	4 (16)	A (C)	3 (19)	A (C)	2 (10)	A (B)	3 (10)	A (B)
Market Street and 5th Street	11	B	11	B	12	B	10	B	9	A
Martin Luther King Jr. Way and 3rd Street	7	A	14	B	30	D	9	A	6	A
Martin Luther King Jr. Way and 5th Street	7	A	9	A	14	B	14	B	7	A
Broadway and 5th Street	37	D	44	D	67	E	54	D	38	D
Existing Plus Full Buildout Non-Ballpark Development										
Adeline Street and 3rd Street	10	A	19	B	16	B	9	A	8	A
Adeline Street and 5th Street	27	C	36	D	36	D	24	C	20	C
Market Street and 3rd Street	15	B	20	B	22	C	15	B	14	B
Market Street and 5th Street	11	B	21	C	25	C	21	C	10	A
Martin Luther King Jr. Way and 3rd Street	9	A	12	B	15	B	11	B	10	A
Martin Luther King Jr. Way and 5th Street	11	B	17	B	21	C	18	B	10	A
Broadway and 5th Street	35	D	35	D	73	E	48	D	30	C

Appendix C: Microsimulation Vehicle Delay and LOS at Select Intersections

Intersection	3-4 PM		4-5 PM		5-6 PM		6-7 PM		7-8 PM	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Existing Plus Full Buildout Non-Ballpark Development Plus Weekday Day Game										
Adeline Street and 3rd Street	15	B	27	C	18	B	13	B	11	B
Adeline Street and 5th Street	27	C	32	C	29	C	19	B	16	B
Market Street and 3rd Street	24	C	44	D	40	D	19	B	22	C
Market Street and 5th Street	17	B	30	C	34	C	24	C	14	B
Martin Luther King Jr. Way and 3rd Street	7	A	15	B	23	C	14	B	13	B
Martin Luther King Jr. Way and 5th Street	25	C	23	C	26	C	24	C	24	C
Broadway and 5th Street	33	C	27	C	45	D	41	D	29	C
Existing Plus Full Buildout Non-Ballpark Development Plus Weekday Evening Game										
Adeline Street and 3rd Street	18	B	25	C	22	C	19	B	17	B
Adeline Street and 5th Street	20	C	26	C	23	C	17	B	15	B
Market Street and 3rd Street	13	B	24	C	25	C	25	C	23	C
Market Street and 5th Street	25	C	30	C	27	C	24	C	24	C
Martin Luther King Jr. Way and 3rd Street	9	A	9	A	20	C	12	B	10	B
Martin Luther King Jr. Way and 5th Street	22	C	20	B	26	C	21	C	20	B
Broadway and 5th Street	36	D	33	C	49	D	37	D	30	C

Source: Fehr & Peers, 2020

TRA.5 Site Assessment and Construction Assessment

FEHR PEERS

MEMORANDUM

Date: December 1, 2020

To: Pete Vollmann, City of Oakland
Nicole Ferrara, City of Oakland

From: Rob Rees and Lee Reis, Fehr & Peers

Subject: Howard Terminal – Site Assessment and Construction Assessment

OK16-0125.06

The Oakland A's are proposing a ballpark and non-ballpark development on the Howard Terminal site. The City of Oakland Transportation Impact Review Guidelines (TIRG) dated April 14, 2017 requires a Site Access Assessment and Construction Assessment for all new developments. This memorandum provides a site assessment and construction assessment.

1. Project Description

The proposed project is located at Howard Terminal in the Jack London District. The project would include a 35,000-attendee capacity ballpark, as well as non-ballpark development that includes a 3,500-seat performance theater, 3,000 residential units, 1.5 million square feet of office space, 400 hotel rooms, and 270,000 square feet of commercial space. In addition, for the transportation analysis it was assumed that the A's could have up to 65,000 square feet allocated to ballpark and team employment.

Howard Terminal is currently used for truck parking, container storage, and longshoreman training and administration, all of which would likely relocate to other areas of the Port of Oakland.

2. Site Assessment

The site assessment is kept at a high level and is intended to guide the refinement of the site plan and preparation of design guidelines for the site. Topics covered in this site assessment and railroad crossings. The site assessments include topics on emergency vehicles, commercial vehicles,

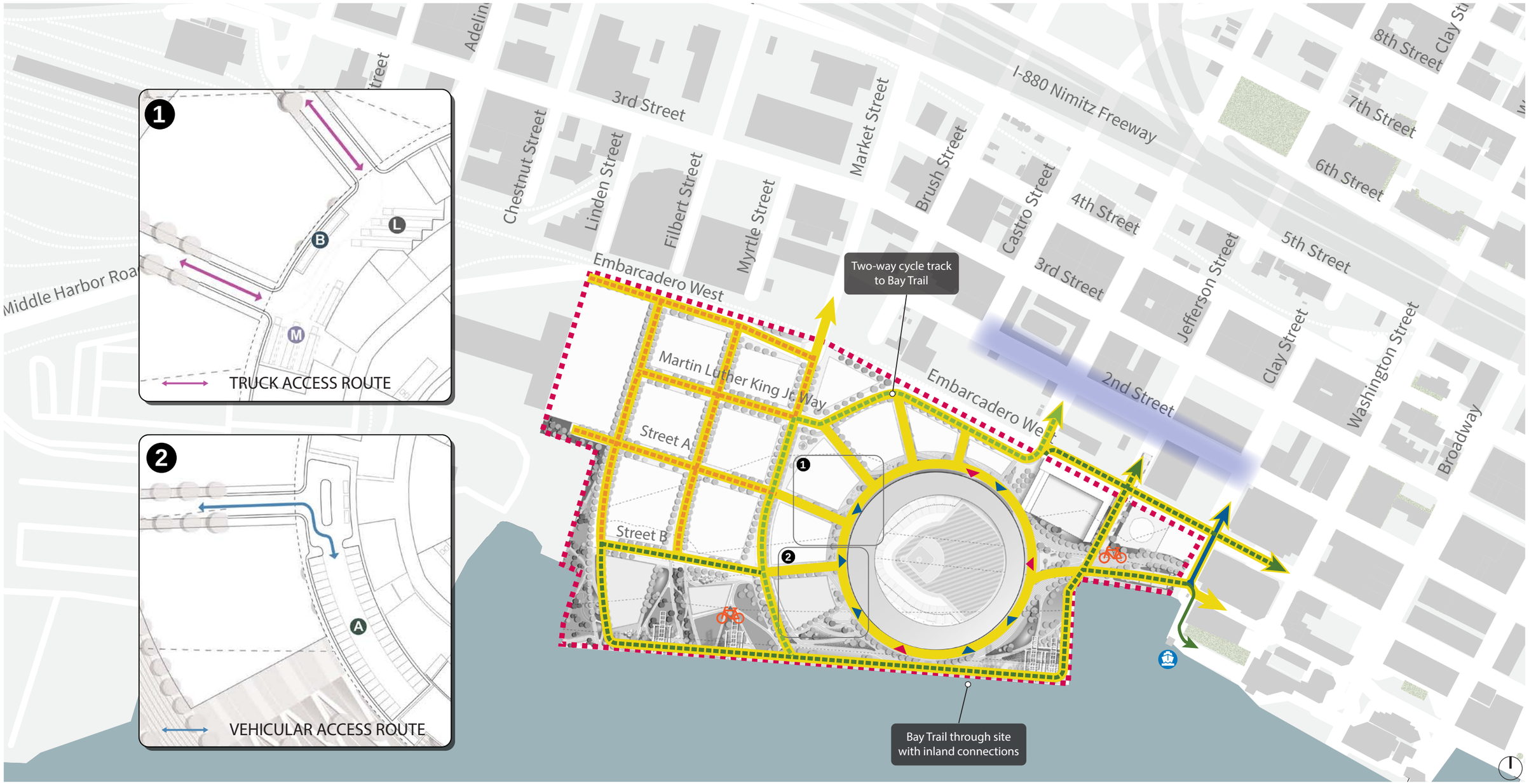
pedestrian facilities, bike facilities, and vehicle street cross sections. Pedestrian circulation within Athletics Way and access between Athletics Way and the ballpark has not been reviewed as part of this documentation and is expected to be addressed in subsequent design guidelines to be provided by the project applicant. The discussion in this section is based on the review of the site plan shown on **Figure 1** and **Figure 2.**

The final detailed design for the project would be reviewed during the City's Design Review Process to ensure consistency with applicable design standards, such as adequate sight distance for pedestrians and vehicles at project driveways and bicycle and motor vehicle parking. The final design for the project, if consistent with the City's Design Review Process, would minimize potential conflicts between various modes and provide safe and efficient pedestrian, bicycle, and vehicle circulation within the project site and between the project and the surrounding circulation systems. Based on the project's site plan and the City's policies and design requirements, the following general recommendations are made.

2.1. Site Access

The project shown on Figure 1 would continue to be served by Market Street and Martin Luther King Jr. Way both of which have at-grade railroad crossings prior to entering the site. Market Street would provide the primary vehicular crossing and serve Schnitzer Steel via Embarcadero West. Martin Luther King Jr. Way crossing would also serve vehicular access but few trucks, although should be designed to accommodate trucks. Vehicular grade separations at Market Street or Brush Street are being considered as alternatives and a pedestrian and bicycle over-crossing is being considered as a mitigation measure at either Jefferson or Clay Streets. The non-ballpark development would occur in development blocks throughout the project site generally west of the ballpark. These blocks would be formed by an extension of the City street grid in the west area of the site, and no new at-grade vehicle railroad crossing would be provided.

The 35,000-attendee capacity ballpark, shown on Figure 1, would be in the eastern half of the site and oriented east toward Water Street and Jack London Square. Water Street is expected to be the primary pedestrian connection to the ballpark with five secondary pedestrian connections along Martin Luther King Jr. Way and Market Street. The ballpark would have seven access points distributed around the ballpark for attendees; two on Water Street and five on Athletics' Way. There would be three access opportunities to the ballpark's rooftop park if it were provided. Special event bicycle and scooter parking has been identified on the east and west sides of the ballpark



LEGEND

EXISTING BIKE NETWORK
PROPOSED BIKE NETWORK

- Multi-Use Path
- Protected Bikeway
- Buffered/Non-Buffered Bike Lanes
- Neighborhood Bike Route/ Bike Route
- Special Event Bike Parking
- Pedestrian Routing
- Gameday Pedestrian Ballpark Access
- Gameday and Non-Gameday Roof Park Pedestrian Access
- Project Boundary
- Ferry
- A Player Parking
- B Team Buses
- L Loading Docks
- M Media Trucks

Transportation Hub (up to 120 buses per hour)

West Oakland Shuttle (if provided)
2 Loading Zones (up to 24 buses per hour)

Lake Merritt BART Shuttle (if provided)
2 or 3 Loading Zones (24 to 36 buses per hour)

AC Transit Line Extensions (10 to 12 buses per hour)

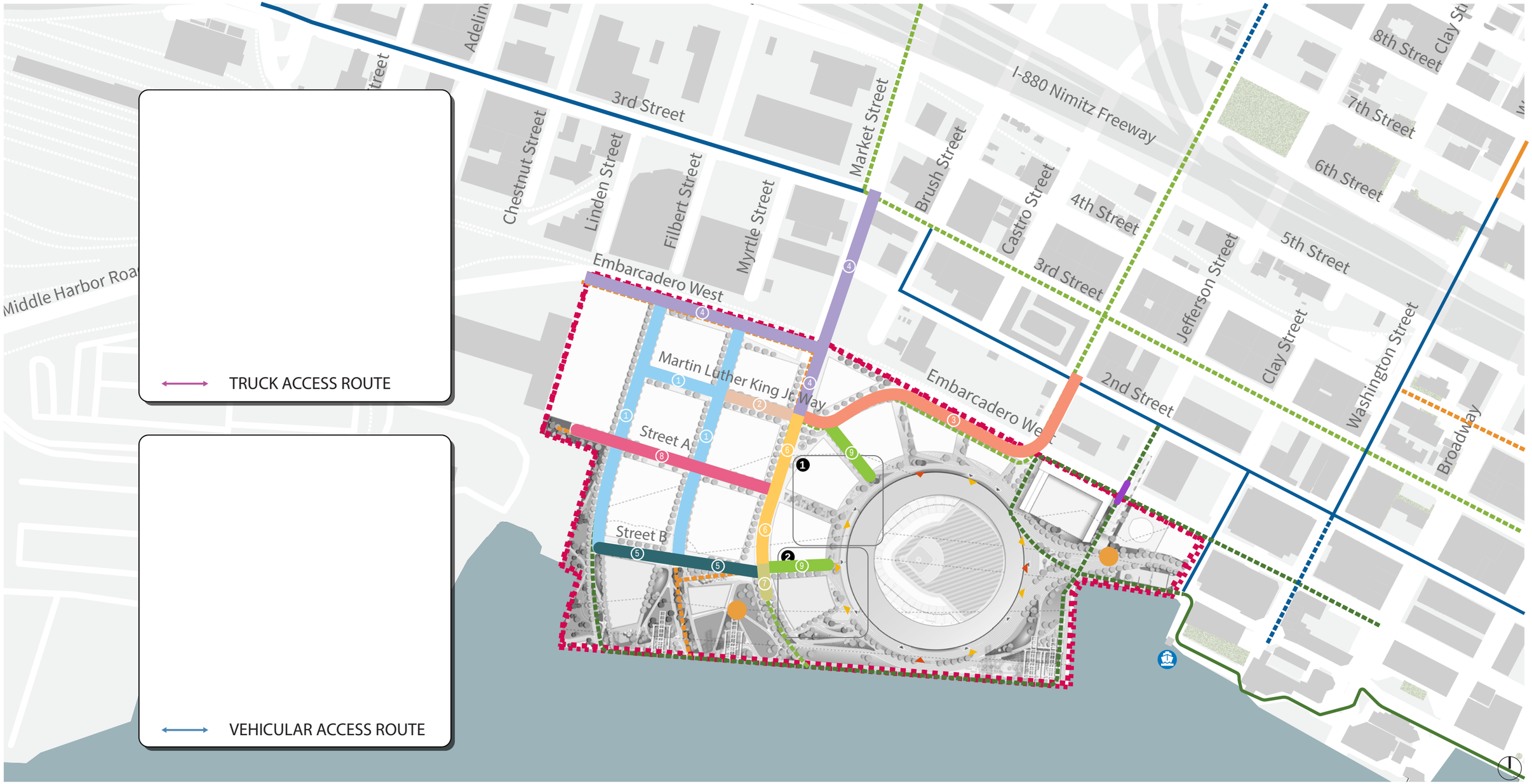
12th St BART Shuttle (up to 36 buses per hour)

AC Transit Line Rerouting (6 to 8 buses per hour)

Rerouting AC Transit Lines requires approval by AC Transit.
Shuttle use of bus stops requires approval by AC Transit.

Figure 1

On-Site Mobility Access Plan



LEGEND

- Project Boundary
- Ferry
- 1 One lane and one parking lane each way
- 2 One parking lane and one lane each way plus one eastbound left turn lane
- 3 One lane each way with two way cycle track plus left turn lane
- 4 Two lanes each way
- 5 One lane each way and parking lane on one side
- 6 One parking lane, one lane each way plus two-way cycle track
- 7 One lane each way plus two-way cycle track
- 8 One lane each way
- 9 Driveway

Figure 2

On-Site Street Types Plan

with pedestrian connections to the ballpark and Athletics' Way without crossing motor vehicle streets.

Emergency Vehicles

All streets within the site should be accessible to emergency vehicles which would generally access the site from either Market Street or Martin Luther King Jr. Way, crossing the at-grade railroad tracks or potentially via an EVA connecting the site via Embarcadero West to Adeline Street at Middle Harbor Road. The EVA to Adeline Street would provide emergency vehicle access even when a train is blocking one of the at-grade railroad crossings but is subject to the Port of Oakland and the CPUC approval. Emergency vehicles would also be able to access the site via Water Street through Jack London Square and as currently proposed the Bay Trail through the site and Athletics Way circling the ballpark would also be accessible to emergency vehicles. Fire Station No. 2 at the Water Street/Clay Street intersection would remain and have direct access to the Project site via the extension of Water Street into the site. The emergency access routes would not change if Fire Station No. 2 is closed at some point in the future. Water Street is rated for fire apparatus and serves the buildings in Jack London Square.

> **Recommendation:** While not required to address a CEQA impact, as part of the project development consider:
>
> - Conducting an analysis at preliminary engineering to ensure that emergency vehicles have access to Athletics Way, the Bay Trail through the site, and the development blocks west of Market Street.
> - Obtaining Port of Oakland and CPUC approval for an EVA connecting the site via Embarcadero West to Adeline Street at Middle Harbor Road.

2.1.1. Commercial Vehicles

Market Street would provide the primary commercial vehicle access to the site for both the development blocks as well as the ballpark. Delivery trucks from northbound I-880 would exit the freeway at Market Street while trucks from southbound I-880 would exit the freeway and use 5th Street to access Market Street. Trucks exiting the site to northbound I-880 would use Market Street and 6th Street to access the freeway at Union Street while trucks destined for southbound I-880 would use Market and 5th Street accessing the freeway at Broadway. Trucks from Howard Terminal's existing operations currently use these corridors to access I-880 and no further changes are necessary to facilitate these truck movements.

The truck traffic to and from Schnitzer Steel would continue with redevelopment at Howard Terminal. These trucks would continue to use Market Street and Embarcadero West to access the Schnitzer Steel site and would need to be accommodated in the road design and intersection operations. The site plan shows Embarcadero West to be four lanes which allows for separating the trucks destined to Schnitzer Steel from the automobiles destined to the development blocks. Schnitzer Steel traffic would use the vehicle grade separation to the site if it were incorporated into the site plan.

Truck loading zones / areas have not been identified on-site for the non-ballpark development blocks west of Market Street although the Filbert and Myrtle Street corridors are expected to provide delivery and parking access to the development blocks. Truck deliveries to the ballpark would be via Market Street. As currently proposed (see Figure 1) the service functions for the ballpark would occur under Athletics Way and include four loading docks sized for STAA trucks with up to 53-foot trailers, four 65-foot media truck spaces, and overflow for one or two team buses. Player and coach parking (up to 46 spaces) would also be provided under Athletics Way and should be made available to buses and similarly sized vehicles for concerts and other non-baseball events. Preliminary turning analysis studies indicate that the loading docks can accommodate STAA trucks and that the parking area can accommodate buses and similarly sized vehicles.

> **Recommendation:** While not required to address a CEQA impact, as part of the non-ballpark development of the project consider:
>
> - Conducting a truck turning analysis at preliminary engineering to ensure that the Market Street/Embarcadero West intersection and Embarcadero West itself accommodates STAA Standard Design vehicles to and from Schnitzer Steel.
> - Conducting a truck and bus turning analysis at preliminary engineering to ensure that the STAA trucks to the ballpark can maneuver in and out of the service area and the loading docks and that buses and similarly sized vehicles can maneuver in and out of the player and coach parking.
> - Allowing trucks to encroach into the adjacent lane of traffic when turning to and from the site's local two-lane streets to maintain compact intersection and street cross sections.

2.1.2. Pedestrians

Figure 1 highlights pedestrian routing within and adjacent to the site. Sidewalks and paths would be provided throughout the site connecting the development blocks on all sides, the ballpark, the

streets crossing the railroad tracks, Water Street, and the Bay Trail. Sidewalks would be provided on both sides of Market Street crossing the at-grade railroad tracks connecting to the surrounding neighborhood. Sidewalks would be provided on the east and south side of Martin Luther King Jr. Way crossing the at-grade railroad tracks to concentrate the pedestrian flows from the ballpark using the corridor to a single crossing thereby minimizing the number of conflicts with the railroad. Both crossings would have pedestrian gates and fencing along with traffic signals providing additional protection crossing the railroad.

The development blocks form over one mile of curb space throughout the site and this space should be considered for curb management such as parking, passenger and commercial loading, staging, and other uses as well as for enhanced pedestrian circulation to accommodate the pedestrian loads (between 4,000 and 5,000 pedestrians) walking between the development blocks and the ballpark. At this early stage of site development, Street A is expected to be the primary pedestrian connection between the development and the ballpark and should be designed without curb functions to provide wider sidewalks and potentially a multi-use path to handle the anticipated pedestrian loads on event days and neighborhood bike riders on non-event days. The north / south streets, Filbert and Myrtle Streets, are expected to serve each development block's parking and delivery functions.

Recommendation: While not required to address a CEQA impact, as part of the site development, consider:

- Incorporating a traffic signal at the Market Street/Martin Luther King Jr Way intersection to facilitate ballpark pedestrian flows and coordinating the traffic signal with the one at the Market Street/Embarcadero West intersection.
- Designing A Street, west of Market Street, with a minimum 10-foot sidewalk width at obstacles to accommodate the anticipated pedestrian demands between the development including ballpark parking and the ballpark.
- Maintaining a minimum 6-foot effective sidewalk width at obstacles on all non-ballpark development blocks with low to moderate pedestrian activities. Where sidewalks front active land uses such as stores and restaurants, maintain a minimum 8-foot clear pedestrian path of travel.
- Providing 12-foot wide high visibility crosswalks at each intersection within the site to facilitate pedestrian street crossings with 20-foot wide crosswalks along the major pedestrian corridor(s) connecting to the ballpark.

2.1.3. Bikes

Bike riders are expected to use several corridors to access the area including Mandela Parkway, Market Street, Martin Luther King Jr. Way, Washington Street, and 2nd Street. There is insufficient street width to provide bike facilities on Market Street, south of 3rd Street, to the project site. So, buffered bike lanes are proposed for 7th Street connecting Market Street and Martin Luther King Jr. Way where bike riders could use the Class 4 Bike Lanes on Martin Luther King Jr. Way to access the site. Key bike features on the site include:

- Class 4 Bike Lanes (two-way) would be provided along Martin Luther King Jr. Way from 2nd Street through the site to Market Street where the facility would turn south and extend to the water and the Bay Trail. North of 2nd Street bike lanes consistent with the bike plan would continue to 8th Street as part of the CEQA Mitigation Measure where they would continue to San Pablo Avenue through a grant-funded project that will be implemented by the City. The Martin Luther King Jr. Way facilities would serve as a primary artery connecting the other planned and existing bike facilities in West Oakland, Jack London District, and Downtown.
- The Bay Trail would extend from its current terminus at Clay Street along the project's water edge with inland connections along the Jefferson Street alignment and then a loop connecting Market Street west of the ballpark.
- Embarcadero, south of the railroad tracks, would be redeveloped to a multi-use path connecting Martin Luther King Jr. Way to Broadway, replacing the vehicular street that exists today.
- Bikes would share the street with vehicular traffic on the streets west of Market Street except Street A where a multi-use path may be provided.

Figure 1 illustrates select bike mobility features on the project site.

Recommendation: While not required to address a CEQA impact, as part of the site development, consider:

- Designing one of the east/west streets, west of Market Street, within the site for a multi-use path to enhance bike riding connectivity to the two-way cycle track along Market Street.

2.1.4. Motor Vehicle Lane Cross Sections

Figure 2 illustrates the street vehicular cross-section characteristics. Market Street, as the primary vehicular access, would provide two lanes in each direction across the railroad tracks and then

narrow through the site eventually to a single lane in each direction at Street B. Martin Luther King Jr. Way would cross the railroad tracks with one lane in each direction and then widen to a three-lane cross-section with the third lane deemed a flexible space serving as left-turn access, curb side passenger loading, staging, deliveries, or other function to support the site's mobility needs during event and non-event days. The portion of Embarcadero West that is west of Market Street would provide two lanes in each direction to minimize mixing of the development's traffic and the trucks accessing Schnitzer Steel. The remaining streets on the site would provide one lane in each direction.

> **Recommendation:** While not required to address a CEQA impact, as part of the site development, consider:
>
> - Designing the streets with 10- or 11-foot lanes while maintaining minimum 26-foot clear on select streets identified by the City of Oakland Fire Department.
> - Designing the on-site vehicular streets for 20 or 25 mph speed limits as determined by the City of Oakland.

2.2. Railroad Crossings

Union Pacific Railroad (UPRR) is a freight-hauling railroad company that owns and operates two mainline railroad tracks through the Jack London District. These rail lines are used both for passenger transportation by Amtrak and CCJPA (Capital Corridor) and freight transport by UPRR.

There are currently special event activities at Jack London Square that attract large crowds including the Art & Wine Event (10,000 attendees), Wine Walks (5,000 attendees), Pedalfest (15 to 30,000 attendees), A's Fan Fest (30,000 attendees), 4th of July (15,000 attendees), and the Eat Real Festival (90,000 attendees over three days). There is no formal TMP for managing event traffic including across the railroad tracks. The transportation experience during these events, particularly larger events, is characterized by fully utilized parking garages and on-street parking, at-capacity B-Shuttle and AC Transit buses, people walking from the 12th Street and Lake Merritt BART Stations, and biking. The multimodal traffic crossing the railroad tracks under existing conditions is unmanaged with no protections between intersecting streets with the railroad and the at-grade crossing intersections themselves are generally only controlled by one 9A warning device (a railroad gate with flashing lights) in each direction.

2.2.1. Existing Railroad Characteristics

Table 1 summarizes the gate down times during the week of July 22nd to July 28th, 2019 between the hours of 11 AM to 11 PM when ballpark activities are likely to occur. During this time each day on average 6 freight trains and 36 passenger trains passed through the area. The data for the Market Street crossing in the table includes one train event that caused the gate to be down 87 minutes from about 9:13 PM to 10:40 PM Sunday evening. The event is considered extraordinary because the next longest freight gate down time observation was 29 minutes. The Martin Luther King Jr. Way crossing gate was down for 29 minutes across eight down times during the 87-minute period, with the longest being 16 minutes. There were 13 observed instances during the seven-day study period where gate down times at the Market Street crossing exceeded seven minutes, and there were seven similar instances at the Martin Luther King Jr. Way crossing. All these observations were associated with freight trains. There were six instances during the week when the gates were down at both crossings for freight trains with the longest being about 19 minutes and the shortest being about seven minutes.

Table 1: Gate Down Times at Howard Terminal

Train Type	Median Gate Down Time (Minutes)	Minimum Gate Down Time (Minutes)	Maximum Gate Down Time (Minutes)
Market Street			
Passenger	1.0	0.8	14.0
Freight	4.3 [1]	0.8	87.0 [1]
Martin Luther King Jr. Way			
Passenger	1.0	0.8	3.5
Freight	4.4	0.7	19.0

Notes:
1. Data summary includes one extraordinary event. The Market Street at-grade crossing gates were down for 87 minutes Sunday evening between about 9:13 PM and 10:40 PM. The Martin Luther King Jr. Way crossing gates were down for 29 minutes across eight times during this period, with the longest being 16 minutes.

Source: Fehr & Peers, 2020. Data collection from July 22nd to July 28th, 2019.

There are at-grade crossings at Market Street and Martin Luther King Junior Way as well as Clay, Washington, Broadway, Franklin, Webster, and Oak Streets. There are two UPRR mainline tracks through all the at-grade crossings except at Market Street and Oak Street where there are three tracks. In addition, Amtrak has a maintenance yard adjacent to UPRR's West Oakland Yard, located

west of Adeline Street and south of I-880. The at-grade railroad crossing characteristics are described below, including a summary of train crashes (any collision involving a train at the at-grade crossing) between 2014 and 2018, as reported in Federal Railroad Administration Office of Safety Analysis Highway-Rail Grade Crossing Accident/Incident Reports. The five years of crash data is consistent with the City's guidelines for evaluating crash history.

- Market Street on the north side of the railroad is a 4-lane road with sidewalks on both sides. The crossing surface has been improved for motor vehicles, but the sidewalks terminate prior to the crossing. Bike lanes on Market Street terminate one block prior to the crossing at 3rd Street. The crossing serves truck access to the project site and Schnitzer Steel. The crossing has two 9A warning devices (flashing light signals with automated gate arms and additional flashing lights on a cantilevers), one in each direction, and is a designated truck route. There was a train/vehicle crash in 2019 at the Market Street crossing with an unoccupied vehicle that resulted in no injuries.

- Martin Luther King Jr. Way on the north side of the railroad is a 4-lane road with on-street parking and sidewalks on both sides. South of the tracks it is a 2-lane road with no sidewalks. The crossing surface has been improved for motor vehicles, but the sidewalks terminate prior to the crossing. The crossing serves motor vehicle access to the project site, the Vistra Power Plant, and other uses. The crossing has two 9A warning devices, one in each direction, and is a designated truck route. There have been no train crashes at this crossing within the last five years.

- Clay Street is a 2-lane road with on-street parking / loading and sidewalks on both sides of the railroad tracks, there is a striped crosswalk across the railroad tracks on the east side of the crossing, and there are bike lanes on Clay Street north of the crossing. The crossing surface has been improved for all users and extends from west of Clay Street through Jack London Square to Webster Street. The crossing serves commercial uses on both sides of the track, provides access to the Ferry Terminal, and is the designated Bay Trail route. The crossing has two 9A warning devices, one in each direction. There have been no train crashes at this crossing within the last five years.

- Washington Street is a 2-lane road with on-street parking / loading and sidewalks on both sides of the railroad tracks, there are striped crosswalks across the railroad tracks, and there are bike lanes on Washington Street one block north of the crossing at 3rd Street. The crossing surface has been improved for all users. The crossing serves commercial uses on both sides of the track and provides access to the Ferry Terminal. The crossing has two 9A warning devices, one in each direction. There have been no train crashes at this crossing within the last five years. However, there was a train / pedestrian crash in 2017 between the Washington Street and Clay Street crossings when two pedestrians were injured as they went beyond the gate into the rail right of way. This was a multiple threat crash where the pedestrians started crossing the tracks after the train passed (before the gate arm was up) and were hit by a train on the other track passing in the opposite direction.

- Broadway is a 4-lane road with on-street parking / loading and sidewalks on both sides of the railroad tracks, there are striped crosswalks across the railroad tracks. The crossing surface has been improved for all users. The crossing serves commercial uses on both sides of the track and provides access to Jack London Square. The crossing has two 9A warning devices, one in each direction. There was a train/vehicle crash in 2019 at the Broadway crossing with the rear end of an occupied semi-trailer that went around the gates but resulted in no injuries.

- Franklin Street is a one way one lane road with on-street parking / loading and sidewalks on both sides of the railroad tracks and there are striped crosswalks across the railroad tracks. The crossing surface has been improved for all users. The crossing serves commercial uses on both sides of the track. The crossing has two 9A warning devices, one in each direction. There was a train/pedestrian crash in 2015 at the Franklin Street crossing that resulted in a pedestrian fatality.

- Webster Street is a 2-lane road with on-street parking / loading and sidewalks on both sides of the railroad tracks and there is a striped crosswalk across the east side of the railroad tracks. The crossing surface has been improved for all users. The crossing serves commercial uses on both sides of the track. The crossing has three 9A warning devices. There was a train / pedestrian crash in 2015 at the Webster Street crossing when one pedestrian was killed.

- Oak Street is a 2-lane road with on-street parking, bike lanes, and sidewalks on both sides of the railroad tracks except on the east side of the tracks where there is no sidewalk on the south side of the tracks. The crossing surface has been improved for all users. The crossing serves commercial uses on both sides of the track. The crossing has two 9A warning devices. There have been no train crashes at this crossing within the last five years.

Because there were so few train crashes in the last five reporting years, a review of crash data dating back to the 1970s is summarized. There was a cluster of collisions (18) at the at-grade crossings and Embarcadero West in the 1970s followed by an extended period, 1980 through 1998, where there were only five collisions. Between 1999 and 2009 there was another cluster of collisions (13); only four collision have occurred since 2009.

2.2.2. Project Railroad Characteristics

Substantial residential and commercial development is contemplated as part of the project which would be expected to generate multimodal demand for services on both sides of the railroad tracks along Embarcadero and recreational demand for the Bay Trail which crosses the railroad tracks at Clay Street. **Table 2** documents the project's anticipated pedestrian, bicycle, and vehicle forecasts crossing the railroad tracks at site buildout before a 35,000-attendee weekday evening baseball game. Similar crossing demand would occur for weekday day games as well as weekend games. The Market Street crossing would realize the greatest project demand for motor vehicle crossings

as this would be the primary access to the project site with hourly demands expected to peak at over 2,200 vehicles with an at-capacity baseball game and buildout development. The Washington Street crossing would realize the greatest demand for pedestrians with hourly demands expected to peak at over 4,300 crossings. These demands are substantially higher than day-to-day crossing activities except during the large special events at Jack London Square when thousands of people are attracted to the area and cross the railroad tracks as pedestrians.

Table 2: Project Railroad Crossing Volumes Buildout Plus Weekday Evening Ballgame

Crossing	3 to 4 PM	4 to 5 PM	5 to 6 PM	6 to 7 PM	7 to 8 PM
Market Street					
Pedestrian	310	720	830	1,160	560
Bicycle	--	--	--	--	--
Vehicle	1,140	1,830	2,050	2,220	1,290
Martin Luther King Jr. Way					
Pedestrian	440	2,000	2,390	4,070	1,700
Bicycle	140	230	250	280	160
Vehicle	530	880	980	1,090	620
Clay Street					
Pedestrian	20	110	130	240	90
Bicycle	50	80	80	90	50
Vehicle	--	--	--	--	--
Washington Street					
Pedestrian	280	1,970	2,390	4,350	1,730
Bicycle	50	80	80	90	50
Vehicle	--	--	--	--	--
Broadway					
Pedestrian	230	1,290	1,550	2,750	1,120
Bicycle	--	--	--	--	--
Vehicle	--	--	--	--	--

Note: "--" indicates that the project is not adding trips to the at-grade crossing for that mode at that location.
Source: Fehr & Peers, 2020.

The project sponsor commissioned a study, *Oakland A's Howard Terminal Project – Railroad Corridor and Grade Crossing Improvements*. The study identified at-grade railroad crossing

improvements based on a review of existing site conditions, the forecasted increase in vehicular, pedestrian and bicycle traffic, as well as potential increases in rail service. According to the study, the project currently proposes a comprehensive suite of at-grade railroad crossing enhancements including:

- Install fencing along both sides of the railroad corridor extending along the project's frontage starting at the Schnitzer Steel boundary and continuing to Broadway. This change would alter Embarcadero West circulation as follows:
    - Between Market Street and Schnitzer Steel Embarcadero West would remain two-way with a signalized intersection at Market Street.
    - Between Market Street and Martin Luther King Jr. Way the street would be abandoned such that there would no longer be a motor vehicle intersection at Martin Luther King Jr. Way.
    - Between Martin Luther King Jr. Way and Broadway, the street on the south side of the railroad tracks would be converted to a shared use path with pedestrians and bicycles. On the north side of the railroad Embarcadero West would remain one-way westbound with forced right turns at Jefferson, Clay, and Washington Streets as well as at Broadway.
- Upgrade the existing at-grade railroad crossings at Market Street, Martin Luther King Jr. Way, Clay Street, Washington Street and Broadway with quad gates for motor vehicles and separate signals and gates for pedestrians and bicyclists. Provide improved pedestrian and bicycle surfaces at each crossing as well as ADA features and clearly defined staging areas for pedestrians and bicyclists to wait as a train passes by.
- Install a traffic signal at the Market Street at-grade crossing and the Market Street/Embarcadero West intersection as well as a traffic signal on Market Street at 3rd Street. These signals would be part of the railroad preemption system and include queue cutter loops on Market Street that would be tied to both traffic signals to minimize the potential for motor vehicles to queue across the railroad tracks. A railroad preemption system provides an opportunity for vehicles to clear the track area before the train arrives at the crossing. A traffic signal with a queue cutter loop is installed at a high-vehicle volume at-grade rail crossings in a manner similar to a pre-signal; its function is to provide a means to prevent vehicles from stopping on the tracks or within the railroad right-of-way as a result of traffic queuing from a downstream signalized intersection.
- While there is no motor vehicle intersection at the Martin Luther King Jr. Way at-grade crossing, install a traffic signal at the at-grade crossing as well as traffic signals at 2nd Street where left turns would be prohibited and at 3rd Street where a left-turn lane would be provided to separate left turning and through movement traffic. These signals would be

part of the railroad preemption system and include a queue cutter loop on Martin Luther King Jr. Way that would be tied to all three traffic signals to minimize the potential for motor vehicles to queue across the railroad tracks.

These changes are a Mitigation Measure in the CEQA document. Even with these changes the impact to safety is considered significant because the CPUC has ultimate jurisdiction over whether the improvements are constructed. As a result, the following recommendation should be considered.

Recommendation: Prior to issuance of a demolition, grading, or building permit require the project applicant to submit for City review and approval a Diagnostic Review to evaluate potential impacts to at-grade railroad crossings resulting from project-related traffic and implement the suite of improvements to enhance multimodal safety along the railroad tracks including elements necessary for a Quiet Zone through Jack London District. Funding for the Diagnostic Study and implementation of any resulting recommendations would be the responsibility of the Project Applicant.

In general, the major types of impacts to consider in the Diagnostic Review are collisions between trains and vehicles, trains and pedestrians, and trains and bicyclists. The Diagnostic Review shall include specific traffic elements, such as roadway and rail description, accident history, traffic volumes (all modes, including pedestrian and bicyclist crossing movements), train volumes, vehicular speeds, train speeds, and existing rail and traffic control.

Where the Diagnostic Review identifies potentially substantially dangerous crossing conditions at at-grade railroad crossings caused by the project, measures relative to the project's traffic contribution to the crossings shall be applied through project redesign and/or incorporation of the appropriate measures to reduce potential adverse impacts at the crossings. These measures may include, without limitation, the following:

- Installation of grade separations at crossings, i.e., physically separating roads and railroad tracks by constructing overpasses or underpasses.
- Improvements to warning devices at existing highway rail crossings that are impacted by project traffic.
- Installation of additional warning signage.
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., signal preemption.
- Installation of median separation to prevent vehicles from driving around railroad crossing gates.
- Where sound walls, landscaping, buildings, etc. would be installed near crossings, maintaining the visibility of warning devices and approaching trains.

- Prohibition of parking within 100 feet of the crossings to improve the visibility of warning devices and approaching trains.
- Construction of pull-out lanes for buses and vehicles transporting hazardous materials.
- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way.
- Elimination of driveways near crossings.
- Increased enforcement of traffic laws at crossings.
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings

Any proposed improvements must be coordinated with California Public Utility Commission (CPUC) and affected railroads and all necessary permits/approvals obtained, including a GO 88-B Request (Authorization to Alter Highway Rail Crossings). The project applicant shall implement the approved measures during construction of the project.

3. Construction Assessment

During construction of each of the development or infrastructure projects under the project, temporary and intermittent transportation impacts may result from truck movements as well as construction worker vehicles to and from the construction site. The construction-related traffic may temporarily reduce capacities of roadways in the vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. For the most part these construction truck trips would use the same routes as the existing truck trips generated by the Howard Terminal site with its activities using either Market Street or Martin Luther King Jr. Way corridors.

Truck traffic that occurs during the peak commute hours (weekdays, 7:00 to 9:00 AM and 4:00 to 6:00 PM) may result in higher delays during the construction period than at other times of the day because of the combination of commute traffic plus truck trips. If parking of construction workers' vehicles cannot be accommodated within the construction site, it too would temporarily increase parking occupancy levels in the area.

Potential construction activity of off-site transportation improvements in the public right-of-way, could result in temporary closure of sidewalks, prohibition of on-street parking, and potentially vehicle travel lane closures. A set of comprehensive traffic control measures for motor vehicles,

transit, bicycle, and pedestrian access and circulation would minimize the impact of off-site transportation improvements on the traveling public.

Given the site's location temporary closure of sidewalks during construction are likely to be limited to off-site locations where sidewalk improvements are made, such as the east side of Martin Luther King Jr. Way where the project proposes a two-way cycle track and sidewalk. Nevertheless, sidewalk improvements may affect pedestrian circulation; similarly, potential closure of bicycle lanes may affect bicycle circulation. The nearest bus transit facilities, along 2nd Street approaching Washington Street, are unlikely to be impacted by the project's construction.

Recommendation: As part of the project, consider incorporating a Construction Management Plan including:

- The project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department, Department of Transportation, and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project.
- The project applicant shall obtain approval of a set of comprehensive traffic control measures for motor vehicle, transit, bicycles, and pedestrians during each phase of construction.
- The project applicant shall prepare a construction period parking management plan to ensure that parking demands for construction workers, site employees, and customers are accommodated during each phase of construction.
- The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets, sidewalks, bicycle facilities, and bus stops.

- In the event of obstructions to vehicle or bicycle travel lanes, bus stops, or sidewalks, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian accommodations (or detours, if accommodations are not feasible), including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The Traffic Control Plan shall be in conformance with the City's Supplemental Design guidance for Accommodating Pedestrians, Bicycles, and Bus Facilities in Construction Zones. The project applicant shall implement the approved Plan during construction.

- The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

TRA.6 Transit Analysis

FEHR PEERS

MEMORANDUM

Date:	December 1, 2020
To:	Pete Vollmann, City of Oakland Nicole Ferrara, City of Oakland
From:	Rob Rees and Lee Reis, Fehr & Peers
Subject:	**Howard Terminal – Transit Analysis**

OK16-0125.06

The Oakland A's are proposing a ballpark and non-ballpark development at Howard Terminal in Oakland, California. This memorandum discusses the existing transit services and the project related transit characteristics for the proposed development at Howard Terminal. The document concludes by highlighting the recommendations to accommodate the additional transit usage from the project. In all cases, existing conditions are those that existed at the time the NOP was issued and do not reflect conditions during the COVID-19 pandemic. The pandemic has resulted in changes in human behavior and transit service, however many of these changes are thought to be short term and it would be speculative to identify those changes that will turn out to be long-term consequences of the pandemic at this time.

1 Existing Transit Services

AC Transit provides local bus service in the East Bay and Transbay bus service to the Transbay Terminal in San Francisco. Bay Area Rapid Transit (BART) provides regional rail service connecting San Francisco, northern San Mateo county, and the East Bay. Amtrak also provides regional rail within the San Francisco Bay Area and beyond while WETA provides ferry service. The following sections provide more details regarding existing transit services.

1.1. Bus Services

AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo and Santa Clara Counties. Eighteen AC Transit local lines, one Transbay line, and six all-nighter lines pass through or terminate in downtown Oakland. On a typical day AC Transit serves about 18,000 riders in downtown.

There are twelve AC Transit local lines, two Transbay lines and a Broadway shuttle which operate within a 15- minute walk from Howard Terminal. **Table 1** summarizes the bus lines serving the vicinity of the project site.

The Broadway "B" Shuttle also operates along Broadway and is administered by the City of Oakland and operated by AC Transit, connecting Jack London District and Uptown. The free shuttle provides service along the Broadway corridor, between Jack London Square and Grand Avenue. The shuttle connects major destinations such as Jack London Square, City Center, and Uptown with major transportation services including BART, AC Transit, Amtrak, the Oakland Ferry Terminal, and the Greyhound station. The shuttle operates day service Monday through Friday from 7:00 a.m. to 7:00 p.m. every 11 minutes during commute hours and lunchtime and every 12 to 15 minutes at other times. Night service is provided Monday through Friday with shuttles running every 12 minutes.

Table 2 shows the capacity and passenger loads for the AC Transit routes serving the project area and vicinity. Load factor is defined as the ratio of occupied seats to the number of seats on the bus. A load factor of 1.0 or more indicates that the bus operates at or above its seated capacity. The 85th percentile load factor represents the load at or below which 85 percent of the buses operated in the analysis period. During the weekday PM peak period (4:00 PM to 6:00 PM) the buses in the project vicinity generally operate below bus capacities. Line 51A at the 7th Street/Franklin stop and Route O at the Market Street/5th Street stop are the most heavily used routes operating near the project with 85th percentile load factors exceeding 1.0.

Table 1: AC Transit Service Summary

Line	Description	Nearest Bus Stop	Weekday		Weekend	
			Hours	Peak Headway	Hours	Peak Headway
6	Downtown Berkeley to Downtown Oakland	10th Street at Washington	5:00 AM to 12:30 AM	12 Minutes	5:00 AM to 12:30 AM	15 minutes
12	West Berkeley to Oakland Amtrak at Jack London Square	Embarcadero West / Broadway	6:00 AM to 12:00 AM	20 Minutes	6:00 AM to 12:00 AM	30 Minutes
18	University Village, Albany, to Lake Merritt BART	8th Street / Broadway (NB) 7th Street / Franklin (SB)	5.15 AM to 1:00 AM	15 Minutes	6:00 AM to 1:00 AM	20 Minutes
19	Downtown Oakland to Fruitvale BART	11th Street / Jefferson	6:00 AM to 10:30 PM	20 Minutes	6:00 AM to 10:30 PM	30 Minutes
20	Dimond District, Oakland, to Downtown Oakland	Martin Luther King Jr. Way / 11th Street	5:00 AM to 12:30 AM	30 Minutes	5:00 AM to 12:30 AM	30 Minutes
29	Public Market Emeryville to West Oakland BART to Lakeshore Ave	Martin Luther King Jr. Way / 12th Street (WB) 11th Street / Jefferson (EB)	6:00 AM to 10:45 PM	20 Minutes	6:00 AM to 10:45 PM	30 Minutes
36	Bancroft Way & Piedmont Ave., Berkeley to West Oakland BART	7th Street / Adeline	6:00 AM to 12:45 AM	30 Minutes	6:00 AM to 12:45 AM	30 Minutes
62	West Oakland BART to Fruitvale BART	7th Street / Market	5:30 AM to 12.45 AM	15 Minutes	6:00 AM to 12.45 AM	30 Minutes
72	Hilltop Mall to Jack London Square	2nd Street / Washington	5:00 AM to 1:00 AM	15 Minutes	5:00 AM to 1:00 AM	15 Minutes
96	Alameda Point to Dimond District	8th Street / Broadway (EB) 7th Street / Franklin (WB)	6:00 AM to 11:00 PM	30 Minutes	6:00 AM to 11:00 PM	30 Minutes
51A	Rockridge BART to Fruitvale BART	8th Street / Broadway (NB) 7th Street / Franklin (SB)	5:00 AM to 12:30 AM	10 -12 Minutes	5:30 AM to 12:45 AM	15 Minutes
72M	Point Richmond to Jack London Square	2nd Street / Washington	5:00 AM to 1:00 AM	15 Minutes	5:00 AM to 1:00 AM	15 Minutes

Table 1: AC Transit Service Summary

Line	Description	Nearest Bus Stop	Weekday		Weekend	
			Hours	Peak Headway	Hours	Peak Headway
72R	Contra Costa College to Jack London Square	2nd Street / Washington	6:00 AM to 8:00 PM	12 Minutes	7:00 AM to 8:00 PM	15 Minutes
O	Fruitvale BART to Salesforce Transit Center, San Francisco	5th Street / Market (EB)[1]	6:00 AM to 10:00 PM	10 Minutes	5:00 AM to 10:00 PM	60 Minutes
W	Broadway & Blanding Ave., Alameda, to Salesforce Transit Center, San Francisco	5th Street / Market (EB)[1]	4:30 PM to 8:30 PM (EB)	20 Minutes	-	-
BSD/BSN	Shuttle connecting Jack London Square and Uptown Oakland	3rd Street / Broadway (NB) Embarcadero / Broadway (SB)	7:00 AM to 10:00 PM	11 Minutes	-	-

Notes:
1. Lines O and W don't have a westbound stop within 0.5 miles of walking distance within the project vicinity

Source: AC Transit, March 2019; Fehr & Peers, 2020.

Table 2: AC Transit Passenger Load Characteristics (Weekday 4 PM To 6 PM)

Line	Route and Stop Location[1]	Direction	Average Capacity (Seats)	Average Load (Passengers)	85th Percentile Load (Passengers)	85th Percentile Load Factor
6	Route 6 on 10th Street at Washington Street	NB	36	3	5	0.14
		SB	36	0	0	0.00
12	Route 12 Broadway at Embarcadero West	NB	36	2	4	0.11
	Route 12 Embarcadero at Broadway	SB	36	3	6	0.17
18	Route 18 on Broadway at 8th St	NB	36	5	8	0.22
	Route 18 on 7th St at Franklin	SB	36	4	6	0.17
19	Route 19 on 11th St at Jefferson St	EB	25	2	5	0.18
	Route 19 on 11th St at Jefferson St	WB	25	1	0	0
20	Route 20 on MLK at 11th St	EB	36	2	2	0.06
	Route 20 on MLK at 11th St	WB	36	2	1	0.03
29	Route 29 on 11th St at Jefferson St	EB	25	4	8	0.32
	Route 29 on 12th St at MLK	WB	25	8	13	0.52
36	Route 36 on Adeline at 7th St	NB	29	9	14	0.48
	Route 36 on Adeline at 7th St	SB	32	6	9	0.28
62	Route 62 on 7th at Market St	EB	36	6	10	0.28
	Route 62 on 7th at Market St	WB	36	6	9	0.25
72	Route 72 on Washington at 2nd St	NB	36	3	4	0.11
	Route 72 on Washington at 2nd St	SB	36	0	0	0.00
96	Route 96 on Broadway at 8th St	NB	25	7	13	0.51
	Route 96 on 7th at Franklin St	SB	25	8	13	0.51
72M	Route 72M on Washington at 2nd St	NB	36	2	4	0.11
	Route 72M on Washington at 2nd St	SB	36	0	0	0.00
51A	Route 51A on Broadway at 8th St	NB	36	16	24	0.67
	Route 51A on 7th at Franklin St	SB	36	37	55	**1.53**
72R	Route 72R on Washington at 2nd St	NB	33	2	4	0.11
	Route 72R on Washington at 2nd St	SB	33	1	0	0.00
BSD	Route BSD on Broadway at 3rd St	NB	25	9	13	0.52
	Route BSD on Embarcadero at Broadway	SB	25	6	9	0.36
O	Route O on Market at 5th St [2]	EB	38	36	48	**1.27**

Table 2: AC Transit Passenger Load Characteristics (Weekday 4 PM To 6 PM)

Line	Route and Stop Location[1]	Direction	Average Capacity (Seats)	Average Load (Passengers)	85th Percentile Load (Passengers)	85th Percentile Load Factor
W	Route W on Market at 5th St [2]	EB	38	29	36	0.95

Notes:
1. Bus stop chosen is the closest to project site with data available.
2. Lines O and W don't have a westbound stop within 0.5 miles of walking distance within the project vicinity.

Source: AC Transit, October 2018; Fehr & Peers, 2020.

1.2. Bay Area Rapid Transit (BART)

BART provides regional rail service between San Francisco, northern San Mateo county, and the East Bay. The average weekday ridership in 2018 was about 414,000 systemwide. The BART stations most likely to serve the Howard Terminal site are the 12th Street Oakland City Center station, Lake Merritt station and the West Oakland station.

- 12th Street Oakland City Center station is located under Broadway in Downtown Oakland, with station entrances between 11th Street and 14th Street, about 0.9 miles from Howard Terminal. The station is served by the Richmond-Daly City/Millbrae, Richmond-Warm Springs/South Fremont, and Antioch-SFO/ Millbrae lines.

- Lake Merritt station is in Oakland's Chinatown, with an entrance at the Oak Street/8th Street intersection about 1.1 miles from Howard Terminal. The station is served by the Dublin/Pleasanton-Daly City, Richmond-Warm Springs/South Fremont, and Warm Springs/South Fremont-Daly City lines.

- West Oakland station is in West Oakland, about 0.9 miles from Howard Terminal, bounded by 7th Street, Chester Street, 5th Street, and Mandela Parkway. The station is served by all four transbay lines: Richmond-Daly City/Millbrae, Antioch-SFO/Millbrae, Dublin/ Pleasanton-Daly City, and Warm Springs/South Fremont-Daly City.

These stations are served by about 20 trains per hour, per direction, during the peak periods. In October 2018, weekday average entries plus exits at the 12th Street, Lake Merritt, and West Oakland Stations were 28,600, 15,100 and 15,700 passengers, respectively.

The 12th Street station is underground with multiple access points including stairs, escalators, and elevators. There are several bus stops located near BART access points. The Lake Merritt BART station, also located underground, has four access points primarily including stairs, an escalator, and one elevator. Bus stops and passenger loading zones are located on Oak Street between 8th and 9th Streets adjacent to the station access points. The West Oakland station is above ground, including on-site passenger pick-up/drop off facilities as well as bus stops. There are currently small parking lots located at both the Lake Merritt and West Oakland BART stations, but these lots are slated for redevelopment.

The 12th Street BART station serves the most passengers of the three stations serving up to 4,300 riders during the PM peak hour while the West Oakland and Lake Merritt BART stations serve up to 2,000 riders each during that time.

Load factors are another way to understand BART's service and where the system is serving the greatest ridership. **Table 3** summarizes peak-hour loads near the 12th Street BART Station based on the October 2018 weekday data (Tuesday – Thursday) provided by BART. Currently, the SFO to Antioch yellow line, Daly City/Millbrae-Richmond red line, Daly City-Warm Springs green line and Daly City-Dublin/Pleasanton blue line are the most heavily utilized routes during PM peak hour, which is generally between 5 to 6 PM. During the PM peak hour, average load factors are above BART's planning capacity (107 passengers per train car). All lines during the AM peak hour that are destined for San Francisco have maximum load factors above BART's planning capacity.

Table 3: BART Weekday Ridership

Line	Peak Hour	Trains in Peak Hour	Average Cars per Peak Hour Train	Average Maximum Load (Passengers/Car)	Load Factor[1]
AM Peak Period					
Antioch – SFO/Millbrae	7:45 AM–8:45 AM	10	9	110	**1.03**
SFO/Millbrae – Antioch	8:30 AM–9:30 AM	4	10	81	0.76
Richmond – Daly City/Millbrae	8:00 AM–9:00 AM	4	10	124	**1.16**
Daly City/Millbrae –Richmond	8:15 AM–9:15 AM	4	9	40	0.37
Richmond – Warm Springs	7:45 AM-8:45 AM	4	6	53	0.50
Warm Springs – Richmond	7:45 AM-8:45 AM	4	7	82	0.76
Warm Springs – Daly City	8:15 AM-9:15 AM	4	10	142	**1.32**
Daly City – Warm Springs	7:45 AM-8:45 AM	4	10	9	0.09
Dublin/Pleasanton – Daly City	8:00 AM-9:00 AM	4	9	134	**1.25**
Daly City – Dublin/Pleasanton	7:30 AM-8:30 AM	4	9	15	0.14
PM Peak Period					
Antioch – SFO/Millbrae	5:15 PM-6:15 PM	7	10	34	0.31
SFO/Millbrae – Antioch	5:15 PM-6:15 PM	10	9	123	**1.15**
Richmond – Daly City/Millbrae	5:00 PM-6:00 PM	4	9	43	0.41
Daly City/Millbrae –Richmond	5:30 PM-6:30 PM	4	10	109	**1.02**
Richmond – Warm Springs	4:45 PM-5:45 PM	4	7	82	0.76
Warm Springs – Richmond	5:00 PM-6:00 PM	4	6	90	0.85
Warm Springs – Daly City	5:00 PM-6:00 PM	4	10	17	0.16
Daly City – Warm Springs	5:00 PM-6:00 PM	4	10	132	**1.24**
Dublin/Pleasanton – Daly City	5:15 PM-6:15 PM	4	9	20	0.19
Daly City – Dublin/Pleasanton	5:00 PM-6:00 PM	4	9	145	**1.35**

Notes:
1. Load Factor defined as average load over the assumed design capacity (47 seats and 60 standing)

Sources: October 2018 Tuesday-Thursday data provided by BART in February 2019; Fehr & Peers, 2020.

1.3. Regional Rail Service

Amtrak operates regional and interregional rail service through the Oakland Jack London Square Station on 2nd Street between Harrison Street and Jackson Street, about 0.6 miles from the Howard Terminal site. Regional rail connecting at Jack London Square Station includes Capitol Corridor, an intercity heavy rail service operated between the Sierra Foothills, Sacramento, the East Bay, and San Jose. The following interregional rail service operates on routes that stop at the Jack London Square Station: San Joaquin, which runs between the San Francisco Bay Area, Sacramento, and Bakersfield; and the Coast Starlight, which runs between Los Angeles, the San Francisco Bay Area, Portland, and Seattle. Average weekday ridership at Jack London Station was about 600 boarding per day in 2016 and the station operates from 5:15 AM to 11:00 PM seven days per week.

The lines providing service to the station are described in detail below:

Capitol Corridor connects Sacramento and San Jose through Oakland. The service runs 15 trains per direction on weekdays and 11 trains per direction on weekends, with hourly headways during peak periods. All trains connect Sacramento and Oakland, with around half also serving San Jose. Scheduled trip time between Oakland Jack London Square Station and Sacramento is about two hours, and trip time between Oakland Jack London Square Station and San Jose is about one hour.

Coast Starlight connects Vancouver and Los Angeles through Sacramento, Oakland, and San Jose. The service runs one train in each direction daily. The southbound train arrives at Oakland Jack London Square Station at 8:35 AM and therefore would not be used for game day arrivals. The northbound train departs Oakland Jack London Square Station at 9:39 PM.

San Joaquin connects Oakland and Bakersfield through Stockton. The service runs five trains in each direction using Oakland Jack London Square Station daily. Scheduled trip time between Oakland and Stockton is about one hour and forty-five minutes. Because the last southbound train departs Oakland at 5:55 PM, this service would not be used to depart evening games.

Availability of northbound and southbound rail service for ballgames is summarized in **Table 4**.

Table 4: Amtrak Availability by Game Time

Game Time	Arrivals	Departures
To/From North (Sacramento)		
Weekday Day Game (12:30 PM start)	Train arrives within one hour before game start	Train departs within one hour after typical game end time
Weekday Evening Game (7:00 PM start)	Train arrives within 30 minutes before game start	No trains depart after typical game end time; latest train departs at 10:08 PM
Weekend Game (1:00 PM or 6:00 PM start)	Train arrives within one hour before game start	Train departs within one hour after typical game end time.[1]
To/From South (San Jose)		
Weekday Day Game (12:30 PM start)	No train arrives within one hour before game start; a train arrives within two hours before game start	Train departs within one hour after typical game end time
Weekday Evening Game (7:00 PM start)	Train arrives within 30 minutes before game start	No trains depart after typical game end time; latest train departs at 9:00 PM
Weekend Game (1:00 PM or 6:00 PM start)	Train arrives within one hour before game start	No trains depart after typical game end time.[2]

Notes:
1. Coast Starlight departs at 9:39 PM and Capitol Corridor departs at 10:13 PM from Oakland to Sacramento on weekends. Times are within one hour after typical weekend game end time, since many games start at 6 PM.
2. A Capitol Corridor bus departs from Oakland to San Jose at 10:00 PM on weekends, but this summary only considers trains.

Source: Amtrak schedules as of March 2019; Fehr & Peers, 2020.

1.4. Ferry Service

The Water Emergency Transportation Authority (WETA) operates weekday and weekend ferry service between Oakland Jack London Square Ferry Terminal (located less than 1,000 feet from Howard Terminal) and Alameda Main Street Ferry Terminal, San Francisco Ferry Building, San Francisco Pier 41, and South San Francisco. Ferries depart Oakland Jack London Square Ferry Terminal on weekdays between 6:30 AM and 8:45 PM with headways of 30 to 45 minutes, and on weekends between 8:55 AM and 9:25 PM with headways of 45 to 60 minutes. In 2018, average weekday ridership for Oakland Jack London Square Ferry Terminal was approximately 1,500

passengers. Ferry riders transfer for free to AC transit buses and are eligible for free parking in the 101 Washington parking garage.

WETA also provides event service between the Oakland Jack London Square Ferry Terminal and Oracle Park for San Francisco Giants weekday evening and holiday and weekend midday games. Ferries depart Oakland at 6:10 PM on weekday evening game days and 11:30 AM on weekend and holiday game days, departing Oracle Park 30 minutes after the last out or fireworks display on weekdays, and 20 minutes after the last out or fireworks display on weekend and holidays.

2 Planned Transit Improvements

The following section describes previously planned improvements to transit services that are proposed or being implemented regardless of the Howard Terminal project.

2.1. AC Transit

In August of 2020, AC Transit completed the East Bay Bus Rapid Transit (BRT) Project, also known as the Tempo Line, between the Uptown Transit Center and the San Leandro BART Station. AC Transit has no additional planned and funded infrastructure improvements for bus service through Oakland.

2.2. BART

BART completed the *BART/SVRT Core Stations Modifications Study* as part of the Santa Clara Valley Transportation Authority (VTA) 16-mile BART extension to San Jose. The study completed in April 2011 was a comprehensive study examining station passenger capacity needs with the BART extension project. The capacity analysis and recommendations, based on peak hour ridership for year 2030, considered platform width as well as the vertical circulation and fare gates at BART stations throughout the system. Detailed studies were undertaken for many BART stations including the three nearest Howard Terminal - 12th Street, Lake Merritt, and West Oakland. Station improvements included a combination of new stairways, escalators, fare gates and expanded platforms and were established based on normal, delay, and emergency conditions. The specific improvements identified in the study include:

- 12th Street station – Expand platform size by adding platform doors, modifying utility rooms, and excavate shallow alcoves; adding two emergency stairs; and adding 8 fare gates.
- Lake Merritt station – Add two daily stairs.
- West Oakland station – Widen the ends of the platform, add four emergency stairs, and two daily escalators.

Funding for these station improvements has not been allocated. BART has allocated funds for its top three capital projects: a new fleet of train cars which will reduce the time it takes people to exit / enter train cars by up to 50%, a new maintenance facility, and a new train control system which is expected to increase system capacity through the Transbay Tube from 24 to 30 trains per hour per direction and be implemented by 2028. These three BART programs are expected to serve BART ridership growth through about 2040. BART is also taking steps towards a second Transbay Tube, which would expand systemwide capacity beyond 2040. Initial studies are expected to start in 2019, and while funding is available for those studies no capital funds have been allocated for the project.

2.3. Ferry

WETA completed a new Seaplane Lagoon ferry terminal on Alameda in October 2020, but service from the terminal is on hold due to the COVID-19 pandemic. Once operational, it is expected that Alameda riders will shift to this new service during weekdays. This will open more capacity for Oakland and the service pattern will be changed to Alameda – Oakland – San Francisco, providing a shorter trip for Oakland riders.

2.4. Regional Rail Service

Based on stakeholder discussions, Amtrak is planning to increase service frequency for rail service through Oakland. Fehr & Peers will coordinate with Amtrak to determine the anticipated future service frequency. Amtrak has no new planned and funded infrastructure improvements for rail service through Oakland.

3 Project Transit Characteristics

Consistent with City of Oakland TIRG, **Table 5** presents the estimates of project trip generation with the TDM Plan for all travel modes for the non-ballpark development, based on the mode split estimates from the TIRG. With the TDM Plan, total trips were assumed to remain constant, and vehicle trip reductions due to the TDM Plan elements were assumed to cause mode shifts towards transit, bicycling, or walking trips in proportion to the ratios provided in the TIRG. Transit trips were assigned to BART, bus, ferry, and Amtrak based on Census data regarding the relative commute mode share of those options for residents of the Jack London District.

Table 5: Howard Terminal Non-Ballpark Development Trip Generation by Travel Mode

Mode	Without TDM Plan			With TDM Plan		
	Daily	AM Peak Hour	PM Peak Hour	Daily	AM Peak Hour	PM Peak Hour
Automobile	31,960	2,335	2,896	25,570	1,868	2,317
BART	8,550	625	775	11,500	840	1,042
Bus	2,140	156	194	2,880	210	260
Ferry	1,400	102	127	1,880	138	171
Amtrak	520	38	47	690	51	63
Bike	2,620	191	237	3,520	257	319
Walk	3,310	242	300	4,450	325	403
Total Trips	**50,490**	**3,689**	**4,575**	**50,490**	**3,689**	**4,575**

Source: City of Oakland, U.S. Census Bureau; Fehr & Peers, 2020.

3.1. Project Transit Improvements

Based on mitigation measures and non-CEQA recommendations, the Project will include several permanent transit elements listed below.

- Provide bus-only lanes on Broadway between Embarcadero West and 11th Street to connect the Project site and Jack London District with the 12th Street BART station, and associated signal improvements.
- Provide a Transportation Hub and associated features primarily on the south side of 2nd Street between Martin Luther King Jr. Way and Washington Streets.

In addition to the features listed above, the City is considering a permanent bus-only lane transit improvement for 7th Street between the West Oakland BART station and the Lake Merritt BART station. The City is considering this project as part of a larger effort to connect West Oakland, Old Oakland, and Chinatown with high quality bus facilities. If the City constructs this facility buses could use the bus-only lane and Brush and Castro Streets to access the Transportation Hub on 2nd Street.

4 Implications for Transit Operations

4.1. AC Transit

Table 6 shows the passenger loads of the AC Transit routes serving the project area and vicinity with added project trips from the non-ballpark development. The load factors generally remain the same with the added project passengers, which equate to one to four additional riders on each bus serving the project vicinity. For routes with higher frequencies, such as the Line 72R, this corresponds to nearly 20 additional passengers per hour.

Based on this analysis, Howard Terminal daily ridership from non-ballpark development can generally be accommodated on existing bus routes near the project site. However, the Downtown Oakland Specific Plan (DOSP) Plan is expected to add close to 1,500 additional bus riders in the PM peak hour to AC Transit based on development assumptions in the plan.

Table 6: AC Transit Existing Plus Project Non-Ballpark Development Load Factors (Weekday 4 PM To 6 PM)

Line	Route and Stop Location[1]	Direction	Existing Conditions		Existing Plus Project	
			Average Load	85th Percentile Load	Average Load	85th Percentile Load
6	Route 6 on 10th Street at Washington Street	NB	0.08	0.14	0.13	0.19
		SB	0.00	0.00	0.07	0.07
12	Route 12 Broadway at Embarcadero West	NB	0.06	0.11	0.11	0.16
	Route 12 Embarcadero at Broadway	SB	0.08	0.17	0.15	0.24
18	Route 18 on Broadway at 8th St	NB	0.14	0.22	0.19	0.27
	Route 18 on 7th St at Franklin	SB	0.11	0.17	0.18	0.24
19	Route 19 on 11th St at Jefferson St	EB	0.08	0.18	0.15	0.26
	Route 19 on 11th St at Jefferson St	WB	0.04	0.00	0.14	0.10
20	Route 20 on MLK at 11th St	EB	0.06	0.06	0.12	0.12
	Route 20 on MLK at 11th St	WB	0.06	0.03	0.14	0.11
29	Route 29 on 11th St at Jefferson St	EB	0.16	0.32	0.22	0.38
	Route 29 on 12th St at MLK	WB	0.32	0.52	0.40	0.60
36	Route 36 on Adeline at 7th St	NB	0.31	0.48	0.39	0.56
	Route 36 on Adeline at 7th St	SB	0.19	0.28	0.28	0.38
62	Route 62 on 7th at Market St	EB	0.17	0.28	0.24	0.36
	Route 62 on 7th at Market St	WB	0.17	0.25	0.27	0.35
72	Route 72 on Washington at 2nd St	NB	0.08	0.11	0.15	0.18
	Route 72 on Washington at 2nd St	SB	0.00	0.00	0.08	0.08
96	Route 96 on Broadway at 8th St	NB	0.28	0.51	0.37	0.61
	Route 96 on 7th at Franklin St	SB	0.32	0.51	0.44	0.63
72M	Route 72M on Washington at 2nd St	NB	0.06	0.11	0.11	0.17
	Route 72M on Washington at 2nd St	SB	0.00	0.00	0.07	0.07
51A	Route 51A on Broadway at 8th St	NB	0.44	0.67	0.51	0.73
	Route 51A on 7th at Franklin St	SB	**1.03**	**1.53**	**1.11**	**1.61**
72R	Route 72R on Washington at 2nd St	NB	0.06	0.11	0.14	0.19
	Route 72R on Washington at 2nd St	SB	0.03	0.00	0.13	0.10
BSD	Route BSD on Broadway at 3rd St	NB	0.36	0.52	0.44	0.60
	Route BSD on Embarcadero at Broadway	SB	0.24	0.36	0.35	0.47
O	Route O on Market at 5th St [2]	EB	0.95	**1.27**	0.98	**1.31**
W	Route W on Market at 5th St [2]	EB	0.76	0.95	0.80	0.99

Notes:
1. Bus stop chosen is the closest to project site with data available.
2. Lines O and W don't have a westbound stop within 0.5 miles of walking distance within the project vicinity.

Sources: AC Transit, October 2018; summarized by Fehr & Peers, 2020.

Recommendation #1: While not required to address a CEQA impact, as part of the project, consider opportunities to extend local bus routes into Jack London District to serve Howard Terminal development. As examples, Lines 6 and/or 40 could be extended to the Transportation Hub area, and Lines 29 and 36 could be rerouted to serve the Transportation Hub while travelling between the West Oakland and Lake Merritt BART stations. Lines 72, 72M and 72R already serve the Transportation Hub area but could be extended two blocks closer to the ballpark.

Discussion: Currently AC Transit has several lines that layover adjacent to Lafayette Square and one that lays over on 10th Street at the Conference Center. The walk between these lines and the ballpark is between 0.5 and 0.6 miles and some ballpark attendees will walk this distance to access one of these lines. Transit ridership could be further enhanced on these lines if one or more could be extended and lay over along 2nd Street at the Transportation Hub between Martin Luther King Junior Way and Clay Street. Relocating the layover to Jack London District would expand AC Transit's service area and increase ridership for these routes and could serve existing and future development in the area including the ballpark during events.

Relocating the layovers could have implications to AC Transit's service operations because automobile and pedestrian congestion resulting from ballpark events could delay local bus service. These delays would adversely impact AC Transit's ability to provide a cost-effective service to the area and likely be unacceptable to AC Transit. To overcome these delays, the project includes creating at least one permanent bus-only lane route on Broadway between Embarcadero West and 11th Street, as discussed in the Project Transit Improvements section above. The City, as a separate project, is also considering bus-only lanes on 7th Street connecting the West Oakland and Lake Merritt BART stations. On game days automobile traffic would be prohibited from using 2nd Street through the Transportation Hub area generally between Martin Luther King Jr. Way and Broadway to facilitate bus movements and the bus only lanes would be an effective way to extend lines closer to the ballpark.

Recommendation #2: While not required to address a CEQA impact, as part of the project, consider the recommendation for the City of Oakland in collaboration with the project applicant and other stakeholders from the development community and others to advocate for MTC and Alameda CTC to fund regional monies for more funding for bus service within Oakland to serve the downtown and Howard Terminal project.

Discussion: The combined development in Downtown Oakland associated with Howard Terminal and the Downtown Oakland Specific Plan would add several thousand riders to the AC Transit buses serving the downtown area. The Downtown Oakland Specific Plan calls for bus only lanes and additional amenities supporting bus riders which would help to improve operations but in order to accommodate the added riders, AC Transit would need to increase service into and through downtown.

4.2. BART

The non-ballpark development load was calculated for the three main BART stations located within the project vicinity. In the existing scenario, most of the BART lines going through these stations in the commute direction are heavily loaded during PM peak hours and the non-ballpark development load addition is relatively small. The number of BART trains crossing the Transbay Tube is expected to increase from 24 to 30 trains, a 25% increase in capacity. In addition, the length of the BART train cars is planned to be increased which will add even more capacity and reduce the existing load factors.

Table 7 provides the expected future growth in BART ridership due to additional development in the areas bound by the Downtown Oakland Specific Plan, West Oakland Specific Plan, and Howard Terminal. Development within the Downtown Oakland Specific Plan is expected to substantially increase ridership by 60% to 80% over existing conditions at the 12th Street and Lake Merritt BART stations while the impact of the West Oakland Specific Plan and Howard Terminal will be substantially less.

Table 8 provides the expected change in day-to-day BART line loads with additional development from the non-ballpark development at Howard Terminal. While many of the lines remain over capacity, Howard Terminal only adds approximately one or two percent to the different line loads. Given the small contribution of the project to peak ridership, we do not believe that this warrants an improvement beyond those described already. The cumulative line loads, including development

from Downtown Oakland and West Oakland Specific Plan, were not calculated because the distribution of these cumulative riders across the various BART lines could not be interpreted from the specific plan documents.

Recommendation #3: While not required to address a CEQA impact, as part of the project, consider the recommendation for the City of Oakland in collaboration with stakeholders from the development community and others to advocate for MTC and Alameda CTC to fund regional monies for BART station improvements at all Downtown and West Oakland BART stations.

Discussion: Funding for regional improvements comes from state and federal grants, tolls collected at Bay Area bridges, and countywide ½ cent sales tax dedicated to transportation funding. MTC as the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area, administers and distributes federal, state, and regional moneys among the various regional transit operators. For example, MTC's Core Capacity Challenge Grant Program commits $7.5 billion over 15 years to fund high-priority transit capital improvements to the region's largest transit systems, including BART and AC Transit. The program will fund transit vehicle replacement fleet expansion, and key facility upgrades.

Table 7: BART Weekday Peak Hour Ridership

	AM (8 to 9 AM)			PM (5 to 6 PM)		
	Boardings	**Alightings**	**Total**	**Boardings**	**Alightings**	**Total**
12th Street						
Existing	952	3,050	4,002	3,255	1,063	4,318
DOSP	618	1,860	2,478	2,378	886	3,264
WOSP	0	0	0	0	0	0
Howard Terminal	101	302	403	311	178	489
Total	**1,671**	**5,212**	**6,883**	**5,944**	**2,127**	**8,071**
Ballpark Night Game	-	-	-	-	778	778
Ballpark Day Game	-	-	-	1,378 (4-5PM)	-	1,378
Lake Merritt						
Existing	1,294	747	2,041	727	1,132	1,859
DOSP	840	456	1,296	531	944	1,475
WOSP	0	0	0	0	0	0
Howard Terminal	16	109	125	138	26	164
Total	**2,150**	**1,312**	**3,462**	**1,396**	**2,102**	**3,498**
Ballpark Night Game	-	-	-	-	579	579
Ballpark Day Game	-	-	-	1,607 (4-5PM)	-	1,607
West Oakland						
Existing	1,595	181	1,776	400	1,339	1,739
DOSP	0	0	0	0	0	0
WOSP	190	467	657	543	252	795
Howard Terminal	211	101	312	145	243	388
Total	**1,996**	**749**	**2,745**	**1,088**	**1,834**	**2,922**
Ballpark Night Game	-	-	-	-	397	397
Ballpark Day Game	-	-	-	741 (4-5PM)	-	741

Sources: October 2018 Tuesday-Thursday data provided by BART in February 2019; Fehr & Peers, 2020.

Table 8: BART Existing Plus Project Non-Ballpark Development Line Load PM Peak (5PM – 6PM)[1]

Line		Existing Conditions			Existing Plus Project		
12th Street to West Oakland		**12th**	**12th - WOAK**	**WOAK**	**12th**	**12th - WOAK**	**WOAK**
Antioch – SFO	Median	0.18	0.25	0.26	0.19	0.25	0.27
	Maximum	0.35	0.48	0.50	0.36	0.49	0.50
Richmond - Millbrae	Median	0.32	0.41	0.42	0.32	0.41	0.43
	Maximum	0.35	0.45	0.46	0.36	0.46	0.48
West Oakland to 12th Street		**WOAK**	**WOAK – 12th**	**12th**	**WOAK**	**WOAK – 12th**	**12th**
SFO – Antioch	Median	**1.22**	**1.16**	**1.15**	**1.23**	**1.17**	**1.16**
	Maximum	**1.35**	**1.30**	**1.36**	**1.36**	**1.31**	**1.38**
Millbrae - Richmond	Median	**1.02**	0.97	0.97	**1.04**	0.98	0.98
	Maximum	**1.16**	**1.10**	**1.10**	**1.18**	**1.11**	**1.11**
Lake Merritt to 12th Street		**LAKE**	**LAKE – 12th**	**12th**	**LAKE**	**LAKE – 12th**	**12th**
Warm Springs - Richmond	Median	0.31	0.38	0.48	0.31	0.38	0.50
	Maximum	0.35	0.41	0.54	0.36	0.41	0.57
12th Street to Lake Merritt		**12th**	**12th - LAKE**	**LAKE**	**12th**	**12th - LAKE**	**LAKE**
Richmond – Warm Springs	Median	0.62	0.86	0.73	0.63	0.87	0.75
	Maximum	0.71	**1.08**	0.93	0.72	**1.09**	0.96
West Oakland to Lake Merritt		**WOAK**	**WOAK – LAKE**	**LAKE**	**WOAK**	**WOAK – LAKE**	**LAKE**
Daly City – Warm Springs	Median	**1.32**	**1.28**	**1.20**	**1.33**	**1.28**	**1.21**
	Maximum	**1.37**	**1.31**	**1.24**	**1.38**	**1.31**	**1.25**
Daly City - Dublin	Median	**1.39**	**1.35**	**1.36**	**1.41**	**1.35**	**1.37**
	Maximum	**1.45**	**1.41**	**1.39**	**1.47**	**1.41**	**1.40**
Lake Merritt to West Oakland		**LAKE**	**LAKE – WOAK**	**WOAK**	**LAKE**	**LAKE – WOAK**	**WOAK**
Warm Springs – Daly City	Median	0.14	0.16	0.17	0.14	0.16	0.18
	Maximum	0.14	0.17	0.17	0.15	0.17	0.18
Dublin – Daly City	Median	0.19	0.17	0.19	0.19	0.17	0.20
	Maximum	0.19	0.18	0.19	0.20	0.18	0.20

Notes:
1. WOAK represents West Oakland BART Station; LAKE represents Lake Merritt BART Station.

Sources: October 2018 Tuesday-Thursday data provided by BART in February 2019; Fehr & Peers, 2020.

4.3. Amtrak

The non-ballpark project development during the AM peak hour and PM peak hour will be adding 50 and 60 trips respectively, though the existing and planned train service is expected to handle these added riders associated with the non-ballpark development. The ballpark game day implications are discussed in the later game day transit operations section.

4.4. Ferry

The current ferry occupancy is much higher than they will be in 2019/20 because 60% of the riders are boarding from Alameda during peak hours, and 40% come from Oakland. Currently, the Oakland service requires a stop at Alameda which adds 15 minutes to the trip. Once the Seaplane Lagoon service is operational, the current Alameda riders will shift to this new service during weekdays. This will open more capacity for Oakland and the service pattern will be changed to Alameda – Oakland – San Francisco, providing a shorter trip for Oakland riders. The non-ballpark development riders between 5 PM to 6 PM are estimated to increase the occupancy by 19% outbound from Oakland and around 8% inbound to Oakland.

5 Game Day Transit Operations

5.1. AC Transit

Game day operations of the Ballpark may add larger numbers of riders to the AC Transit routes near Howard Terminal and will add many pedestrians and vehicles to the streets near the project. Routes that operate through the Jack London Square District, including Lines 12, 72/72M/72R, and Broadway Shuttle, will likely be delayed from this additional traffic and experience higher ridership. Routes that layover at Lafayette Square (bounded by 10th Street, 11th Street, Jefferson Street, and Martin Luther King Jr Way), including the 19, 20, and 29, could be attractive routes for Ballpark patrons since they are relatively close to the project site and would be less affected by vehicle congestion from the Ballpark.

Recommendation #4: While not required to address a CEQA impact, as part of the project, the project applicant should consider supplemental shuttle service (provided by AC Transit or a private operator) to one or more of the three BART stations including the West Oakland, 12th Street, and Lake Merritt BART stations to increase frequency and capacity of transit connections to BART stations on game days.

Discussion: Creating BART shuttle services between Howard Terminal and BART on game days will improve the attractiveness of BART service to game attendees and reduce loads on AC Transit.

5.1.1. Transportation Hub Bus Stop Sizing and Sidewalk Widths

The project applicant proposes to create a Transportation Hub on 2nd Street between Brush Street and Washington Street, with up to twelve transit stop areas serving different transit routes within the Hub. The transit stop areas will streamline Howard Terminal transit operations to provide efficient service every day, particularly on game days with high pedestrian traffic. Given the high expected pedestrian demand for the transit stop areas, the City of Oakland requested that sidewalk widths be evaluated for bus stop platform sizing. **Table 9** describes the transit stop areas within the Transportation Hub along with the number of proposed loading zones for each transit hub serving multiple routes and the existing sidewalk characteristics. This analysis considers the maximum number of shuttle routes that could operate at the Transportation Hub.

Table 9: Transit Stop Location and Loading Zones

Transit Stop[1]	Loading Zones	Buses Per Hour	Location	Existing Sidewalk Width (Feet)	Available Sidewalk ROW (Feet)
West Oakland Shuttle	2	24	2nd Street block between Brush and Castro Streets	18	26
12th Street BART Shuttle	3	36	2nd Street block between Castro Street and Martin Luther King Jr Way	18	26
Line 6, 72, 72M, 72R (Lines serve 12th Street BART station)	3	15	2nd Street block between Martin Luther King Jr. Way and Jefferson Street	18	26
Line 29 and 36 (Lines serve Lake Merritt BART station)	2	6	2nd Street block between Jefferson Street and Clay Street	5	26
Lake Merritt BART Shuttle	3	36	2nd Street block between Clay Street and Washington Street	18	26

Notes:
1. AC Transit lines listed in this table are examples of the routes that could serve the Transportation Hub.
Source: Fehr & Peers, 2020.

Calculation of sidewalk widths needed to accommodate passing pedestrians and bus stops at the Transportation Hub used the methods described in Chapter 10 of the Transit Capacity and Quality of Service Manual (TCQSM), which describes thresholds for pedestrian Level of Service (LOS) on walkways and waiting areas at transit stops. Pedestrian LOS is based on pedestrian density and is a measure of pedestrian comfort while walking or standing. Pedestrian LOS thresholds established in the TCQSM were used to determine the minimum width of walkways and waiting areas to provide a sufficient level of pedestrian comfort. Pedestrian walking and queueing volumes considered the number of loading zones, bus frequencies, average headway, maximum passenger waiting and the flow of pedestrians passing through a stop to reach another block.

This analysis uses standards of pedestrian LOS C for walkways and pedestrian LOS D for waiting areas to represent sufficient pedestrian comfort. According to the TCQSM, pedestrian LOS C for walkways requires at least 15 square feet person, with a maximum pedestrian flow of 15 people per foot of walkway width per minute. Pedestrian LOS D for the waiting areas requires at least three square feet per person. Bus capacities was assumed to be 55 passengers per bus, and the platform

waiting length was assumed to be 80 feet for each loading zone. This analysis also includes a 1.5-foot wide buffer zone between the waiting area and the curb and two feet of buffer area for the walkway.

Pedestrian demand was analyzed for departures at the end of an at-capacity baseball game, which represents the period of maximum demand. As shown in **Table 10**, the existing sidewalk width is greater than the sidewalk width needed to provide sufficient pedestrian comfort at four of the five bus stops. At the stop that could potentially serve Lines 29 and 36 (between Jefferson Street and Clay Street), the existing sidewalk width is less than the sidewalk width needed to provide sufficient pedestrian comfort. However, there is enough available right-of-way for a potential sidewalk expansion to accommodate the desired sidewalk width.

The bus stops that could potentially serve the West Oakland BART shuttle, 12th St BART shuttle, and Lines 6, 72, 72M, and 72R would provide pedestrian LOS A for passing pedestrians and queueing passengers, and the proposed bus frequencies would be sufficient to avoid long queues. The bus stop serving the Lake Merritt BART shuttle would be able to provide pedestrian LOS B for passing pedestrians and queueing passengers without widening the existing sidewalk. The proposed frequency of the Lake Merritt BART shuttles would lead to a substantial number of queueing passengers, which could be avoided by providing an additional shuttle.

Table 10: Required Bus Stop Platform Width

Bus Stop[1]	Loading Zones	Buses Per Hour	Passenger Arrival Rate per Minute	Passing Pedestrian Flow Per Hour	Maximum Waiting Passengers	Needed Sidewalk Width (Feet)[2]	Existing Sidewalk Width (Feet)	Available Sidewalk ROW (Feet)
West Oakland BART Shuttle	2	24	17	100	42	8.5	18	26
12th St BART Shuttle	3	36	31	1900	52	8	18	26
Line 6, 72, 72M, 72R	3	15	9	2400	36	8	18	26
Line 29, 36	2	6	4	2200	44	**8.5**	5	26
Lake Merritt BART Shuttle	3	36	36	100	242	10.5	18	26

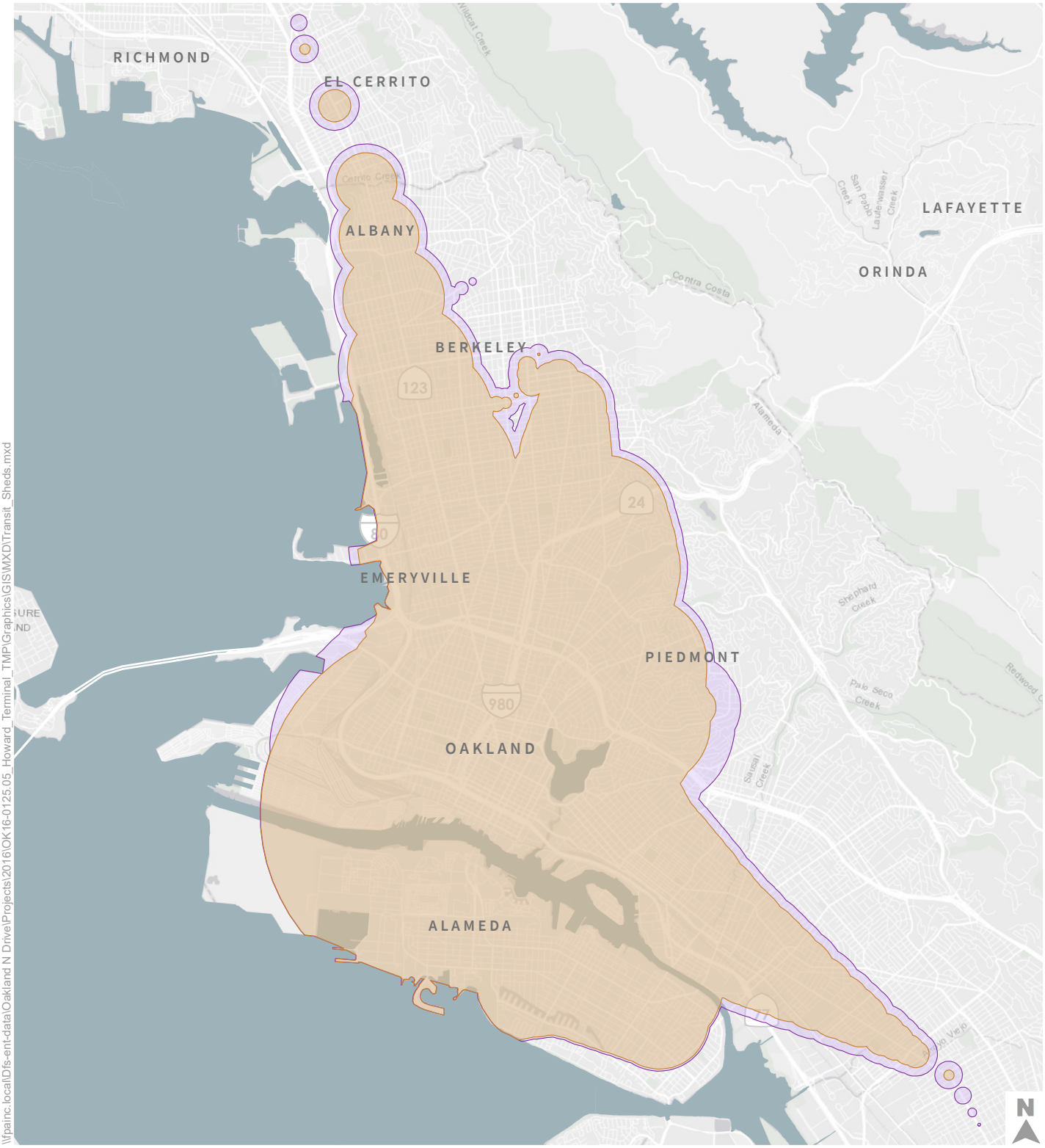
Notes:
1. AC Transit lines listed in this table are examples of the routes that could serve the Transportation Hub.
2. **Bold** indicates that the needed sidewalk width is greater than the existing sidewalk width.

Sources: TCQSM, 2013; Fehr & Peers, 2020.

The bus stop platform widths calculated for this table are incorporated into designs for the Transportation Hub included as part of the off-site improvements for the project.

5.1.2. Ballgame Market for Bus Service

The City of Oakland requested that the potential market for ballgame bus transit service with the proposed transit improvements be established. The potential market share was established using existing schedule data from AC Transit and including the proposed changes to Lines 6, 29, 36, 72, 72M, and 72R, together with adjustments to account for the proposed bus-only lanes on Broadway and 7th Street. One-hour bus transit travel sheds were created for the existing and proposed scenarios, as shown in **Figure 1**. These travel sheds were compared to the current Oakland A's attendees who drive using StreetLight Data. Based on this analysis, up to 26 percent of the current ballgame attendees would be within one hour of Howard Terminal via bus transit under existing conditions, and up to 27 percent would be within one hour of Howard Terminal with the proposed transit changes. Howard Terminal is within a quarter mile of several bus lines, which limits the increased reach of adjusting transit service, but having a consolidated Transportation Hub and bus-only lanes would still increase the attractiveness of bus transit by improving the legibility, reliability, and speed of service. This analysis serves to support the potential bus ridership for ballgames. Ridership forecasts to estimate game day ridership demand have not been prepared.



Existing Transit Shed

Proposed Transit Shed Additional Coverage

Figure 1

Existing and Proposed One-Hour Bus Transit Travel Sheds

5.2. BART

The non-ballpark development load was calculated for the three main BART stations located within the project vicinity. While the incremental change in ridership associated with Howard Terminal non-ballpark development would be relatively small the cumulative effect of development allowed under the Downtown Oakland Specific Plan and West Oakland Specific Plan will be substantial. During the hour immediately following the end of a weekday midday game (typically representing the 4:00 PM to 5:00 PM hour), an at-capacity crowd at Howard Terminal would add roughly 1,400 BART riders to the 12th Street station, about 1,600 riders to the Lake Merritt station, and about 700 riders to the West Oakland station. **Table 7** provides the expected future growth in BART ridership on game days.

> **Recommendation #6:** Weekday afternoon baseball games typically end towards the beginning of the commute period and would be added to existing commuters entering the BART station. On the 12-14 weekday game days per year, this substantial increase in BART ridership is expected to cause pedestrian congestion at the stations, especially the 12th Street station during the weekday commute period between 3 and 7 PM. The flow of these additional passengers to and from the BART station should be guided to improve throughput and manage crowding, similar to how crowding is managed today at the Coliseum station on game days. This can be achieved by the addition of station personnel on Ballpark game days during the commute period, and enough wayfinding signage to direct Ballpark patrons to the most efficient routes in and out of these stations. During evening events, Howard Terminal patrons would be exiting stations when most existing 12th Street station patrons are entering, so it is unlikely that they would impact platforms or trains. BART may schedule additional trains and provide personnel for crowd management to support exiting after evening and weekend events.
>
> In addition, wayfinding signage should be used to guide ballpark patrons between the three BART stations (West Oakland, 12th Street, and Lake Merritt) and the ballpark including mileage (or time) markers to provide certainty to ballpark patrons that they are walking along the designated route and certainty about the walking distance (or time).
>
> **Discussion:** The ballpark at Howard Terminal benefits from being located about one mile from three BART stations which will disperse ballpark attendees to three stations rather than concentrating ridership to a single station. Wayfinding signage directing riders to the

BART stations with distance markers would help to distribute riders across three stations lessening the impact at BART stations and provide confidence to patrons who walk from BART.

Currently, the Coliseum Authority provides an event schedule to BART, and BART adds additional staff to handle events at the Coliseum. Staff manage the pedestrian flow leaving and entering the station, provide information to patrons with questions, and monitor platform activity for overcrowding. During the hour before and the hour after an event at Howard Terminal the attendees have the potential to stress one or more of the local BART stations. Based on the analysis, the likely station to be impacted includes the 12th Street BART Station during the weekday commute period when BART ridership at the station is highest.

A recommendation for additional BART station personnel and wayfinding for a route to each BART station has been included in the Transportation Management Plan.

5.3. Amtrak

Howard Terminal is predicted to add approximately 700 weekday Amtrak trips, almost double the existing ridership. The effectiveness of trains to accommodate game day ridership is limited because of today's train schedule. The train operators have limited flexibility to adjust train schedules to accommodate baseball games because the schedules must go through an approval process with Union Pacific Railroad who is the track owner. To do so would also require close coordination between the train operators and the project applicant to ensure train arrivals are within 30 to 60 minutes of the first pitch and last out. The difficulty arises because the last out varies from one game to the next. According to the train operators, trains to existing A's games that are advertised as such can carry up to 200 ballpark attendees and remove up to 80 automobiles from the I-880 freeway.

Recommendation #7: While not required to address a CEQA impact, as part of the project, consider that the project applicant through collaboration with the train operators and track owners evaluate the feasibility of providing train service for ballpark attendees based on fan interest.

5.4. Ferry

The effectiveness of ferries to accommodate game day ridership today is limited because of the existing ferry schedule. While the schedule is expected to change with planned WETA service improvements, without coordination between WETA and the project applicant the ferry service is likely to only be marginally successful However, WETA has flexibility to adjust ferry schedules to accommodate baseball games. To do so would require close coordination between WETA and the project applicant to ensure ferry arrivals are within 30 to 60 minutes of the first pitch and last out. Based on ferry service to Oracle Park a well-coordinated Ferry service including three vessels could carry over 1,000 ballpark attendees who would otherwise drive or take BART depending on their origin and destination.

> **Recommendation #8:** While not required to address a CEQA impact, as part of the project, consider that the project applicant through collaboration with WETA evaluate the effectiveness of providing additional ferry service for ballpark attendees based on fan interest outside the weekday commute period when ferry service to Oakland is at capacity as it relates to available ferry vessels and dock capacity.

TRA.7 Port of Oakland Intersection Operations Sensitivity Analysis

FEHR PEERS

MEMORANDUM

Date: December 1, 2020

To: Andrea Gardner, Port of Oakland

From: Rob Rees and Lee Reis, Fehr & Peers

Subject: **Howard Terminal - Port of Oakland Intersection Operations Sensitivity Analysis**

OK16-0125.06

The Oakland A's are proposing non-ballpark and ballpark development on the Howard Terminal site. This development would cause operations to shift from Howard Terminal to other locations within the Port of Oakland. In addition, while the operations analysis to date has shown that there will be relatively small increases in delay on truck routes, there may be shifts in Port traffic on Howard Terminal event days if Port users pre-plan to avoid roads with event day traffic. At the request of the Port of Oakland, Fehr & Peers performed an analysis of eleven intersections both internal and adjacent to the Port under various scenarios. This memorandum describes the analysis methodology, sets forth criteria for evaluating the performance of each intersection according to the vehicular Level of Service (LOS) and accumulated vehicle queue lengths, and presents results for discussion. This analysis considers the following scenarios:

- Existing Conditions
- Existing Plus Project
- Sensitivity Testing
    - Existing Plus Project Plus Rerouting 25 Percent of Traffic Away from Adeline Street
    - Existing Plus Project Plus Rerouting 50 Percent of Traffic Away from Adeline Street

The Existing Conditions consider current operations at Howard Terminal. Vehicles currently access Howard Terminal at the Market Street & Embarcadero West and Martin Luther King Jr. Way & Embarcadero West intersections. Under the Plus Project scenarios, existing traffic at Howard Terminal is rerouted to other areas of the Port of Oakland, in accordance with current distributions of traffic within the Port's access at Adeline, 7th, and Maritime Streets.

The sensitivity testing scenarios consider the results if Port vehicles pre-plan to avoid roads with event day traffic by rerouting away from Adeline Street. Under the listed scenarios, intersection operations at the study intersections remain at vehicular LOS D or better, and average vehicle queuing is within the available queue storage space. Some movements at a limited number of intersections exceed the available queue storage space under the 95th percentile queuing.

The Port of Oakland has also expressed concern about non-Port traffic cutting through the Port to avoid freeway congestion. This memorandum includes an estimate of existing cut-through traffic and the potential for additional cut-through traffic with the Howard Terminal non-ballpark development. Between 11 and 20 percent of existing passenger vehicle traffic through the Port is estimated to be cut-through traffic avoiding congestion on I-880 to and from the Bay Bridge. Given the expected geographic distribution of vehicle trips to and from Howard Terminal, the non-ballpark development is expected to add 10 or fewer cut-through trips to the Port in the AM and PM peak periods.

1. Study Intersection Selection

The Port of Oakland identified eleven intersections for this analysis as shown in **Figure 1**. Intersections #1 to #5 and #8 to #11 are adjacent to the Port of Oakland and are important for Port traffic, either as a route to the freeway system or as a truck route. Intersections #6 and #7 are internal to the Port of Oakland, although they are public roads and accessible by private vehicles.

1. Union Street & 7th Street
2. Union Street/I-880 On and Off Ramp & 5th Street
3. Adeline Street & 7th Street
4. Adeline Street & 5th Street
5. Adeline Street & 3rd Street
6. Middle Harbor Road & Maritime Street
7. Maritime Street & 7th Street
8. I-880 On-Ramp & 7th Street
9. I-880 Off-Ramp/Frontage Road & 7th Street
10. Maritime Street/Wake Avenue & West Grand Avenue
11. I-80/Frontage Road & West Grand Avenue



LEGEND

- Study Area Boundary
- Study Intersection
- BART Station
- Amtrak
- Ferry

Figure 1

Study Intersections

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Several improvements to intersection geometry and signalization were included in the Plus Project scenarios based on the technical memorandum titled *Howard Terminal Project – Operations Analysis* (December 2020, Operations Analysis Memorandum). **Table 1** lists the intersection control and any updates to the lane configurations for each intersection under the Existing and Existing Plus Project scenarios.

Table 1: Intersection Stop Control Type and Geometry Updates

Intersection	Existing Control[1]	Existing Plus Project Control[1]	Existing Plus Project Geometry Changes
1. Union Street & 7th Street	Signal	Signal	Dedicated bus lanes and/or bike lanes added in both directions along 7th Street
2. Union Street/I-880 On and Off Ramp & 5th Street	Signal	Signal	NB shared through-right lane converted to dedicated right-turn lane
3. Adeline Street & 7th Street	Signal	Signal	Dedicated bus lanes and/or bike lanes added in both directions along 7th Street
4. Adeline Street & 5th Street	Signal	Signal	SB approach converted to shared through-right and dedicated left turn lanes; NB and EB through-right lanes converted to dedicated right-turn lanes
5. Adeline Street & 3rd Street[2]	AWSC	Signal	SB approach converted to dedicated left-turn, through, and through-right lanes; NB left prohibited to provide two through lanes
6. Middle Harbor Road & Maritime Street[2]	AWSC	AWSC	None
7. Maritime Street & 7th Street	Signal	Signal	None
8. I-880 On-Ramp & 7th Street	Signal	Signal	None
9. I-880 Off-Ramp/Frontage Road & 7th Street	Signal	Signal	None
10. Maritime Street/Wake Avenue & West Grand Avenue	Signal	Signal	None
11. I-80/Frontage Road & West Grand Avenue	Signal	Signal	None

Notes:
1. Signal = signalized intersection; AWSC= all-way stop-controlled intersection.
2. Signal currently operates as flashing red.

Source: Fehr & Peers, 2020.

Both the Adeline Street & 3rd Street and the Middle Harbor Road & Maritime Street intersections have existing signal infrastructure, but the signals always operate as all-way stops. Adeline Street & 3rd Street is the only intersection that is proposed to change from all-way stop control to a signalized intersection.

2. Data Collection

Weekday midday and PM peak period (11:00 AM to 1:00 PM and 4:00 to 6:00 PM) traffic counts, including counts of heavy vehicles, pedestrians and bicycles, were collected at the study intersections on the dates shown in **Table 2**. Each were collected on clear days while the Port of Oakland was under normal operations. Intersection lane configurations and signal timings were verified in the field.

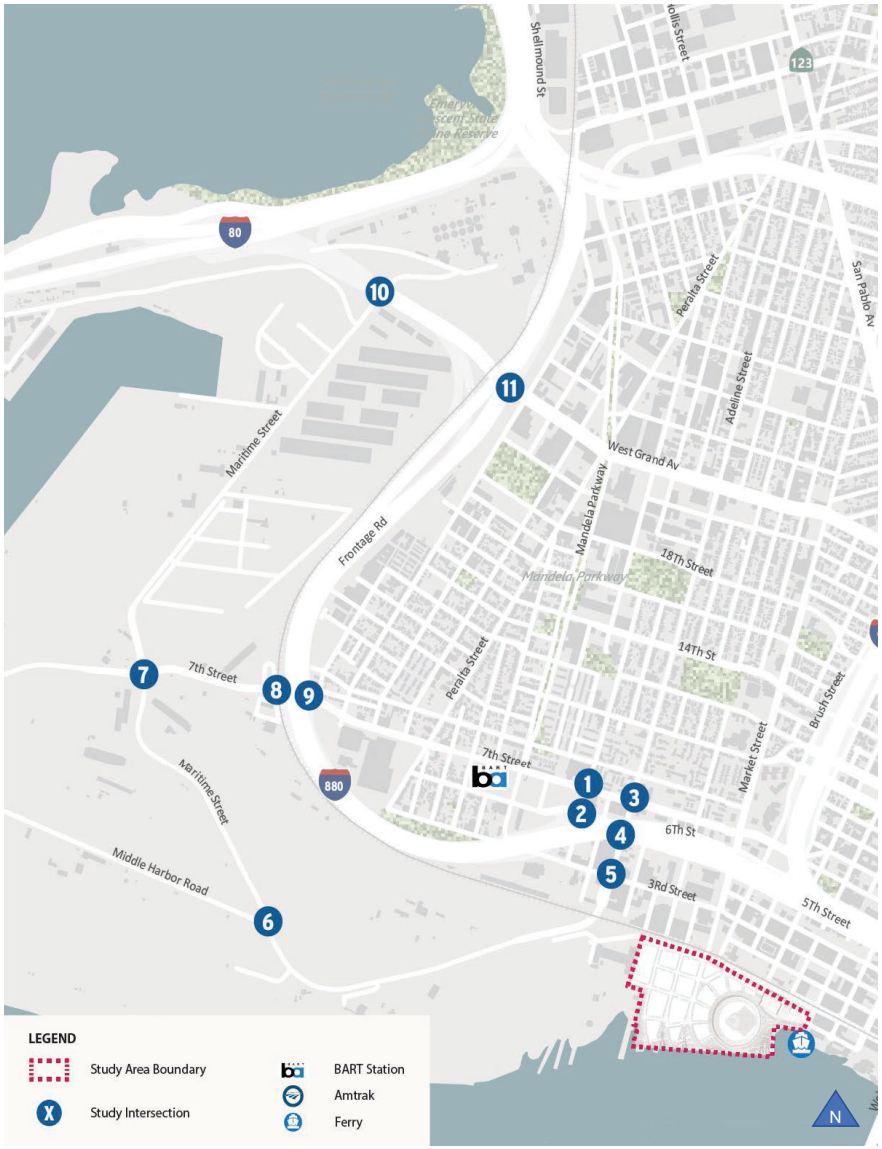
Table 2: Dates of Data Collection

Intersection	Peak Period [1]	Date of Collection
1. Union Street & 7th Street	Midday and PM	June 2019
2. Union Street/I-880 On and Off Ramp & 5th Street	Midday and PM	June 2019
3. Adeline Street & 7th Street	Midday and PM	June 2019
4. Adeline Street & 5th Street	Midday and PM	June 2019
5. Adeline Street & 3rd Street	Midday	May 2018
	PM	September 2018
6. Middle Harbor Road & Maritime Street	Midday and PM	May 2019
7. Maritime Street & 7th Street	Midday and PM	May 2019
8. I-880 On-Ramp & 7th Street	Midday and PM	May 2019
9. I-880 Off-Ramp/Frontage Road & 7th Street	Midday and PM	May 2019
10. Maritime Street/Wake Avenue & West Grand Avenue	Midday and PM	May 2019
11. I-80/Frontage Road & West Grand Avenue	Midday and PM	May 2019

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.

Source: Fehr & Peers, 2020.

The global peak periods for the study intersections during the midday and PM periods were selected for analysis. These peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening. The PM peak period is consistent with the Operations Analysis Memorandum. **Figure 2** shows the existing midday and PM peak hour traffic volumes, intersection lane configurations, and traffic control devices at the study intersections.



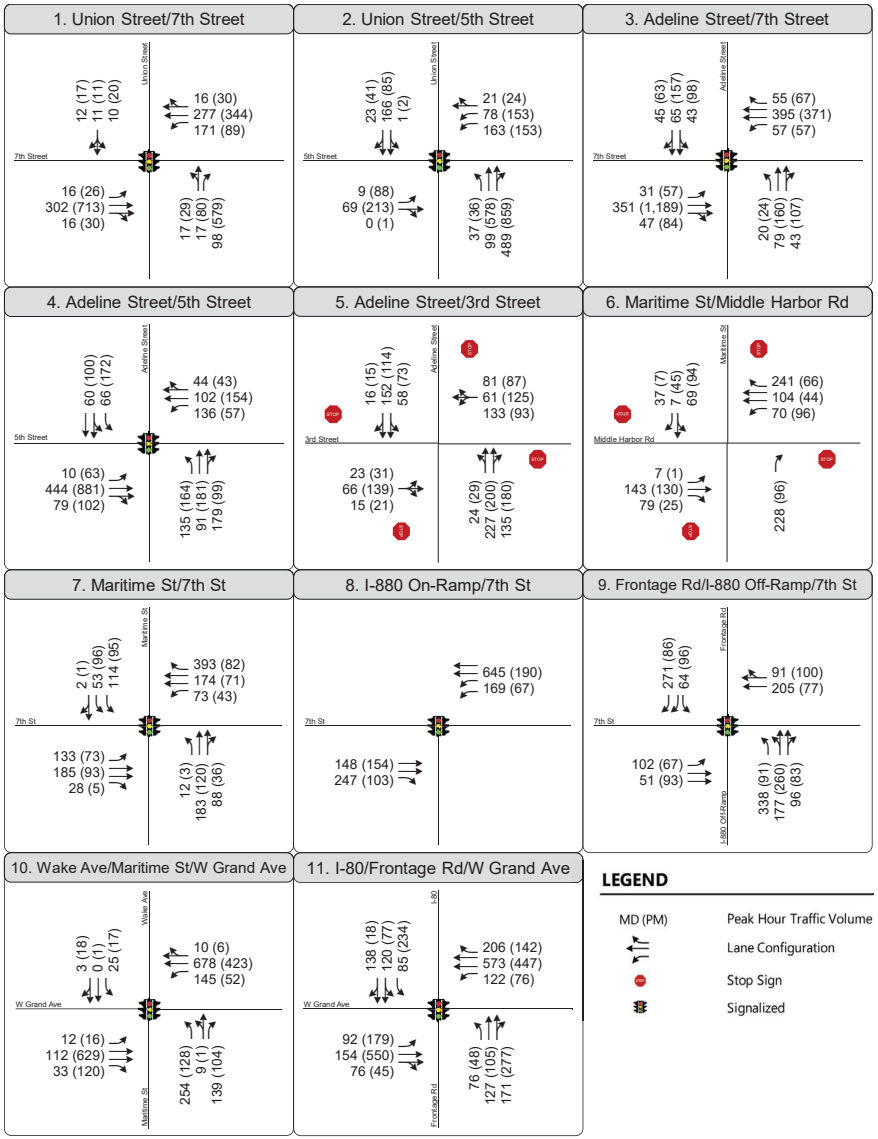


Figure 2

Existing Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations, and Traffic Controls

3. Existing Conditions Intersection Operations and Queuing Results

The operations of roadway facilities are described with the term "level of service" (LOS). LOS is a qualitative description of traffic operating conditions from the vehicle driver perspective and is determined by the delay experienced by the driver at the intersection. It ranges from LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays.

Where possible, traffic conditions at signalized intersections were evaluated using methodologies proposed by the Transportation Research Board (TRB), as documented in the 2010 Highway Capacity Manual (2010 HCM) for vehicles. The HCM 2010 methods calculates control delay at an intersection based on inputs such as traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop-sign or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The relationship between LOS and control delay is summarized in **Table 3**. Intersections with atypical configuration or signal phasing that could not be evaluated in the 2010 HCM method were instead evaluated using the HCM 2000 method.

Table 3: Signalized Intersection LOS Criteria

Level of Service	Signalized Intersection Control Delay (sec/veh)[1]	Unsignalized Intersection Control Delay (sec/veh)[1]	General Description
A	≤10.0	≤10.0	Little to no congestion or delays.
B	>10.0 and ≤20.0	>10.0 and ≤15.0	Limited congestion. Short delays.
C	>20.0 and ≤35.0	>15.0 and ≤25.0	Some congestion with average delays.
D	>35.0 and ≤55.0	>25.0 and ≤35.0	Significant congestion and delays.
E	>55.0 and ≤80.0	>35.0 and ≤50.0	Severe congestion and delays.
F	> 80.0	> 50.0	Total breakdown with extreme delays.

Notes:
1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Source: *Highway Capacity Manual,* Chapter 18 (Signalized Intersections) and Chapters 19 and 20 (Unsignalized Intersections), Transportation Research Board, 2010.

For unsignalized (all-way stop-controlled) intersections, the 2010 HCM method for unsignalized intersections was used. With this method, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. Table 3 also summarizes the relationship between LOS and delay for unsignalized intersections.

Table 4 lists the LOS for each study intersection from Synchro 10 under Existing Conditions for the midday and PM peak periods. Detailed intersection LOS calculation worksheets are presented in **Appendix A**. All intersections operate at LOS C or better under Existing Conditions.

Table 4: Intersection LOS for Existing Conditions

Intersection	Peak Hour [1]	Delay (sec.)	LOS
1. Union Street & 7th Street	MD PM	9 17	A B
2. Union Street/I-880 On and Off Ramp & 5th Street	MD PM	21 26	C C
3. Adeline Street & 7th Street	MD PM	8 9	A A
4. Adeline Street & 5th Street	MD PM	23 21	C C
5. Adeline Street & 3rd Street	MD PM	15 15	B C
6. Middle Harbor Road & Maritime Street	MD PM	16 12	C B
7. Maritime Street & 7th Street[2]	MD PM	31 27	C C
8. I-880 On-Ramp & 7th Street	MD PM	5 4	A A
9. I-880 Off-Ramp/Frontage Road & 7th Street[2]	MD PM	30 22	C C
10. Maritime Street/Wake Avenue & West Grand Avenue[2]	MD PM	28 29	C C
11. I-80/Frontage Road & West Grand Avenue[2]	MD PM	21 21	C C

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Delay and LOS calculated using HCM 2000 due to limitations in 2010 HCM

Source: Fehr & Peers, 2020.

Vehicle delay and LOS are the most accepted indications of the driver experience in the road network. While there is no CEQA threshold established for queue storage, queue lengths may also indicate performance of a road network. Synchro 10 was also used to estimate the average and 95th percentile vehicle queues for movements at each signalized intersection. **Appendix B** lists the queue lengths by turning movement under Existing Conditions, with detailed worksheets in **Appendix C**. For the purposes of this analysis, average queue lengths that are less than the available queue storage are considered acceptable. Average queue lengths under both midday and PM peak periods are contained within the available storage for all intersection approaches, and therefore are acceptable. However, the 95th percentile queues exceed the storage length for at least one movement at the following intersections:

1. Union Street & 7th Street (PM peak)
7. Maritime Street & 7th Street (Midday peak)

Table 5 lists the Existing Conditions queue lengths for the intersections and movements where queues exceed the available storage. The 95th percentile queues that exceed the available storage at each of the intersections in Table 5 do so for a small portion of a given hour generally only for one or two signal cycles during the peak hour and typically there are 40 signal cycles each hour. Adjusting the signal coordination is one way to minimize queues that exceed the available storage length.

Table 5: Existing Conditions Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour [1]	Queue Length Average (95th) [2]
1	Union Street & 7th Street	NBR	250	MD PM	25 (50) 200 (**350**)
7	Maritime Street & 7th Street	EBL	125	MD PM	75 (**225**) 50 (100)

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Average = average queue length. 95th = 95th percentile queue length. Queue lengths are reported in feet. Queues that exceed available storage are shown in **bold**

Source: Fehr & Peers, 2020.

4. Existing Plus Project Intersection Operations and Queuing

The Existing Plus Project scenario evaluates the combined effects of rerouting existing Howard Terminal vehicles and adding the full buildout non-ballpark development trips to the study intersections. The following sections describe rerouting existing Howard Terminal vehicles, adding the non-ballpark development trips, and the Existing Plus Project results.

4.1. Howard Terminal Existing Vehicle Rerouting

Trucks and private vehicles currently access Howard Terminal through the Market Street & Embarcadero West and Martin Luther King Jr. Way & Embarcadero West intersections. Under Plus Project conditions the trucks and cars previously entering and leaving Howard Terminal would instead be routed to other areas of the Port of Oakland, except for volumes associated with Schnitzer Steel operations. Turning movements from May 2018 were analyzed at the two entrances to Howard Terminal for the midday and PM peak hours. These hours are 11:00 AM to 12:00 PM and 4:45 to 5:45 PM. **Table 6** shows the traffic volumes entering (inbound) and exiting (outbound) Howard Terminal on the day of data collection for the two access intersections. As shown in the table, there were 230 vehicles and 196 vehicles accessing Howard Terminal during the midday and PM peak hours, respectively.

Table 6: Peak Hour Vehicles Accessing Howard Terminal

Peak Period [1]	Market Street & Embarcadero West		MLK Jr Way & Embarcadero West		Total by Movement		Total Intersection Volume
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	
Midday	44	36	78	72	122	108	230
PM	24	31	60	81	84	112	196

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
Source: Fehr & Peers, 2020.

Under Plus Project conditions, the vehicles accessing Howard Terminal are distributed throughout the Port of Oakland in accordance with current distribution of Port activity to the access points on Adeline Street, 7th Street, and Maritime Street. The vehicles are distributed within the Port to determine internal intersection volumes based on the *7th Street Grade Separation and Port Arterial*

Improvements Project Traffic Study Report (Jacobs, July 2018). Fifty percent of Port traffic enters and exits the Port along Adeline Street, 34 percent enters and exits at 7th Street, and 16 percent enters and exits at West Grand Avenue. The distribution of Port traffic is detailed in **Figure 3** as well as three trip generation zones are considered within the Port based on the locations of the two study intersections internal to the Port.

4.2. Non-Ballpark Development Project Trip Generation, Distribution, and Assignment

A detailed discussion of trip generation is provided in the technical memorandum titled *Howard Terminal Project – Transportation and Parking Demand Management for Non-Ballpark Development and Ballpark* (TDM Memorandum) which established the peak hour trip generation for the non-ballpark development. The trip generation process follows the guidance set forth in the City of Oakland Transportation Impact Review Guidelines (TIRG).

Project trip distribution percentages were determined based on existing travel patterns in the project vicinity and data from the Alameda County Transportation Commission (CTC) Countywide Travel Demand Model for residential and employment land uses. The resulting weekday PM peak hour distributions for the non-ballpark development are:

- 32 percent to/from I-980
- 17 percent to/from I-880 N
- 19 percent to/from I-880 S
- 6 percent to/from Alameda
- 11 percent to/from local streets (West and North)
- 9 percent to/from downtown
- 5 percent to/from East Oakland
- 1 percent to/from Jack London District

These same percentages were used for the midday project trips. The project trips were then assigned to the road network and added to the existing traffic volumes. **Figure 4** shows the peak hour volumes, lane configurations, and traffic control devices for the Existing Plus Project scenario. The Existing Plus Project scenario includes roadway and intersection improvements as summarized in Table 1.



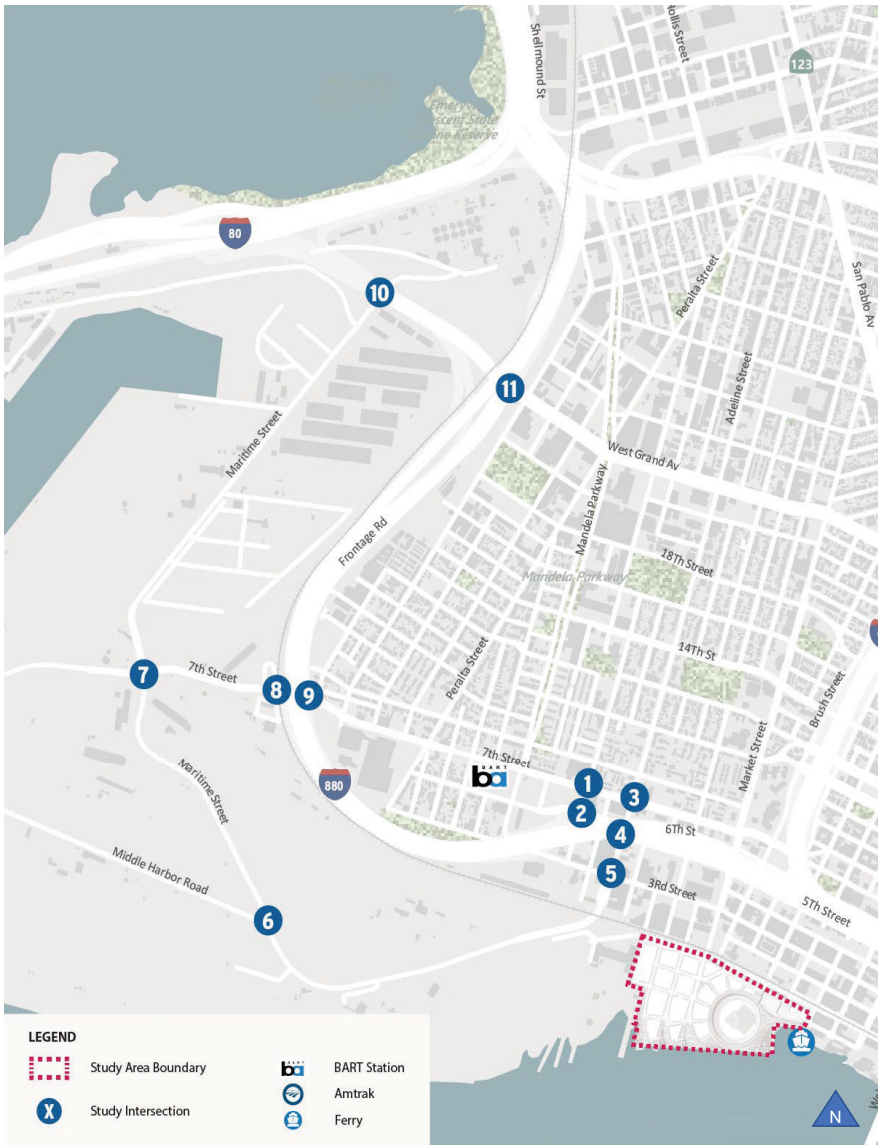
LEGEND

- Study Area Boundary
- Study Intersection (X)
- Trip Distribution (XX%)
- Trip Generation/Attraction Zone (XX%)
- BART Station
- Amtrak
- Ferry

Figure 3

Rerouted Howard Terming Trip Generation and Distribution

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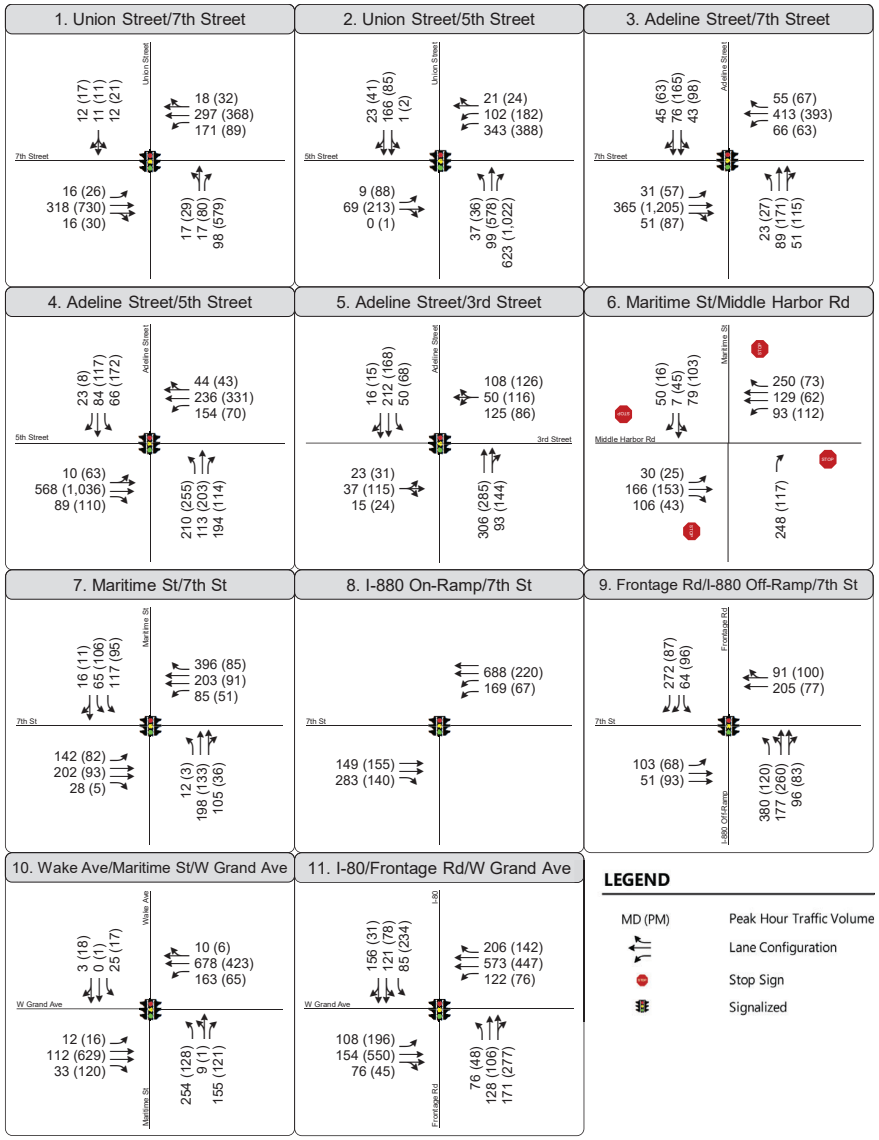


Figure 4

Existing Plus Howard Terminal Rerouting Plus Non-Ballpark Development
Peak Hour Intersection Traffic Volumes, Lane Configurations, and Traffic Controls

4.3. Existing Plus Project Results

Table 7 lists the LOS and delay for each study intersection from Synchro 10 software for the Existing Plus Project scenario in the weekday midday and weekday PM peak hours. Detailed intersection LOS calculation worksheets are included in Appendix A. During the midday peak hour, the intersection Adeline Street & 5th Street (#4) is expected to operate at LOS D. All other intersections operate at LOS C or better. Typically, LOS E is considered acceptable for peak hour intersection operations.

Table 7: Intersection LOS for Existing Plus Project Scenario

Intersection	Peak Hour [1]	Existing Conditions		Existing Plus Project	
		Delay (sec.)	LOS	Delay (sec.)	LOS
1. Union Street & 7th Street	MD PM	9 17	A B	9 17	A B
2. Union Street/I-880 On and Off Ramp & 5th Street	MD PM	21 26	C C	22 28	C C
3. Adeline Street & 7th Street	MD PM	8 9	A A	9 9	A A
4. Adeline Street & 5th Street	MD PM	23 21	C C	38 32	D C
5. Adeline Street & 3rd Street	MD PM	15 15	B C	17 18	C B
6. Middle Harbor Road & Maritime Street	MD PM	16 12	C B	19 14	C B
7. Maritime Street & 7th Street[2]	MD PM	31 27	C C	33 26	C C
8. I-880 On-Ramp & 7th Street	MD PM	5 4	A A	4 4	A A
9. I-880 Off-Ramp/Frontage Road & 7th Street[2]	MD PM	30 22	C C	29 22	C C
10. Maritime Street/Wake Avenue & West Grand Avenue[2]	MD PM	28 29	C C	26 29	C C
11. I-80/Frontage Road & West Grand Avenue[2]	MD PM	21 21	C C	21 21	C C

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Delay and LOS calculated using HCM 2000 due to limitations in 2010 HCM

Source: Fehr & Peers, 2020.

Appendix B lists the vehicle queue lengths by turning movement for the Existing Plus Project scenario, with detailed worksheets in Appendix C. Average vehicle queue lengths during both midday and PM periods are contained within the available storage for all intersection approaches. 95th percentile vehicle queues exceed the storage length for at least one movement at the following intersections:

1. At the Union Street & 7th Street intersection, the 95th percentile queue in the PM peak increases from 350 to 375 feet for the northbound right movement, compared to 250 feet of storage.
7. At the Maritime Street & 7th Street intersection, the 95th percentile queue in the Midday peak for the eastbound left movement increases from 225 to 250 feet, compared to 125 feet of storage. The 95th percentile queue in the Midday peak for the westbound left movement increases from 100 to 125 feet, compared to 100 feet of storage.

Table 8 lists the queue lengths for the intersections in which queues exceed the available storage under Existing and Existing Plus Project conditions. In both scenarios, average queues do not exceed the available storage and thus are considered acceptable. This is an indication that the added traffic from the Project would have no noticeable effect on vehicle queue characteristics from the driver perspective over the course of one hour. The differences in 95th percentile queues between Existing and Existing Plus Project scenarios are no greater than 25 feet which is within the expected day-to-day variability in traffic operations. Traffic signal retiming and coordination are tools used to minimize maximum queue characteristics and should be implemented with regular monitoring. Note that the queue at I-880 off-ramp at Union Street improves with the Project's right-turn lane

> **Recommendation #1:** While not required to address a CEQA impact, as part of the project, include annual non-event day monitoring of queues at the two intersections identified as locations where the project trips may result in 95th percentile queues either exceeding the available storage or exacerbate existing queue storage constraints. This monitoring should occur on at least two non-event days during the midday and PM peak periods. Based on the monitoring results, adjust signal timing and coordination to manage the maximum queues observed during the monitoring.
>
> **Discussion:** As discussed in the Existing Conditions section, vehicle delay and LOS are the most accepted indications of the driver experience in the road network. While there is no CEQA threshold established for queue storage, queue lengths may also indicate performance of a road network. All the study intersections in this memorandum are expected to operate at acceptable LOS levels which indicates that drivers will not notice

the changes from the added non-ballpark development traffic. This is further supported by the finding that all vehicle queues will be within the available storage lengths. Even so, the 95th percentile queue is expected to increase by 25 feet at some locations and exceed the available storage. This indicates that these movements should be monitored and tools such as signal timing and coordination applied to ensure optimal operations.

Table 8: Critical Vehicle Queues for Existing and Existing Plus Project Conditions

#	Study Intersection	Movement	Storage (ft)	Peak Hour [1]	Queue Length Average (95th) [2]	
					Existing	Existing Plus Project
1	Union Street & 7th Street	NBR	250	MD PM	25 (50) 200 (**350**)	25 (50) 200 (**375**)
7	Maritime Street & 7th Street	EBL	125	MD PM	75 (**225**) 50 (100)	100 (**250**) 50 (100)
		WBL	100	MD PM	50 (100) 25 (75)	50 (**125**) 25 (75)

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Average = average queue length. 95th = 95th percentile queue length. Queue lengths are reported in feet. Queues that exceed available storage are shown in **bold**

Source: Fehr & Peers, 2020.

5. Sensitivity Testing Intersection Operations and Vehicle Queuing

While the Operations Analysis Memorandum shows that there will be relatively small increases in delay on truck routes, there may be shifts in Port traffic on event days if Port users pre-plan to avoid roads with event day traffic. Port of Oakland staff requested a sensitivity test assuming vehicles reroute away from the Adeline Street & 3rd Street intersection (#5) to enter and exit the Port. Two additional scenarios were selected for study:

- Existing Plus Project Plus Rerouting 25 Percent of Traffic Away from Adeline Street
- Existing Plus Project Plus Rerouting 50 Percent of Traffic Away from Adeline Street

For each scenario, the stated percentage of traffic using Adeline Street to enter or exit the Port was rerouted to the Port access intersections along 7th Street and West Grand Avenue. This rerouting followed the distribution determined previously but excluding Adeline, with 32 percent routed to the north access intersections along West Grand Avenue and the remaining 68 percent to 7th Street.

Table 9 details the distribution of traffic to the three access locations to the Port of Oakland today and how the distribution would change if the Adeline traffic were rerouted to the other gates. **Table 10** shows the volume of vehicles routed to the 7th Street and West Grand Avenue access intersections in the 25 and 50 percent sensitivity analyses. The distribution of vehicles to these accesses follows that percentages given in Table 9.

Table 9: Vehicle Distribution Percentage to Port Access Locations

Port Access Location	Base Distribution to Port of Oakland Accesses	Distribution of Rerouted Vehicles Away from Adeline
Adeline Street	50%	0%
7th Street	34%	68%
West Grand Avenue	16%	32%
Total	**100%**	**100%**

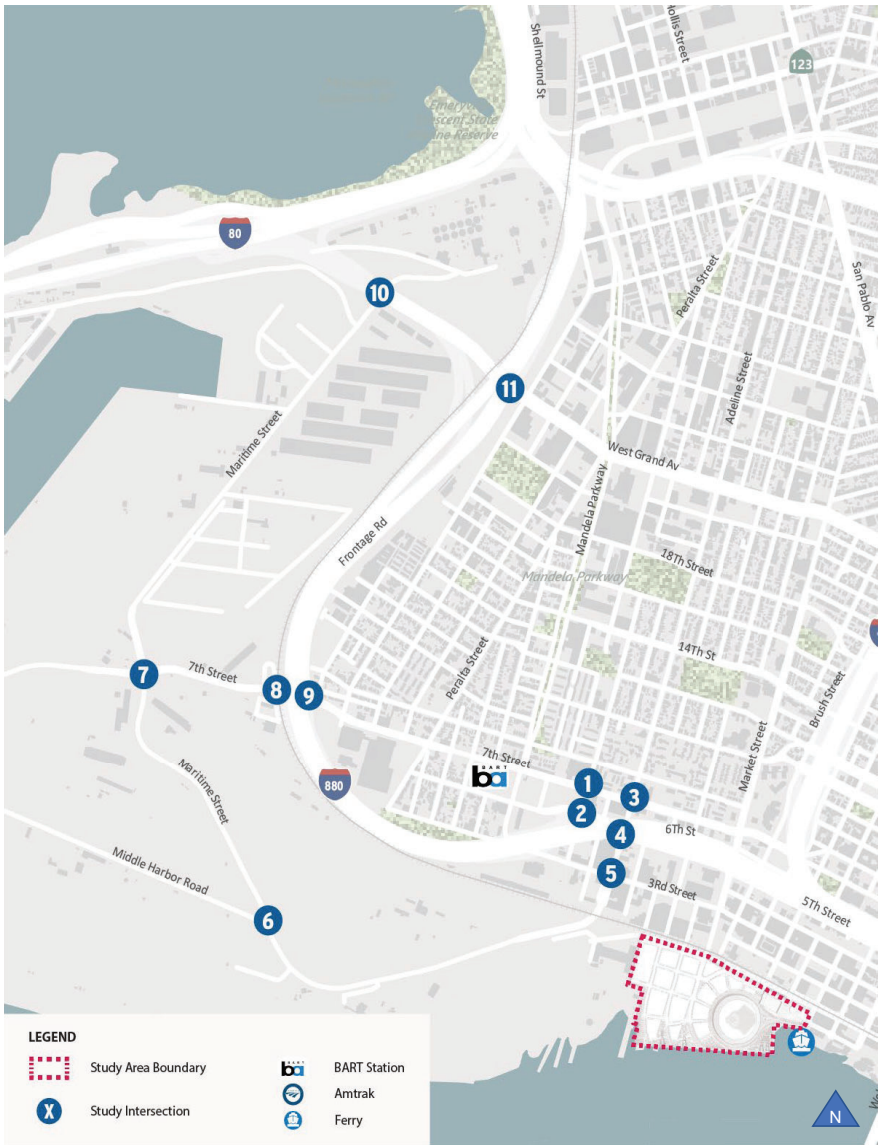
Source: Fehr & Peers, 2020.

Table 10: Vehicle Volumes Rerouted to Port Access Intersections

Peak Period	Port Access Location	25 Percent Rerouted from Adeline Street		50 Percent Rerouted from Adeline Street	
		Inbound	Outbound	Inbound	Outbound
Midday	Adeline	-88	-100	-176	-200
	7th Street	60	68	120	136
	West Grand Avenue	28	32	56	64
PM	Adeline	-64	-108	-128	-216
	7th Street	44	73	88	146
	West Grand Avenue	20	35	40	70

Source: Fehr & Peers, 2020.

Figure 5 and **Figure 6** show intersection volumes for Existing Plus Project Plus 25 Percent and 50 Percent Rerouting away from the Adeline Street access, respectively. Note that the Plus Project scenario includes full buildout of the Howard Terminal non-ballpark development as well as rerouted Howard Terminal traffic to the Port of Oakland.



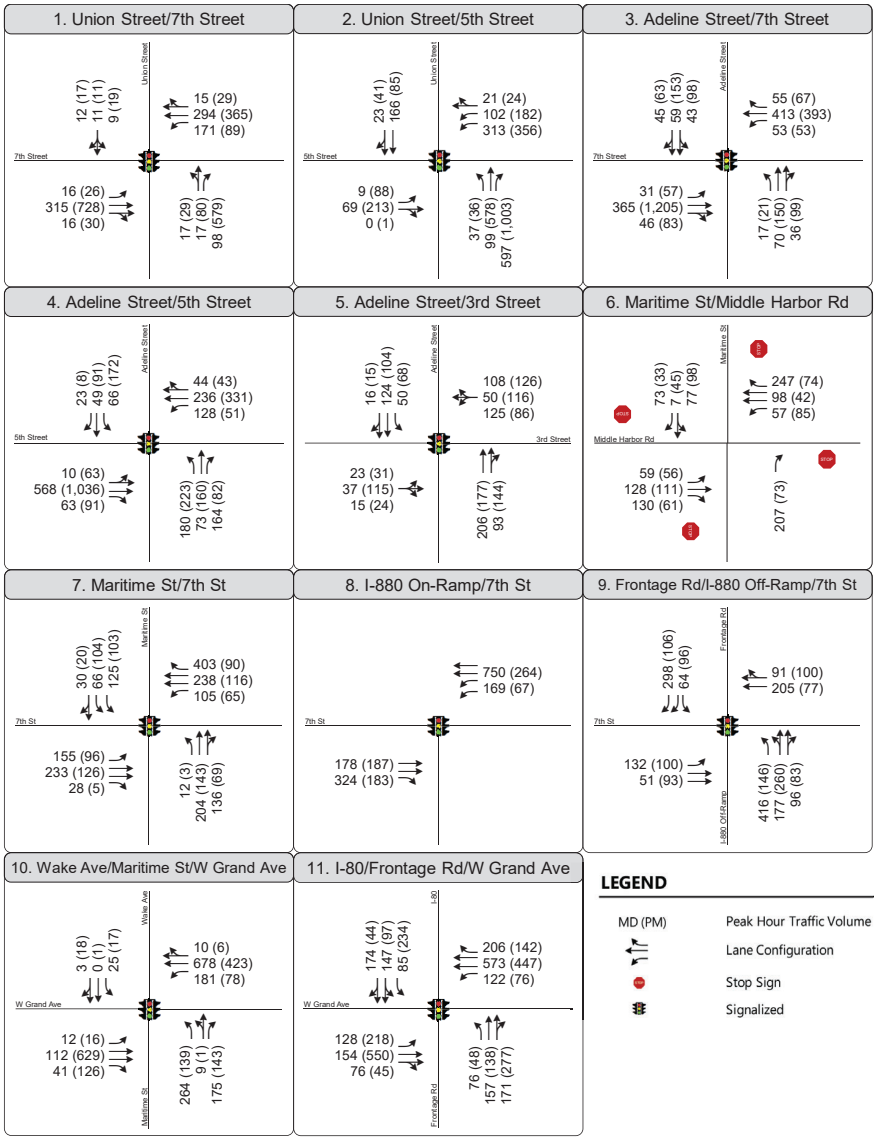
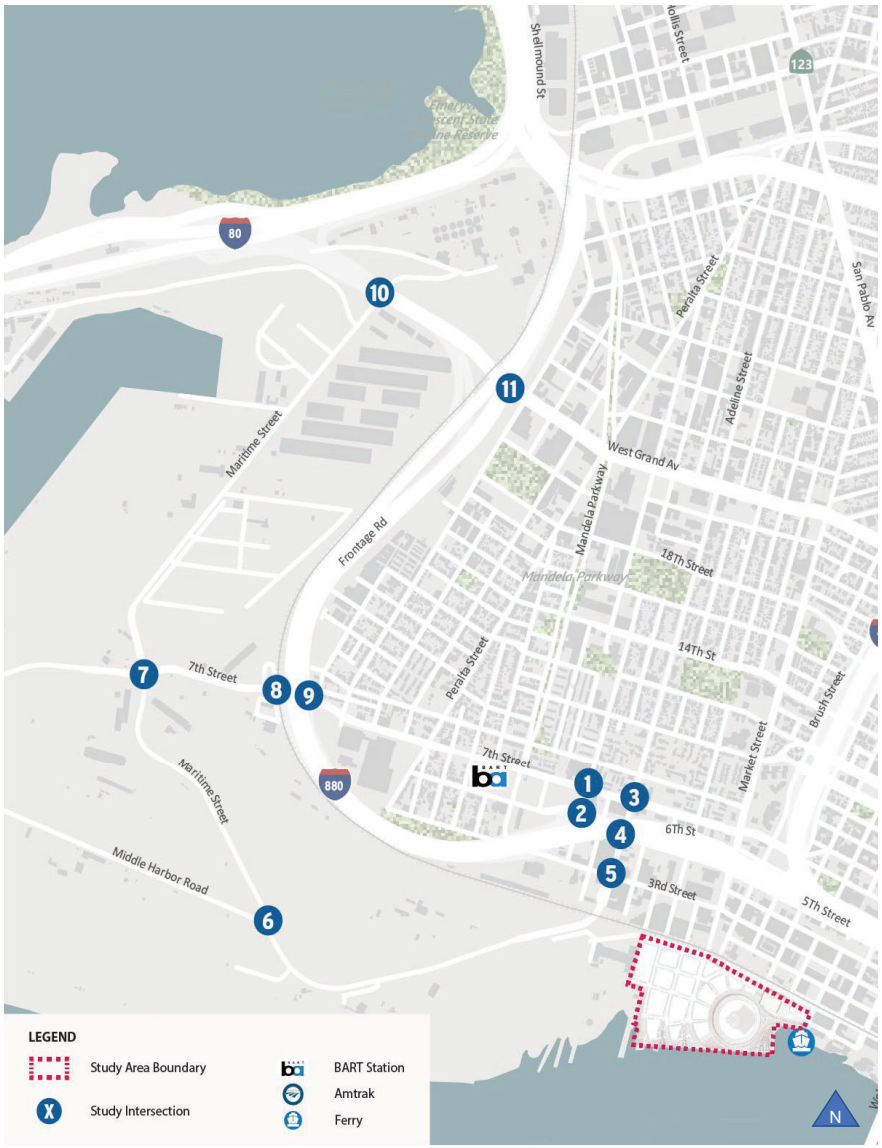


Figure 5

Existing Plus Project Plus Rerouting 25% of Traffic Away from Adeline
Peak Hour Intersection Traffic Volumes, Lane Configurations, and Traffic Controls



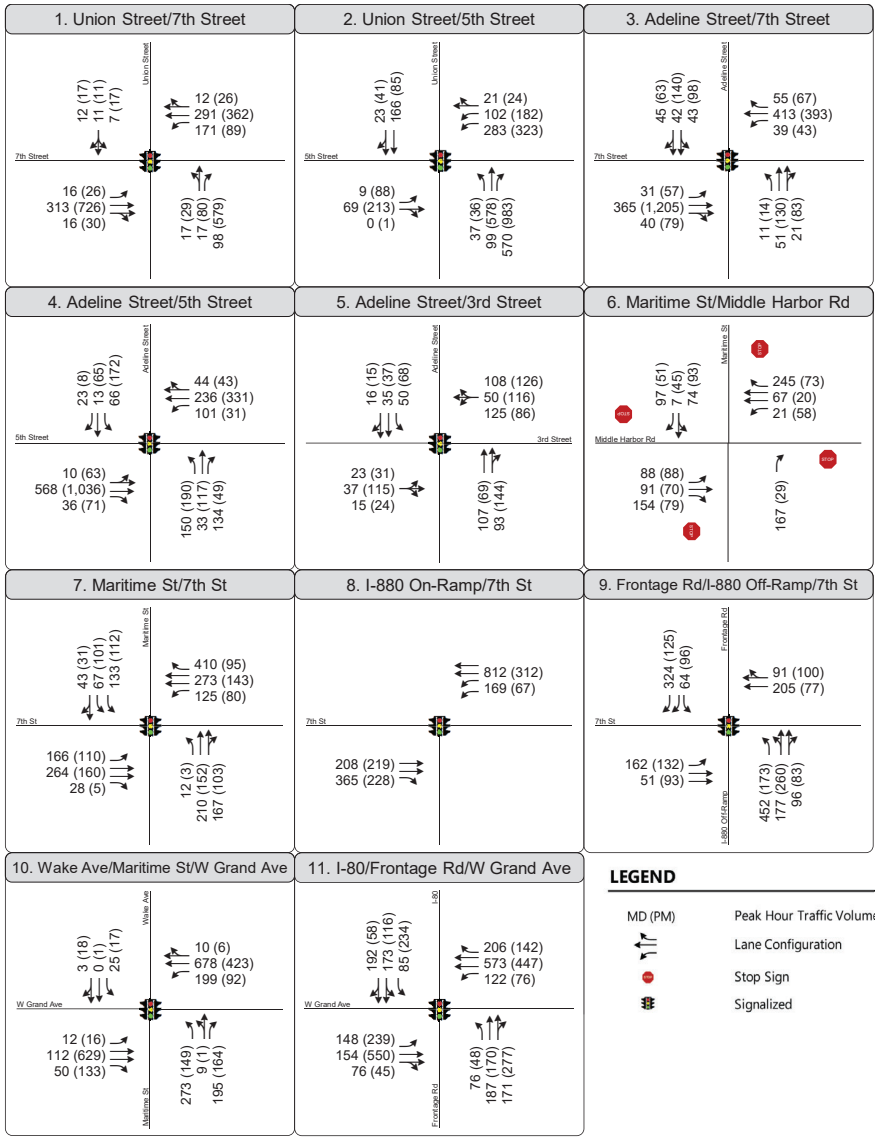


Figure 6

Existing Plus Project Plus Rerouting 50% of Traffic Away from Adeline
Peak Hour Intersection Traffic Volumes, Lane Configurations, and Traffic Controls

5.1. Sensitivity Testing Results

Table 11 lists the delay and LOS for each intersection from the analysis for the rerouting of 25 and 50 percent of traffic away from the Adeline Street & 3rd Street intersection (#5). Under both scenarios, the intersection of Maritime Street & 7th Street (#7) operates at LOS D during the midday. All other intersections during both the midday and PM peak hours would operate at LOS C or better.

Table 11: Intersection LOS for Sensitivity Analysis

Intersection	Peak Hour [1]	Rerouting 25% Away from Adeline & 3rd		Rerouting 50% Away from Adeline & 3rd	
		Delay (sec.)	LOS	Delay (sec.)	LOS
1. Union Street & 7th Street	MD PM	Intersections not evaluated because operating assumption is that drivers to and from the Port avoid these intersections because of Howard Terminal events.			
2. Union Street/I-880 On and Off Ramp & 5th Street	MD PM				
3. Adeline Street & 7th Street	MD PM				
4. Adeline Street & 5th Street	MD PM				
5. Adeline Street & 3rd Street	MD PM				
6. Middle Harbor Road & Maritime Street	MD PM	17 12	C B	16 11	C B
7. Maritime Street & 7th Street[2]	MD PM	41 27	D C	46 28	D C
8. I-880 On-Ramp & 7th Street	MD PM	5 4	A A	5 4	A A
9. I-880 Off-Ramp/Frontage Road & 7th Street[2]	MD PM	33 24	C C	36 27	C C
10. Maritime Street/Wake Avenue & West Grand Avenue[2]	MD PM	29 29	C C	29 29	C C
11. I-80/Frontage Road & West Grand Avenue[2]	MD PM	23 22	C C	25 23	C C

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Delay and LOS calculated using HCM 2000 due to limitations in 2010 HCM

Source: Fehr & Peers, 2020.

Delay and LOS have not been reported for Intersections 1 through 5 because the operating assumption is that drivers to the Port avoid these intersections because the event day traffic congestion is unacceptable to the drivers. The results show that overall traffic conditions within the midday and PM one-hour periods will be acceptable and drivers will not notice the change in traffic patterns.

Table 12 lists the sensitivity analysis queue for intersections in which queues exceed storage. The Union Street & 7th Street (#1) and Union Street/I-880 On and Off Ramp & 5th Street (#2) queues are not evaluated under rerouting scenarios because drivers are rerouted away from these intersections. Average queue lengths are acceptable as they do not exceed the available storage at any intersection and under any scenario and all intersections are expected to operate at LOS C or better except Maritime at 7th which is expected to operate at LOS D for the midday. These results are indicators that drivers traveling through the study intersections will not notice the change in traffic with a 25% or 50% shift in vehicle traffic away from the Adeline Street Seaport access point.

The 25% and 50% shift in vehicle traffic will be noticeable for people observing the entire midday and PM one-hour periods and may be noticeable to some drivers compared to existing conditions particularly if 50% of the Adeline traffic reroutes away from the Adeline Street corridor.

Appendix B lists the vehicle queue lengths by turning movement for the sensitivity analysis scenarios, with detailed worksheets in Appendix C. The 95th percentile queues exceed the storage length for at least one movement at the following intersections:

- At the Maritime Street & 7th Street intersection (#7), 95th percentile queues for the eastbound left movement during the Midday peak increase from 250 to 275 feet under the 25 percent rerouting scenario, and from 250 to 300 feet under 50 percent rerouting; both exceed the eastbound left 125-foot storage length. In the PM peak, 95th percentile queues for this movement remain within storage under 25 percent rerouting conditions, but exceed storage under 50 percent rerouting, increasing from 100 to 150 feet. For the westbound left movement, 95th percentile queues increase during the Midday peak from 125 to 175 feet and from 125 to 200 feet for the 25 percent and 50 percent rerouting scenarios, respectively; both exceed the westbound left 100-foot available storage length.

Table 12: Sensitivity Analysis Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour[1]	Queue Length Average (95th)[2]		
					Existing Plus Project	25% Rerouted Away from Adeline	50% Rerouted Away from Adeline
1	Union Street & 7th Street	NBR	250	MD PM	25 (50) 200 (**375**)	Intersections not evaluated because operating assumption is that drivers to and from the Port avoid these intersections because of Howard Terminal events.	
7	Maritime Street & 7th Street	EBL	125	MD PM	100 (**250**) 50 (100)	100 (**275**) 50 (125)	125 (**300**) 75 (**150**)
		WBL	100	MD PM	50 (**125**) 25 (75)	75 (**175**) 50 (100)	75 (**200**) 50 (100)

Notes:
1. Peak hours are 11:00 AM to 12:00 PM during the midday and 4:45 to 5:45 PM during the evening.
2. Average = average queue length. 95th = 95th percentile queue length. Queue lengths are reported in feet. Queues that exceed available storage are shown in **bold**

Source: Fehr & Peers, 2020.

Recommendation #2: While not required to address a CEQA impact, as part of the project, include annual event day monitoring of queues at the one intersection identified as a location where the sensitivity analysis shows that the 95th percentile queues either exceeding the available storage or exacerbate existing queue storage constraints. This monitoring should occur on at least one weekday afternoon, weekday evening, and weekend baseball game in the two hours before and after the game. Based on monitoring adjust traffic signal timings to minimize maximum queue lengths.

In addition, introduce traffic management before and after Howard Terminal events that direct event-related traffic away from the Adeline Street access point to the Seaport. The purpose for the traffic management is to direct all event attendee traffic away from the Adeline Seaport access point so that port-related traffic will be incentivized to continue using the Adeline Street access point. Management tools would include:

- Traffic control officers at the Mandela Parkway / 5th Street intersection to direct event attendees toward the 7th Street corridor. Officers at the Adeline Street / 5th Street intersection to direct attendees to continue straight on 5th Street. Last, locate officers

at the Adeline Street / 3rd Street to manage non-motorized traffic through this intersection if it occurs.

- Personnel at the West Oakland BART station to direct BART riders destined to the Howard Terminal event to use the 7th Street corridor.
- Permanent signing on eastbound 5th Street approaching Adeline Street directing drivers to Jack London District and the ballpark to continue straight on 5th Street.
- Permanent and game day turn restrictions at the Market Street / 3rd Street intersection so event day drivers cannot use 3rd Street between Adeline and Market Street. These turn prohibitions are supported by the California Vehicle Code and would be input into the navigational applications so drivers would be directed through the application to avoid the turn restrictions.
- Game day blank-out signs directing drivers on eastbound 5th Street to continue straight through the Adeline Street intersection to access the ballpark.

Discussion: This intersection is recommended for monitoring under non-event day conditions, and this monitoring should also be conducted under event day conditions to understand the effects of event attendees and any rerouting of Port traffic that occurs due to events.

6. Cut-Through Analysis

There are two distinct types of vehicles that use the Port's internal road network: trucks (described as transport trucks in the West Oakland Truck Management Plan) and passenger vehicles. While trucks are the main users of the Port's roads, some cut-through traffic exists from passenger vehicles whose drivers are trying to avoid I-880 to travel between I-80 at the Bay Bridge and Jack London District. The following sections evaluate existing cut-through traffic and estimate additional cut-through traffic with the Howard Terminal non-ballpark development.

6.1. Cut-through Volumes

Drivers who use the Port as a cut-through route on their way to another destination may have a limited understanding of truck operations in the Port, potentially disrupting those operations. For the purposes of this traffic analysis, cut-through traffic is defined as passenger vehicles that use one of the Seaport accesses but spend less than 20 minutes traveling through the Seaport. Cut-through travel patterns for the Howard Terminal area were analyzed by using location-based services origin-destination data between the Bay Bridge and the western portion of the Jack London District, bounded by Adeline Street, 5th Street, and Broadway, with middle filters set at the Adeline

and 7th Street Seaport entrances. Some drivers travel between the Howard Terminal neighborhood and the Bay Bridge; destinations other than the Bay Bridge were negligible.

The study considered all passenger vehicle drivers entering the Seaport via Adeline, 7th, and Maritime Streets. **Table 13** shows the average AM and PM peak commute period volumes of existing cut-through traffic using the Seaport's internal road network. To develop a conservative estimate of the number of cut-through passenger vehicles, it was assumed that all vehicles observed to cut through the Seaport were passenger vehicles.

Table 13: Existing Weekday Cut-Through Average Volumes Through the Port of Oakland and Total Passenger Vehicle Volumes

Cut-Through Route	AM Hourly Average (7 to 9 a.m.)		PM Hourly Average (4 to 6 p.m.)	
	Passenger Vehicle Cut-Throughs	Total Passenger Vehicle Volume Using Entrance	Passenger Vehicle Cut-Throughs	Total Passenger Vehicle Volume Using Entrance
Northbound – Maritime Street Exit				
7th Street to Maritime Street	33	387	27	175
Adeline Street to Maritime Street	32	315	13	124
Total	**65**	**702**	**40**	**299**
Southbound – Maritime Street Entrance				
Maritime Street to 7th Street	33	205	35	105
Maritime Street to Adeline Street	13	80	14	44
Total	**46**	**285**	**49**	**149**
Combined Total (Northbound + Southbound)	**111**	**987**	**89**	**448**

Source: Fehr & Peers, StreetLight Data, 2020.

111 passenger vehicles of the 987 entering the Seaport during the AM commute period (7 to 9 a.m.) are traveling through the Port without stopping. During the PM peak period (4 to 6 p.m.) 89 of the 448 passenger vehicles are passing through the Port. While the PM peak period percentage cut-through traffic is higher than the AM peak period, the total number of vehicles cutting through in the PM peak period is about 80 percent of that in the AM peak period. In terms of time, there is

about one passenger vehicle per 60 seconds driving through the Port during the AM period and about one passenger vehicle per 90 seconds driving through the Port during the PM period.

Based on observations, the southbound route between the Bay Bridge and neighborhood adjacent to Howard Terminal is uncongested during both the AM and PM commute peak periods with the freeway and local streets both operating well. As such, drivers crossing the Bay Bridge and destined for the local neighborhood would remain on I-880 and exit the freeway at the Union Street interchange.

Northbound freeway congestion is extensive during the AM commute period because vehicle queues from I-880, I-80, and I-580 converge at the Bay Bridge. Because of the congestion extending back onto northbound I-880 some drivers from the neighborhood at Howard Terminal choose to drive through the Port via Adeline or 7th Streets to Maritime Street rather than accessing the freeway at Union Street. Location-based service origin-destination data shows that about 21 percent of the neighborhood traffic destined to the Bay Bridge uses either 7th Street to avoid northbound I-880. The remaining 79% of trips originating in the neighborhood access the freeway at Union Street to connect to the Bay Bridge during the morning commute period. Based on the Howard Terminal development program roughly 10 AM peak hour vehicle trips from the site would use Port streets to access the Bay Bridge. PM peak hour vehicle trips would be approximately 20 trips. The project trip assignment sends 12 AM peak hour vehicles and 21 PM peak hour vehicles west of Union Street on 7th Street, which is consistent with that estimate.

Although the results from the location-based services data suggests that there may be a small amount of existing demand for an Adeline Street cut-through route during the AM peak, no project trips were assigned to this route. As this route would have a longer travel distance and travel time than the 7th Street cut-through route, observed existing demand was assumed to be idiosyncratic (perhaps related to port operations) and therefore not applicable to the development at Howard Terminal.

If performance goals are not met related to rerouted vehicles through the Seaport, prohibiting eastbound and westbound through movements of private vehicles at the intersection of I-880/Frontage Road & 7th Street (intersections #8 and #9 in the operations analysis in previous sections) may reduce cut-through volumes. This potential design has not been analyzed because it would not increase the capacity of the roadway system and so would not cause a significant transportation impact per the significance criteria as described in the City's Transportation Impact Report Guidelines (TIRG).

Attachments:

Appendix A – Detailed LOS Calculation Worksheets

Appendix B – Existing Conditions, Plus Project, and Sensitivity Testing Queue Tables

Appendix C – Detailed Queue Calculation Worksheets

Appendix A – Detailed LOS Calculation Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	302	16	171	277	16	17	17	98	10	11	12
Future Volume (veh/h)	16	302	16	171	277	16	17	17	98	10	11	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.96	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1759	1759	1900	1900	1759	1759	1900	1743	1900
Adj Flow Rate, veh/h	16	302	16	171	277	16	17	17	98	10	11	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	10	10	8	8	8	8	8	8	9	9	9
Cap, veh/h	526	1425	75	479	1442	83	385	362	669	229	247	239
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	992	3167	167	993	3205	184	706	804	1487	379	549	531
Grp Volume(v), veh/h	16	156	162	171	144	149	34	0	98	33	0	0
Grp Sat Flow(s),veh/h/ln	992	1641	1693	993	1671	1718	1509	0	1487	1460	0	0
Q Serve(g_s), s	0.7	4.6	4.7	4.6	0.8	0.8	0.0	0.0	3.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	4.6	4.7	9.2	0.8	0.8	0.9	0.0	3.1	0.9	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.11	0.50		1.00	0.30		0.36
Lane Grp Cap(c), veh/h	526	738	762	479	752	773	747	0	669	715	0	0
V/C Ratio(X)	0.03	0.21	0.21	0.36	0.19	0.19	0.05	0.00	0.15	0.05	0.00	0.00
Avail Cap(c_a), veh/h	526	738	762	479	752	773	747	0	669	715	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	13.4	13.4	3.4	2.2	2.2	12.3	0.0	13.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.6	2.1	0.6	0.6	0.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	2.3	1.4	0.4	0.5	0.4	0.0	1.4	0.4	0.0	0.0
LnGrp Delay(d),s/veh	12.9	14.0	14.0	5.5	2.8	2.8	12.5	0.0	13.4	12.5	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		B	B		
Approach Vol, veh/h		334			464			132			33	
Approach Delay, s/veh		14.0			3.8			13.2			12.5	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		5.1		6.7		2.9		11.2
Green Ext Time (p_c), s		0.5		2.0		0.1		2.6

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	69	0	163	78	21	37	99	489	1	166	23
Future Volume (veh/h)	9	69	0	163	78	21	37	99	489	1	166	23
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1387	1387	1900	1681	1681	1900	1900	1776	1900
Adj Flow Rate, veh/h	9	69	0	163	78	12	37	99	166	1	166	11
Adj No. of Lanes	1	1	0	2	1	0	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	9	9	37	37	37	13	13	13	7	7	7
Cap, veh/h	367	601	0	309	286	44	73	482	430	59	618	40
Arrive On Green	0.22	0.34	0.00	0.12	0.24	0.24	0.05	0.30	0.30	0.20	0.20	0.20
Sat Flow, veh/h	1660	1743	0	2562	1172	180	1601	1597	1427	4	3142	206
Grp Volume(v), veh/h	9	69	0	163	0	90	37	99	166	94	0	84
Grp Sat Flow(s),veh/h/ln	1660	1743	0	1281	0	1352	1601	1597	1427	1773	0	1579
Q Serve(g_s), s	0.3	1.7	0.0	3.7	0.0	3.4	1.4	2.9	5.7	0.0	0.0	2.8
Cycle Q Clear(g_c), s	0.3	1.7	0.0	3.7	0.0	3.4	1.4	2.9	5.7	2.8	0.0	2.8
Prop In Lane	1.00		0.00	1.00		0.13	1.00		1.00	0.01		0.13
Lane Grp Cap(c), veh/h	367	601	0	309	0	330	73	482	430	407	0	311
V/C Ratio(X)	0.02	0.11	0.00	0.53	0.00	0.27	0.51	0.21	0.39	0.23	0.00	0.27
Avail Cap(c_a), veh/h	373	1007	0	329	0	673	154	897	802	824	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	13.9	0.0	25.7	0.0	19.1	29.0	16.2	17.2	21.2	0.0	21.2
Incr Delay (d2), s/veh	0.0	0.1	0.0	1.4	0.0	0.3	4.0	0.3	0.8	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	1.4	0.0	1.3	0.7	1.3	2.4	1.4	0.0	1.2
LnGrp Delay(d),s/veh	19.0	14.0	0.0	27.1	0.0	19.4	33.1	16.5	18.0	21.3	0.0	21.4
LnGrp LOS	B	B		C		B	C	B	B	C		C
Approach Vol, veh/h		78			253			302			178	
Approach Delay, s/veh		14.6			24.4			19.3			21.4	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.5	19.4	6.5	17.9	12.2	25.7		24.4
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 31	6.0	* 27	* 8	* 36		35.0
Max Q Clear Time (g_c+I1), s	2.3	5.4	3.4	4.8	5.7	3.7		7.7
Green Ext Time (p_c), s	0.0	0.4	0.0	0.6	0.1	0.3		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	351	47	57	395	55	20	79	43	43	65	45
Future Volume (veh/h)	31	351	47	57	395	55	20	79	43	43	65	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1900	1900	1776	1900
Adj Flow Rate, veh/h	31	351	47	57	395	55	20	79	43	43	65	45
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	7	7	7
Cap, veh/h	522	1625	216	598	1838	818	470	749	378	312	443	314
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	882	2955	392	923	3343	1487	1204	2139	1081	695	1265	898
Grp Volume(v), veh/h	31	197	201	57	395	55	20	60	62	81	0	72
Grp Sat Flow(s),veh/h/ln	882	1671	1676	923	1671	1487	1204	1671	1548	1419	0	1440
Q Serve(g_s), s	0.3	0.0	0.0	2.4	4.8	1.4	0.9	1.9	2.2	0.9	0.0	2.7
Cycle Q Clear(g_c), s	5.2	0.0	0.0	2.4	4.8	1.4	3.7	1.9	2.2	3.1	0.0	2.7
Prop In Lane	1.00		0.23	1.00		1.00	1.00		0.70	0.53		0.62
Lane Grp Cap(c), veh/h	522	919	922	598	1838	818	470	585	542	566	0	504
V/C Ratio(X)	0.06	0.21	0.22	0.10	0.21	0.07	0.04	0.10	0.11	0.14	0.00	0.14
Avail Cap(c_a), veh/h	522	919	922	598	1838	818	470	585	542	566	0	504
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.3	0.0	0.0	8.6	9.2	8.4	19.0	17.5	17.6	17.8	0.0	17.8
Incr Delay (d2), s/veh	0.2	0.5	0.5	0.3	0.3	0.2	0.2	0.4	0.4	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.1	0.7	2.3	0.6	0.3	0.9	1.0	1.3	0.0	1.2
LnGrp Delay(d),s/veh	0.5	0.5	0.5	9.0	9.5	8.6	19.2	17.9	18.0	18.3	0.0	18.4
LnGrp LOS	A	A	A	A	A	A	B	B	B	B		B
Approach Vol, veh/h		429			507			142			153	
Approach Delay, s/veh		0.5			9.3			18.1			18.4	
Approach LOS		A			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		5.7		7.2		5.1		6.8
Green Ext Time (p_c), s		0.7		2.8		0.8		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	444	79	136	102	44	135	91	179	66	60	23
Future Volume (veh/h)	10	444	79	136	102	44	135	91	179	66	60	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1667	1667	1900	1329	1329	1900	1195	1195	1900	1696	1696	1900
Adj Flow Rate, veh/h	10	444	79	136	102	44	135	91	179	50	83	23
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	14	14	14	43	43	43	59	59	59	12	12	12
Cap, veh/h	16	624	110	161	622	253	266	265	236	214	342	91
Arrive On Green	0.01	0.23	0.23	0.13	0.36	0.36	0.23	0.23	0.23	0.13	0.13	0.13
Sat Flow, veh/h	1587	2688	475	1265	1738	706	1138	1135	1012	1616	2579	687
Grp Volume(v), veh/h	10	260	263	136	72	74	135	91	179	50	53	53
Grp Sat Flow(s),veh/h/ln	1587	1583	1580	1265	1262	1181	1138	1135	1012	1616	1696	1570
Q Serve(g_s), s	0.4	8.8	8.9	6.1	2.3	2.5	6.0	3.9	9.6	1.6	1.6	1.8
Cycle Q Clear(g_c), s	0.4	8.8	8.9	6.1	2.3	2.5	6.0	3.9	9.6	1.6	1.6	1.8
Prop In Lane	1.00		0.30	1.00		0.60	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	16	368	367	161	452	423	266	265	236	214	225	208
V/C Ratio(X)	0.61	0.71	0.72	0.84	0.16	0.17	0.51	0.34	0.76	0.23	0.24	0.25
Avail Cap(c_a), veh/h	489	813	812	498	540	506	448	447	398	636	668	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	20.6	20.6	24.9	12.8	12.8	19.5	18.6	20.8	22.7	22.7	22.7
Incr Delay (d2), s/veh	13.1	0.9	1.0	8.5	0.2	0.2	1.6	0.8	5.3	0.6	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.9	4.0	2.5	0.8	0.8	2.0	1.3	3.0	0.8	0.8	0.8
LnGrp Delay(d),s/veh	41.9	21.6	21.6	33.4	12.9	13.0	21.1	19.5	26.1	23.2	23.2	23.4
LnGrp LOS	D	C	C	C	B	B	C	B	C	C	C	C
Approach Vol, veh/h		533			282			405			156	
Approach Delay, s/veh		22.0			22.8			23.0			23.3	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.1	24.9		17.6	11.5	17.6		11.7
Change Period (Y+Rc), s	3.5	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	25.0		23.0	23.0	30.0		23.0
Max Q Clear Time (g_c+I1), s	2.4	4.5		11.6	8.1	10.9		3.8
Green Ext Time (p_c), s	0.0	0.8		1.8	0.2	2.2		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.6
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	66	15	133	61	81	24	227	135	58	152	16
Future Vol, veh/h	23	66	15	133	61	81	24	227	135	58	152	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	22	22	22	51	51	51	69	69	69	68	68	68
Mvmt Flow	23	66	15	133	61	81	24	227	135	58	152	16
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.7	17.1	15.5	13.3
HCM LOS	B	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	17%	0%	22%	48%	43%	0%
Vol Thru, %	83%	46%	63%	22%	57%	83%
Vol Right, %	0%	54%	14%	29%	0%	17%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	138	249	104	275	134	92
LT Vol	24	0	23	133	58	0
Through Vol	114	114	66	61	76	76
RT Vol	0	135	15	81	0	16
Lane Flow Rate	138	248	104	275	134	92
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.289	0.49	0.198	0.521	0.296	0.194
Departure Headway (Hd)	7.57	7.093	6.85	6.82	7.946	7.601
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	507	520	525	450	470
Service Time	5.342	4.865	4.944	4.891	5.729	5.384
HCM Lane V/C Ratio	0.292	0.489	0.2	0.524	0.298	0.196
HCM Control Delay	13.4	16.6	11.7	17.1	14.1	12.2
HCM Lane LOS	B	C	B	C	B	B
HCM 95th-tile Q	1.2	2.7	0.7	3	1.2	0.7

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	143	79	70	104	241	0	1	228	69	7	37
Future Vol, veh/h	7	143	79	70	104	241	0	1	228	69	7	37
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	82	82	82	88	88	88	97	97	97	83	83	83
Mvmt Flow	7	143	79	70	104	241	0	1	228	69	7	37
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	13.9	16.3	18.8	13.2
HCM LOS	B	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	5%	0%	40%	0%	91%	0%
Vol Thru, %	0%	95%	0%	60%	0%	9%	0%
Vol Right, %	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	229	150	79	174	241	76	37
LT Vol	0	7	0	70	0	69	0
Through Vol	1	143	0	104	0	7	0
RT Vol	228	0	79	0	241	0	37
Lane Flow Rate	229	150	79	174	241	76	37
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.503	0.339	0.163	0.391	0.481	0.192	0.081
Departure Headway (Hd)	7.91	8.147	7.408	8.098	7.181	9.106	7.925
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	453	440	482	444	499	392	450
Service Time	5.985	5.932	5.192	5.872	4.954	6.9	5.719
HCM Lane V/C Ratio	0.506	0.341	0.164	0.392	0.483	0.194	0.082
HCM Control Delay	18.8	15.1	11.6	16	16.5	14.1	11.4
HCM Lane LOS	C	C	B	C	C	B	B
HCM 95th-tile Q	2.8	1.5	0.6	1.8	2.6	0.7	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	185	28	73	174	393	12	183	88	114	53	2
Future Volume (vph)	133	185	28	73	174	393	12	183	88	114	53	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1008	2017	902	1188	2375	1062	992	1877		2175	1174	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1008	2017	902	1188	2375	1062	992	1877		2175	1174	
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)	133	185	28	73	174	393	12	183	88	114	53	2
RTOR Reduction (vph)	0	0	17	0	0	256	0	66	0	0	1	0
Lane Group Flow (vph)	133	185	11	73	174	137	12	205	0	114	54	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	79%	79%	79%	52%	52%	52%	82%	82%	82%	61%	61%	61%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	12.8	34.1	34.1	7.8	29.1	29.1	1.5	16.8		7.8	23.1	
Effective Green, g (s)	12.8	34.1	34.1	7.8	29.1	29.1	1.5	16.8		7.8	23.1	
Actuated g/C Ratio	0.15	0.41	0.41	0.09	0.35	0.35	0.02	0.20		0.09	0.28	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	154	823	368	110	827	370	17	377		203	324	
v/s Ratio Prot	c0.13	0.09		0.06	0.07		0.01	c0.11		c0.05	0.05	
v/s Ratio Perm			0.01			c0.13						
v/c Ratio	0.86	0.22	0.03	0.66	0.21	0.37	0.71	0.54		0.56	0.17	
Uniform Delay, d1	34.5	16.1	14.8	36.6	19.1	20.3	40.8	29.9		36.2	22.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.1	0.6	0.2	14.1	0.1	0.6	84.0	1.6		3.5	0.2	
Delay (s)	70.6	16.7	15.0	50.6	19.3	21.0	124.7	31.5		39.7	23.1	
Level of Service	E	B	B	D	B	C	F	C		D	C	
Approach Delay (s)		37.3			23.9			35.5			34.3	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

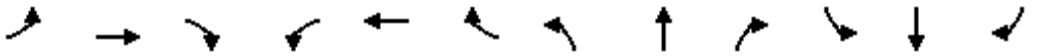
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	148	247	169	645	0	0
Future Volume (veh/h)	148	247	169	645	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1138	1138	1284	1284		
Adj Flow Rate, veh/h	148	247	169	645		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	67	67	48	48		
Cap, veh/h	1400	626	384	2207		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	2219	967	2372	2503		
Grp Volume(v), veh/h	148	247	169	645		
Grp Sat Flow(s),veh/h/ln	1081	967	1186	1220		
Q Serve(g_s), s	1.3	6.0	3.2	1.7		
Cycle Q Clear(g_c), s	1.3	6.0	3.2	1.7		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1400	626	384	2207		
V/C Ratio(X)	0.11	0.39	0.44	0.29		
Avail Cap(c_a), veh/h	1400	626	1440	2207		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	4.1	18.7	0.3		
Incr Delay (d2), s/veh	0.2	1.9	0.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	1.9	1.1	0.5		
LnGrp Delay(d),s/veh	3.4	6.0	19.5	0.3		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	395			814		
Approach Delay, s/veh	5.0			4.3		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		3.7			5.2	8.0		
Green Ext Time (p_c), s		2.0			0.6	1.5		

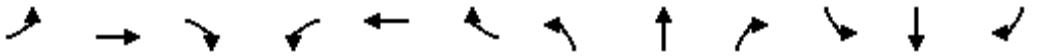
Intersection Summary	
HCM 2010 Ctrl Delay	4.5
HCM 2010 LOS	A

Notes



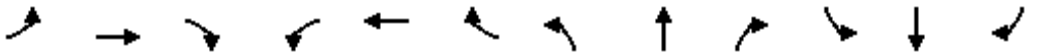
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	51	0	0	205	91	338	177	96	64	0	271
Future Volume (vph)	102	51	0	0	205	91	338	177	96	64	0	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frt	1.00	1.00			0.95		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (prot)	1135	2270			2994		1117	2232		1299		2045
Flt Permitted	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (perm)	1135	2270			2994		1117	2232		1299		2045
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)	102	51	0	0	205	91	338	177	96	64	0	271
RTOR Reduction (vph)	0	0	0	0	49	0	0	24	0	0	0	225
Lane Group Flow (vph)	102	51	0	0	247	0	206	381	0	64	0	46
Heavy Vehicles (%)	59%	59%	59%	15%	15%	15%	47%	47%	47%	39%	39%	39%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	10.6	31.8			17.0		20.5	20.5		13.5		13.5
Effective Green, g (s)	10.6	31.8			17.0		20.5	20.5		13.5		13.5
Actuated g/C Ratio	0.13	0.40			0.21		0.26	0.26		0.17		0.17
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	151	909			641		288	576		220		347
v/s Ratio Prot	c0.09	0.02			c0.08					c0.05		
v/s Ratio Perm							c0.18	0.17				0.02
v/c Ratio	0.68	0.06			0.39		0.72	0.66		0.29		0.13
Uniform Delay, d1	32.8	14.6			26.7		26.8	26.3		28.8		28.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	9.0	0.0			0.3		7.6	2.6		0.5		0.1
Delay (s)	41.8	14.6			27.0		34.4	28.9		29.3		28.1
Level of Service	D	B			C		C	C		C		C
Approach Delay (s)		32.7			27.0			30.8			28.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	17.8
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	112	33	145	678	10	254	9	139	25	0	3
Future Volume (vph)	12	112	33	145	678	10	254	9	139	25	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
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)	12	112	33	145	678	10	254	9	139	25	0	3
RTOR Reduction (vph)	0	0	27	0	1	0	0	0	78	0	3	0
Lane Group Flow (vph)	12	112	6	145	687	0	132	131	61	25	0	0
Heavy Vehicles (%)	16%	16%	16%	11%	11%	11%	25%	25%	25%	57%	57%	57%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	14.9	14.9	10.9	24.8		36.4	36.4	36.4	2.2	2.2	
Effective Green, g (s)	1.0	14.9	14.9	10.9	24.8		36.4	36.4	36.4	2.2	2.2	
Actuated g/C Ratio	0.01	0.18	0.18	0.13	0.30		0.44	0.44	0.44	0.03	0.03	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	18	559	250	213	970		602	605	567	30	51	
v/s Ratio Prot	0.01	0.04		c0.09	c0.21		c0.10	0.09	0.05	c0.02	0.00	
v/s Ratio Perm			0.00									
v/c Ratio	0.67	0.20	0.02	0.68	0.71		0.22	0.22	0.11	0.83	0.00	
Uniform Delay, d1	40.8	28.9	28.0	34.3	25.8		14.4	14.4	13.7	40.2	39.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	54.1	0.1	0.0	6.9	1.9		0.1	0.1	0.0	93.0	0.0	
Delay (s)	94.9	29.0	28.0	41.3	27.8		14.5	14.5	13.7	133.1	39.3	
Level of Service	F	C	C	D	C		B	B	B	F	D	
Approach Delay (s)		33.8			30.1			14.2			123.1	
Approach LOS		C			C			B			F	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	18.5
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	154	76	122	573	206	76	127	171	85	120	138
Future Volume (vph)	92	154	76	122	573	206	76	127	171	85	120	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.91		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1357	2569		1656	3312	1482	1357	2481		1190	2308	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1357	2569		1656	3312	1482	1357	2481		1190	2308	
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)	92	154	76	122	573	206	76	127	171	85	120	138
RTOR Reduction (vph)	0	56	0	0	0	149	0	147	0	0	118	0
Lane Group Flow (vph)	92	174	0	122	573	57	76	151	0	76	149	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	33%	33%	33%	9%	9%	9%	33%	33%	33%	38%	38%	38%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	6.2	14.4		6.4	15.5	15.5	7.7	7.7		8.0	8.0	
Effective Green, g (s)	6.2	14.4		6.4	15.5	15.5	7.7	7.7		8.0	8.0	
Actuated g/C Ratio	0.11	0.26		0.11	0.28	0.28	0.14	0.14		0.14	0.14	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	150	660		189	916	410	186	341		170	329	
v/s Ratio Prot	0.07	0.07		c0.07	c0.17		0.06	c0.06		0.06	c0.06	
v/s Ratio Perm						0.04						
v/c Ratio	0.61	0.26		0.65	0.63	0.14	0.41	0.44		0.45	0.45	
Uniform Delay, d1	23.8	16.6		23.7	17.7	15.2	22.1	22.2		22.0	22.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	0.1		5.6	1.0	0.1	0.5	0.3		0.7	0.4	
Delay (s)	28.9	16.6		29.3	18.7	15.3	22.6	22.5		22.7	22.4	
Level of Service	C	B		C	B	B	C	C		C	C	
Approach Delay (s)		20.1			19.3			22.5			22.4	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	713	30	89	344	30	29	80	579	20	11	17
Future Volume (veh/h)	26	713	30	89	344	30	29	80	579	20	11	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.94	0.99		0.91	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1810	1810	1900	1900	1863	1863	1900	1792	1900
Adj Flow Rate, veh/h	26	713	30	89	344	30	29	80	579	20	11	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	6	6	6
Cap, veh/h	502	1523	64	298	1428	123	229	603	707	251	141	180
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	945	3385	142	685	3174	274	383	1341	1572	416	313	400
Grp Volume(v), veh/h	26	365	378	89	185	189	109	0	579	48	0	0
Grp Sat Flow(s),veh/h/ln	945	1736	1792	685	1719	1729	1724	0	1572	1128	0	0
Q Serve(g_s), s	1.3	11.7	11.7	5.5	1.1	1.1	0.0	0.0	25.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.4	11.7	11.7	17.3	1.1	1.1	2.7	0.0	25.7	1.3	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.16	0.27		1.00	0.42		0.35
Lane Grp Cap(c), veh/h	502	781	806	298	774	778	833	0	707	572	0	0
V/C Ratio(X)	0.05	0.47	0.47	0.30	0.24	0.24	0.13	0.00	0.82	0.08	0.00	0.00
Avail Cap(c_a), veh/h	502	781	806	298	774	778	833	0	707	572	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	15.3	15.3	6.2	2.3	2.3	12.9	0.0	19.2	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.0	2.0	2.6	0.7	0.7	0.3	0.0	10.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.0	6.2	1.2	0.6	0.6	1.5	0.0	13.1	0.6	0.0	0.0
LnGrp Delay(d),s/veh	13.3	17.3	17.3	8.7	3.0	3.0	13.2	0.0	29.4	12.7	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		C	B		
Approach Vol, veh/h		769			463			688			48	
Approach Delay, s/veh		17.2			4.1			26.8			12.7	
Approach LOS		B			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		27.7		13.7		3.3		19.3
Green Ext Time (p_c), s		2.1		5.0		0.3		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	213	1	153	153	24	36	578	859	2	85	41
Future Volume (veh/h)	88	213	1	153	153	24	36	578	859	2	85	41
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1776	1776	1900	1845	1845	1900	1900	1696	1900
Adj Flow Rate, veh/h	88	213	0	153	153	19	36	578	601	2	85	16
Adj No. of Lanes	1	1	0	2	1	0	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	7	7	7	3	3	3	12	12	12
Cap, veh/h	293	509	0	301	309	38	71	812	725	50	993	181
Arrive On Green	0.17	0.27	0.00	0.09	0.20	0.20	0.04	0.46	0.46	0.38	0.38	0.38
Sat Flow, veh/h	1774	1863	0	3281	1547	192	1757	1752	1565	15	2619	478
Grp Volume(v), veh/h	88	213	0	153	0	172	36	578	601	54	0	49
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1640	0	1739	1757	1752	1565	1653	0	1459
Q Serve(g_s), s	3.7	7.9	0.0	3.8	0.0	7.4	1.7	22.4	28.3	0.0	0.0	1.8
Cycle Q Clear(g_c), s	3.7	7.9	0.0	3.8	0.0	7.4	1.7	22.4	28.3	1.7	0.0	1.8
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.04		0.33
Lane Grp Cap(c), veh/h	293	509	0	301	0	348	71	812	725	671	0	553
V/C Ratio(X)	0.30	0.42	0.00	0.51	0.00	0.49	0.51	0.71	0.83	0.08	0.00	0.09
Avail Cap(c_a), veh/h	335	509	0	775	0	513	332	952	850	671	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.1	25.2	0.0	36.6	0.0	30.1	39.8	18.2	19.8	16.9	0.0	16.9
Incr Delay (d2), s/veh	0.2	0.4	0.0	1.3	0.0	0.8	4.1	2.4	6.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	4.1	0.0	1.8	0.0	3.7	0.9	11.3	13.5	0.8	0.0	0.7
LnGrp Delay(d),s/veh	31.3	25.7	0.0	38.0	0.0	30.9	43.9	20.6	26.4	16.9	0.0	16.9
LnGrp LOS	C	C		D		C	D	C	C	B		B
Approach Vol, veh/h		301			325			1215			103	
Approach Delay, s/veh		27.3			34.2			24.2			16.9	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	21.1	7.1	37.7	12.5	27.4		44.9
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 16	* 25	16.0	* 22	* 20	* 20		46.0
Max Q Clear Time (g_c+I1), s	5.7	9.4	3.7	3.8	5.8	9.9		30.3
Green Ext Time (p_c), s	0.1	0.6	0.0	0.3	0.4	0.7		8.9

Intersection Summary	
HCM 2010 Ctrl Delay	25.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1189	84	57	371	67	24	160	107	98	157	63
Future Volume (veh/h)	57	1189	84	57	371	67	24	160	107	98	157	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1827	1827	1900	1900	1863	1900
Adj Flow Rate, veh/h	57	1189	84	57	371	67	24	160	107	98	157	63
Adj No. of Lanes	1	2	0	1	2	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	2	2	2
Cap, veh/h	551	1822	129	323	1909	830	400	710	444	310	504	214
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	930	3314	234	424	3471	1509	1127	2029	1268	676	1439	611
Grp Volume(v), veh/h	57	628	645	57	371	67	24	135	132	156	0	162
Grp Sat Flow(s),veh/h/ln	930	1752	1795	424	1736	1509	1127	1736	1562	1155	0	1571
Q Serve(g_s), s	0.5	0.0	0.0	5.6	4.3	1.7	1.3	4.4	4.8	5.8	0.0	6.0
Cycle Q Clear(g_c), s	4.8	0.0	0.0	5.6	4.3	1.7	7.2	4.4	4.8	10.6	0.0	6.0
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.81	0.63		0.39
Lane Grp Cap(c), veh/h	551	964	987	323	1909	830	400	607	547	478	0	550
V/C Ratio(X)	0.10	0.65	0.65	0.18	0.19	0.08	0.06	0.22	0.24	0.33	0.00	0.29
Avail Cap(c_a), veh/h	551	964	987	323	1909	830	400	607	547	478	0	550
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.2	0.0	0.0	9.4	9.1	8.5	21.5	18.3	18.5	21.0	0.0	18.8
Incr Delay (d2), s/veh	0.4	3.4	3.4	1.2	0.2	0.2	0.3	0.8	1.0	1.8	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.9	0.9	0.8	2.1	0.7	0.4	2.2	2.2	2.9	0.0	2.8
LnGrp Delay(d),s/veh	0.6	3.4	3.4	10.5	9.3	8.7	21.8	19.2	19.5	22.8	0.0	20.2
LnGrp LOS	A	A	A	B	A	A	C	B	B	C		C
Approach Vol, veh/h		1330			495			291			318	
Approach Delay, s/veh		3.3			9.4			19.5			21.5	
Approach LOS		A			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		9.2		6.8		12.6		7.6
Green Ext Time (p_c), s		1.6		12.1		1.7		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	881	102	57	154	43	164	181	99	172	100	8
Future Volume (veh/h)	63	881	102	57	154	43	164	181	99	172	100	8
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1583	1583	1900	1667	1667	1900	1845	1845	1900
Adj Flow Rate, veh/h	63	881	96	57	154	24	164	181	33	188	77	5
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	2	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	20	20	20	14	14	14	3	3	3
Cap, veh/h	79	1113	121	67	941	144	277	467	83	542	264	17
Arrive On Green	0.05	0.35	0.35	0.04	0.36	0.36	0.17	0.17	0.17	0.15	0.15	0.15
Sat Flow, veh/h	1740	3157	344	1508	2615	400	1587	2678	478	3514	1712	111
Grp Volume(v), veh/h	63	484	493	57	87	91	164	105	109	188	0	82
Grp Sat Flow(s),veh/h/ln	1740	1736	1765	1508	1504	1511	1587	1583	1573	1757	0	1823
Q Serve(g_s), s	2.1	14.6	14.6	2.2	2.3	2.4	5.5	3.4	3.6	2.8	0.0	2.3
Cycle Q Clear(g_c), s	2.1	14.6	14.6	2.2	2.3	2.4	5.5	3.4	3.6	2.8	0.0	2.3
Prop In Lane	1.00		0.19	1.00		0.26	1.00		0.30	1.00		0.06
Lane Grp Cap(c), veh/h	79	612	622	67	541	544	277	276	274	542	0	281
V/C Ratio(X)	0.80	0.79	0.79	0.86	0.16	0.17	0.59	0.38	0.40	0.35	0.00	0.29
Avail Cap(c_a), veh/h	538	894	909	596	646	649	627	625	621	1388	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.5	16.9	16.9	27.6	12.7	12.7	22.1	21.3	21.3	22.0	0.0	21.8
Incr Delay (d2), s/veh	6.7	1.7	1.7	19.9	0.1	0.1	2.2	0.9	1.0	0.4	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	7.2	7.3	1.3	1.0	1.0	2.6	1.6	1.6	1.4	0.0	1.2
LnGrp Delay(d),s/veh	34.2	18.6	18.6	47.5	12.8	12.8	24.3	22.2	22.3	22.4	0.0	22.4
LnGrp LOS	C	B	B	D	B	B	C	C	C	C		C
Approach Vol, veh/h		1040			235			378			270	
Approach Delay, s/veh		19.6			21.2			23.2			22.4	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	25.0		14.2	6.6	24.5		13.0
Change Period (Y+Rc), s	3.5	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	25.0		23.0	23.0	30.0		23.0
Max Q Clear Time (g_c+I1), s	4.1	4.4		7.5	4.2	16.6		4.8
Green Ext Time (p_c), s	0.0	1.0		1.6	0.1	3.9		1.0

Intersection Summary		
HCM 2010 Ctrl Delay		20.9
HCM 2010 LOS		C

Notes

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	139	21	93	125	87	29	200	180	73	114	15
Future Vol, veh/h	31	139	21	93	125	87	29	200	180	73	114	15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	8	8	8	16	16	16	39	39	39	31	31	31
Mvmt Flow	31	139	21	93	125	87	29	200	180	73	114	15
Number of Lanes	0	1	0	0	1	0	0	2	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13.3	16.9	15.7	12.8
HCM LOS	B	C	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	22%	0%	16%	30%	56%	0%
Vol Thru, %	78%	36%	73%	41%	44%	79%
Vol Right, %	0%	64%	11%	29%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	129	280	191	305	130	72
LT Vol	29	0	31	93	73	0
Through Vol	100	100	139	125	57	57
RT Vol	0	180	21	87	0	15
Lane Flow Rate	129	280	191	305	130	72
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.266	0.534	0.353	0.544	0.282	0.147
Departure Headway (Hd)	7.436	6.861	6.65	6.419	7.805	7.367
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	529	541	561	460	487
Service Time	5.136	4.561	4.695	4.457	5.552	5.114
HCM Lane V/C Ratio	0.265	0.529	0.353	0.544	0.283	0.148
HCM Control Delay	12.8	17.1	13.3	16.9	13.6	11.4
HCM Lane LOS	B	C	B	C	B	B
HCM 95th-tile Q	1.1	3.1	1.6	3.2	1.1	0.5

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	130	25	96	44	66	2	46	96	94	45	7
Future Vol, veh/h	1	130	25	96	44	66	2	46	96	94	45	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	26	26	26	69	69	69	93	93	93	60	60	60
Mvmt Flow	1	130	25	96	44	66	2	46	96	94	45	7
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	10.6	12	13.1	12.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	1%	0%	69%	0%	68%	0%
Vol Thru, %	32%	99%	0%	31%	0%	32%	0%
Vol Right, %	67%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	144	131	25	140	66	139	7
LT Vol	2	1	0	96	0	94	0
Through Vol	46	130	0	44	0	45	0
RT Vol	96	0	25	0	66	0	7
Lane Flow Rate	144	131	25	140	66	139	7
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.287	0.232	0.039	0.286	0.115	0.282	0.012
Departure Headway (Hd)	7.176	6.384	5.67	7.347	6.292	7.31	6.261
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	563	632	490	571	492	572
Service Time	5.205	4.113	3.399	5.075	4.019	5.04	3.99
HCM Lane V/C Ratio	0.287	0.233	0.04	0.286	0.116	0.283	0.012
HCM Control Delay	13.1	11	8.6	13	9.8	12.9	9.1
HCM Lane LOS	B	B	A	B	A	B	A
HCM 95th-tile Q	1.2	0.9	0.1	1.2	0.4	1.1	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	93	5	43	71	82	3	120	36	95	96	1
Future Volume (vph)	73	93	5	43	71	82	3	120	36	95	96	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	3008	1346	1271	2542	1137	1056	2032		2398	1299	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1504	3008	1346	1271	2542	1137	1056	2032		2398	1299	
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)	73	93	5	43	71	82	3	120	36	95	96	1
RTOR Reduction (vph)	0	0	3	0	0	45	0	30	0	0	1	0
Lane Group Flow (vph)	73	93	2	43	71	37	3	126	0	95	96	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	20%	20%	20%	42%	42%	42%	71%	71%	71%	46%	46%	46%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	5.6	35.8	35.8	5.1	35.3	35.3	1.1	14.2		7.0	20.1	
Effective Green, g (s)	5.6	35.8	35.8	5.1	35.3	35.3	1.1	14.2		7.0	20.1	
Actuated g/C Ratio	0.07	0.45	0.45	0.06	0.45	0.45	0.01	0.18		0.09	0.25	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	106	1361	609	81	1134	507	14	364		212	330	
v/s Ratio Prot	c0.05	0.03		0.03	0.03		0.00	c0.06		c0.04	0.07	
v/s Ratio Perm			0.00			c0.03						
v/c Ratio	0.69	0.07	0.00	0.53	0.06	0.07	0.21	0.35		0.45	0.29	
Uniform Delay, d1	35.9	12.2	11.9	35.8	12.5	12.5	38.6	28.4		34.2	23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	17.0	0.1	0.0	6.5	0.0	0.1	7.6	0.6		1.5	0.5	
Delay (s)	52.9	12.3	11.9	42.4	12.5	12.6	46.1	29.0		35.7	24.3	
Level of Service	D	B	B	D	B	B	D	C		D	C	
Approach Delay (s)		29.6			19.1			29.3			29.9	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

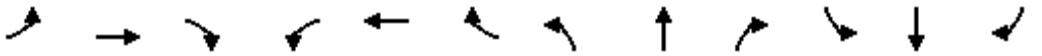
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	154	103	67	190	0	0
Future Volume (veh/h)	154	103	67	190	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.98	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1610	1610	1407	1407		
Adj Flow Rate, veh/h	154	103	67	190		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	18	18	35	35		
Cap, veh/h	1982	868	421	2420		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	3140	1340	2600	2744		
Grp Volume(v), veh/h	154	103	67	190		
Grp Sat Flow(s),veh/h/ln	1530	1340	1300	1337		
Q Serve(g_s), s	0.9	1.4	1.1	0.4		
Cycle Q Clear(g_c), s	0.9	1.4	1.1	0.4		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1982	868	421	2420		
V/C Ratio(X)	0.08	0.12	0.16	0.08		
Avail Cap(c_a), veh/h	1982	868	1579	2420		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.2	3.3	17.8	0.2		
Incr Delay (d2), s/veh	0.1	0.3	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.6	0.4	0.1		
LnGrp Delay(d),s/veh	3.3	3.6	18.0	0.2		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	257			257		
Approach Delay, s/veh	3.4			4.9		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		2.4			3.1	3.4		
Green Ext Time (p_c), s		0.5			0.2	1.0		

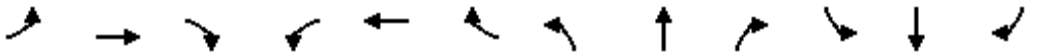
Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

Notes



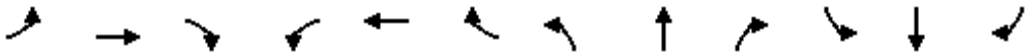
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	93	0	0	77	100	91	260	83	96	0	86
Future Volume (vph)	67	93	0	0	77	100	91	260	83	96	0	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1671	3343			2922		1416	2872		1504		2369
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1671	3343			2922		1416	2872		1504		2369
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)	67	93	0	0	77	100	91	260	83	96	0	86
RTOR Reduction (vph)	0	0	0	0	73	0	0	25	0	0	0	73
Lane Group Flow (vph)	67	93	0	0	104	0	82	327	0	96	0	13
Confl. Peds. (#/hr)	10					10						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	8%	8%	8%	12%	12%	12%	16%	16%	16%	20%	20%	20%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	6.1	28.2			17.9		14.0	14.0		9.8		9.8
Effective Green, g (s)	6.1	28.2			17.9		14.0	14.0		9.8		9.8
Actuated g/C Ratio	0.09	0.43			0.27		0.21	0.21		0.15		0.15
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	155	1437			797		302	612		224		353
v/s Ratio Prot	c0.04	0.03			c0.04					c0.06		
v/s Ratio Perm							0.06	0.11				0.01
v/c Ratio	0.43	0.06			0.13		0.27	0.53		0.43		0.04
Uniform Delay, d1	28.1	11.0			18.0		21.5	22.9		25.4		23.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.7	0.0			0.1		0.4	0.7		1.0		0.0
Delay (s)	28.8	11.0			18.0		21.9	23.6		26.3		23.9
Level of Service	C	B			B		C	C		C		C
Approach Delay (s)		18.5			18.0			23.3			25.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	17.8
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



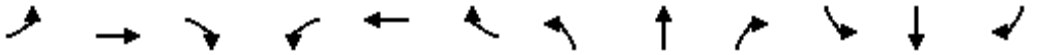
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	629	120	52	423	6	128	1	104	17	1	18
Future Volume (vph)	16	629	120	52	423	6	128	1	104	17	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
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)	16	629	120	52	423	6	128	1	104	17	1	18
RTOR Reduction (vph)	0	0	92	0	1	0	0	0	56	0	19	0
Lane Group Flow (vph)	16	629	28	52	428	0	64	65	48	17	0	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	6%	6%	6%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	18.9	18.9	4.7	22.6		37.6	37.6	37.6	2.1	2.1	
Effective Green, g (s)	1.0	18.9	18.9	4.7	22.6		37.6	37.6	37.6	2.1	2.1	
Actuated g/C Ratio	0.01	0.23	0.23	0.06	0.28		0.46	0.46	0.46	0.03	0.03	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	20	786	347	96	921		710	712	668	41	71	
v/s Ratio Prot	0.01	c0.18		c0.03	c0.13		0.04	c0.04	0.03	c0.01	0.00	
v/s Ratio Perm			0.02									
v/c Ratio	0.80	0.80	0.08	0.54	0.46		0.09	0.09	0.07	0.41	0.01	
Uniform Delay, d1	40.3	29.7	24.6	37.5	24.6		12.5	12.5	12.3	39.2	38.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	105.9	5.5	0.0	3.3	0.1		0.0	0.0	0.0	2.5	0.0	
Delay (s)	146.2	35.2	24.7	40.8	24.7		12.5	12.5	12.4	41.7	38.8	
Level of Service	F	D	C	D	C		B	B	B	D	D	
Approach Delay (s)		35.9			26.5			12.4			40.2	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	550	45	76	447	142	48	105	277	234	77	18
Future Volume (vph)	179	550	45	76	447	142	48	105	277	234	77	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1719	3395		1703	3406	1524	1671	2979		1535	3105	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1719	3395		1703	3406	1524	1671	2979		1535	3105	
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)	179	550	45	76	447	142	48	105	277	234	77	18
RTOR Reduction (vph)	0	6	0	0	0	107	0	243	0	0	6	0
Lane Group Flow (vph)	179	589	0	76	447	35	48	139	0	117	206	0
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	9.4	17.7		5.1	14.3	14.3	7.0	7.0		8.2	8.2	
Effective Green, g (s)	9.4	17.7		5.1	14.3	14.3	7.0	7.0		8.2	8.2	
Actuated g/C Ratio	0.16	0.31		0.09	0.25	0.25	0.12	0.12		0.14	0.14	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	281	1045		151	847	379	203	362		218	442	
v/s Ratio Prot	c0.10	c0.17		0.04	0.13		0.03	c0.05		c0.08	0.07	
v/s Ratio Perm						0.02						
v/c Ratio	0.64	0.56		0.50	0.53	0.09	0.24	0.38		0.54	0.47	
Uniform Delay, d1	22.5	16.7		25.0	18.7	16.6	22.8	23.3		22.9	22.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	0.4		1.0	0.3	0.0	0.2	0.2		1.3	0.3	
Delay (s)	25.9	17.1		26.0	19.0	16.7	23.1	23.5		24.2	22.9	
Level of Service	C	B		C	B	B	C	C		C	C	
Approach Delay (s)		19.1			19.3			23.5			23.4	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	19.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	318	16	171	297	18	17	17	98	12	11	12
Future Volume (veh/h)	16	318	16	171	297	18	17	17	98	12	11	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.96	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1759	1759	1900	1900	1759	1759	1900	1743	1900
Adj Flow Rate, veh/h	16	318	16	171	297	18	17	17	98	12	11	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	10	10	8	8	8	8	8	8	9	9	9
Cap, veh/h	517	1429	72	470	1438	87	385	362	669	256	231	222
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	973	3177	159	978	3195	192	706	804	1487	434	512	494
Grp Volume(v), veh/h	16	164	170	171	155	160	34	0	98	35	0	0
Grp Sat Flow(s),veh/h/ln	973	1641	1695	978	1671	1716	1509	0	1487	1441	0	0
Q Serve(g_s), s	0.8	4.9	4.9	4.8	0.9	0.9	0.0	0.0	3.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.7	4.9	4.9	9.7	0.9	0.9	0.9	0.0	3.1	1.0	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.11	0.50		1.00	0.34		0.34
Lane Grp Cap(c), veh/h	517	738	763	470	752	772	747	0	669	709	0	0
V/C Ratio(X)	0.03	0.22	0.22	0.36	0.21	0.21	0.05	0.00	0.15	0.05	0.00	0.00
Avail Cap(c_a), veh/h	517	738	763	470	752	772	747	0	669	709	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	13.4	13.5	3.5	2.2	2.2	12.3	0.0	13.0	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	2.2	0.6	0.6	0.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.4	1.5	0.5	0.5	0.4	0.0	1.4	0.5	0.0	0.0
LnGrp Delay(d),s/veh	12.9	14.1	14.1	5.7	2.9	2.9	12.5	0.0	13.4	12.5	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		B	B		
Approach Vol, veh/h		350			486			132			35	
Approach Delay, s/veh		14.1			3.9			13.2			12.5	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		5.1		6.9		3.0		11.7
Green Ext Time (p_c), s		0.5		2.1		0.2		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	69	0	343	102	21	37	99	623	1	166	23
Future Volume (veh/h)	9	69	0	343	102	21	37	99	623	1	166	23
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1387	1387	1900	1681	1681	1681	1900	1776	1900
Adj Flow Rate, veh/h	9	69	-30	343	102	12	37	99	302	1	166	6
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	9	9	37	37	37	13	13	13	7	7	7
Cap, veh/h	371	527	0	424	297	35	73	505	666	59	636	23
Arrive On Green	0.22	0.30	0.00	0.17	0.24	0.24	0.05	0.30	0.30	0.20	0.20	0.20
Sat Flow, veh/h	1660	1743	0	2562	1216	143	1601	1681	1428	4	3247	116
Grp Volume(v), veh/h	9	39	0	343	0	114	37	99	302	91	0	82
Grp Sat Flow(s),veh/h/ln	1660	1743	0	1281	0	1359	1601	1681	1428	1772	0	1595
Q Serve(g_s), s	0.3	1.0	0.0	8.1	0.0	4.3	1.4	2.7	9.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	0.3	1.0	0.0	8.1	0.0	4.3	1.4	2.7	9.0	2.7	0.0	2.7
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.01		0.07
Lane Grp Cap(c), veh/h	371	527	0	424	0	332	73	505	666	405	0	313
V/C Ratio(X)	0.02	0.07	0.00	0.81	0.00	0.34	0.51	0.20	0.45	0.22	0.00	0.26
Avail Cap(c_a), veh/h	371	1025	0	504	0	762	156	978	1067	820	0	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	15.6	0.0	25.2	0.0	19.5	29.2	16.3	11.3	21.3	0.0	21.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	8.2	0.0	0.5	4.0	0.3	0.7	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.0	3.3	0.0	1.7	0.7	1.3	3.6	1.3	0.0	1.2
LnGrp Delay(d),s/veh	19.0	15.6	0.0	33.4	0.0	20.0	33.2	16.5	12.0	21.4	0.0	21.5
LnGrp LOS	B	B		C		B	C	B	B	C		C
Approach Vol, veh/h		48			457			438			173	
Approach Delay, s/veh		16.3			30.0			14.8			21.5	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	19.5	6.5	17.9	15.1	23.1		24.4
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	2.3	6.3	3.4	4.7	10.1	3.0		4.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.6	0.3	0.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	22.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	365	51	66	413	55	23	89	51	43	76	45
Future Volume (veh/h)	31	365	51	66	413	55	23	89	51	43	76	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1900	1900	1776	1900
Adj Flow Rate, veh/h	31	365	51	66	413	55	23	89	51	43	76	45
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	7	7	7
Cap, veh/h	448	1618	224	590	968	818	463	734	390	293	486	294
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	868	2942	408	910	1759	1487	1192	2098	1115	645	1388	840
Grp Volume(v), veh/h	31	206	210	66	413	55	23	70	70	86	0	78
Grp Sat Flow(s),veh/h/ln	868	1671	1678	910	1759	1487	1192	1671	1541	1422	0	1451
Q Serve(g_s), s	0.8	0.0	0.0	2.8	11.0	1.4	1.1	2.3	2.5	0.8	0.0	2.9
Cycle Q Clear(g_c), s	11.8	0.0	0.0	2.8	11.0	1.4	4.0	2.3	2.5	3.3	0.0	2.9
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.72	0.50		0.58
Lane Grp Cap(c), veh/h	448	919	923	590	968	818	463	585	539	565	0	508
V/C Ratio(X)	0.07	0.22	0.23	0.11	0.43	0.07	0.05	0.12	0.13	0.15	0.00	0.15
Avail Cap(c_a), veh/h	448	919	923	590	968	818	463	585	539	565	0	508
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	0.0	0.0	8.7	10.6	8.4	19.2	17.6	17.7	17.9	0.0	17.9
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.4	1.4	0.2	0.2	0.4	0.5	0.6	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.8	5.6	0.6	0.4	1.1	1.1	1.4	0.0	1.3
LnGrp Delay(d),s/veh	1.8	0.6	0.6	9.1	12.0	8.6	19.4	18.0	18.2	18.4	0.0	18.5
LnGrp LOS	A	A	A	A	B	A	B	B	B	B		B
Approach Vol, veh/h		447			534			163			164	
Approach Delay, s/veh		0.7			11.3			18.3			18.5	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		6.0		13.8		5.3		13.0
Green Ext Time (p_c), s		0.8		2.9		0.9		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	568	89	154	236	44	210	113	194	66	84	23
Future Volume (veh/h)	10	568	89	154	236	44	210	113	194	66	84	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1667	1667	1329	1329	1900	1195	1195	1195	1696	1696	1696
Adj Flow Rate, veh/h	10	568	89	154	236	44	210	113	194	66	84	23
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	14	14	14	43	43	43	59	59	59	12	12	12
Cap, veh/h	72	763	349	115	875	160	260	273	231	229	240	203
Arrive On Green	0.25	0.25	0.25	0.09	0.41	0.41	0.23	0.23	0.23	0.14	0.14	0.14
Sat Flow, veh/h	18	3076	1405	1265	2126	389	1138	1195	1012	1616	1696	1433
Grp Volume(v), veh/h	310	268	89	154	138	142	210	113	194	66	84	23
Grp Sat Flow(s),veh/h/ln	1654	1441	1405	1265	1262	1253	1138	1195	1012	1616	1696	1433
Q Serve(g_s), s	0.6	9.5	2.8	5.0	4.0	4.1	9.6	4.4	10.1	2.0	2.5	0.8
Cycle Q Clear(g_c), s	9.5	9.5	2.8	5.0	4.0	4.1	9.6	4.4	10.1	2.0	2.5	0.8
Prop In Lane	0.03		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	478	357	349	115	520	516	260	273	231	229	240	203
V/C Ratio(X)	0.65	0.75	0.26	1.34	0.27	0.27	0.81	0.41	0.84	0.29	0.35	0.11
Avail Cap(c_a), veh/h	755	603	588	115	734	729	476	500	423	676	709	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	19.1	16.6	25.0	10.7	10.7	20.1	18.1	20.3	21.1	21.3	20.6
Incr Delay (d2), s/veh	0.6	1.2	0.1	199.6	0.3	0.3	6.4	1.1	8.5	0.7	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	3.8	1.1	8.1	1.4	1.5	3.4	1.5	3.3	0.9	1.2	0.3
LnGrp Delay(d),s/veh	19.7	20.3	16.7	224.6	11.0	11.0	26.4	19.2	28.8	21.8	22.2	20.8
LnGrp LOS	B	C	B	F	B	B	C	B	C	C	C	C
Approach Vol, veh/h		667			434			517			173	
Approach Delay, s/veh		19.5			86.8			25.7			21.9	
Approach LOS		B			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		26.6		16.6	9.0	17.6		11.8
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		6.1		11.6	7.0	11.5		4.5
Green Ext Time (p_c), s		1.8		0.7	0.0	1.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	37.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	37	15	125	50	108	0	306	93	50	212	16
Future Volume (veh/h)	23	37	15	125	50	108	0	306	93	50	212	16
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1557	1900	1900	1258	1900	0	1124	1900	1131	1131	1900
Adj Flow Rate, veh/h	23	37	15	125	50	108	0	306	93	50	212	16
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	22	22	22	51	51	51	0	69	69	68	68	68
Cap, veh/h	179	243	84	217	82	125	0	396	118	116	939	70
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.00	0.24	0.24	0.11	0.46	0.46
Sat Flow, veh/h	290	775	266	383	261	398	0	1679	484	1077	2027	152
Grp Volume(v), veh/h	75	0	0	283	0	0	0	200	199	50	112	116
Grp Sat Flow(s),veh/h/ln	1331	0	0	1042	0	0	0	1068	1039	1077	1074	1104
Q Serve(g_s), s	0.0	0.0	0.0	11.2	0.0	0.0	0.0	9.3	9.7	2.3	3.3	3.4
Cycle Q Clear(g_c), s	1.9	0.0	0.0	13.7	0.0	0.0	0.0	9.3	9.7	2.3	3.3	3.4
Prop In Lane	0.31		0.20	0.44		0.38	0.00		0.47	1.00		0.14
Lane Grp Cap(c), veh/h	505	0	0	423	0	0	0	261	253	116	498	511
V/C Ratio(X)	0.15	0.00	0.00	0.67	0.00	0.00	0.00	0.77	0.79	0.43	0.22	0.23
Avail Cap(c_a), veh/h	968	0	0	785	0	0	0	496	483	220	839	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	17.2	0.0	0.0	0.0	18.9	19.0	22.5	8.7	8.7
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.8	2.1	0.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	4.0	0.0	0.0	0.0	2.8	2.9	0.7	1.0	1.0
LnGrp Delay(d),s/veh	13.4	0.0	0.0	17.9	0.0	0.0	0.0	20.7	21.1	23.4	8.7	8.7
LnGrp LOS	B			B				C	C	C	A	A
Approach Vol, veh/h		75			283			399			278	
Approach Delay, s/veh		13.4			17.9			20.9			11.4	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		30.9		22.9	11.8	19.1		22.9
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		5.4		15.7	4.3	11.7		3.9
Green Ext Time (p_c), s		1.0		1.3	0.0	1.5		0.3

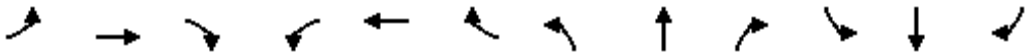
Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	166	106	93	129	250	0	1	248	79	7	50
Future Vol, veh/h	30	166	106	93	129	250	0	1	248	79	7	50
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	82	82	82	88	88	88	97	97	97	83	83	83
Mvmt Flow	30	166	106	93	129	250	0	1	248	79	7	50
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	17.2	20.1	23.2	14.5
HCM LOS	C	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	15%	0%	42%	0%	92%	0%
Vol Thru, %	0%	85%	0%	58%	0%	8%	0%
Vol Right, %	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	196	106	222	250	86	50
LT Vol	0	30	0	93	0	79	0
Through Vol	1	166	0	129	0	7	0
RT Vol	248	0	106	0	250	0	50
Lane Flow Rate	249	196	106	222	250	86	50
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.591	0.477	0.235	0.536	0.539	0.235	0.12
Departure Headway (Hd)	8.548	8.767	7.969	8.692	7.76	9.844	8.65
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	423	412	452	415	465	366	415
Service Time	6.583	6.506	5.708	6.43	5.497	7.588	6.393
HCM Lane V/C Ratio	0.589	0.476	0.235	0.535	0.538	0.235	0.12
HCM Control Delay	23.2	19.3	13.2	21.1	19.2	15.6	12.6
HCM Lane LOS	C	C	B	C	C	C	B
HCM 95th-tile Q	3.7	2.5	0.9	3.1	3.1	0.9	0.4



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	202	28	85	203	396	12	198	105	117	65	16
Future Volume (vph)	142	202	28	85	203	396	12	198	105	117	65	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1008	2017	902	1188	2375	1062	992	1870		2175	1145	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1008	2017	902	1188	2375	1062	992	1870		2175	1145	
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)	142	202	28	85	203	396	12	198	105	117	65	16
RTOR Reduction (vph)	0	0	16	0	0	253	0	80	0	0	9	0
Lane Group Flow (vph)	142	202	12	85	203	143	12	223	0	117	72	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	79%	79%	79%	52%	52%	52%	82%	82%	82%	61%	61%	61%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	12.8	34.1	34.1	8.2	29.5	29.5	1.5	17.4		8.0	23.9	
Effective Green, g (s)	12.8	35.1	35.1	8.2	30.5	30.5	1.5	17.4		8.0	23.9	
Actuated g/C Ratio	0.15	0.41	0.41	0.10	0.36	0.36	0.02	0.21		0.09	0.28	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	835	373	115	855	382	17	384		205	323	
v/s Ratio Prot	c0.14	0.10		0.07	0.09		0.01	c0.12		c0.05	0.06	
v/s Ratio Perm			0.01			c0.13						
v/c Ratio	0.93	0.24	0.03	0.74	0.24	0.37	0.71	0.58		0.57	0.22	
Uniform Delay, d1	35.5	16.1	14.7	37.2	19.0	20.0	41.4	30.4		36.7	23.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	53.3	0.7	0.2	21.8	0.1	0.6	84.0	2.2		3.8	0.4	
Delay (s)	88.8	16.8	14.9	59.0	19.1	20.7	125.3	32.6		40.5	23.6	
Level of Service	F	B	B	E	B	C	F	C		D	C	
Approach Delay (s)		44.2			25.0			36.1			33.6	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

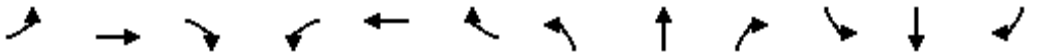
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	149	283	169	688	0	0
Future Volume (veh/h)	149	283	169	688	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1138	1138	1284	1284		
Adj Flow Rate, veh/h	149	283	169	688		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	67	67	48	48		
Cap, veh/h	1431	640	418	2242		
Arrive On Green	0.66	0.66	0.18	0.92		
Sat Flow, veh/h	2219	967	2372	2503		
Grp Volume(v), veh/h	149	283	169	688		
Grp Sat Flow(s),veh/h/ln	1081	967	1186	1220		
Q Serve(g_s), s	1.2	6.9	3.1	1.6		
Cycle Q Clear(g_c), s	1.2	6.9	3.1	1.6		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1431	640	418	2242		
V/C Ratio(X)	0.10	0.44	0.40	0.31		
Avail Cap(c_a), veh/h	1431	640	1474	2242		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.0	4.0	18.1	0.2		
Incr Delay (d2), s/veh	0.1	2.2	0.6	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	2.2	1.0	0.5		
LnGrp Delay(d),s/veh	3.2	6.2	18.7	0.3		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	432			857		
Approach Delay, s/veh	5.2			3.9		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		3.6			5.1	8.9		
Green Ext Time (p_c), s		2.2			0.6	1.6		

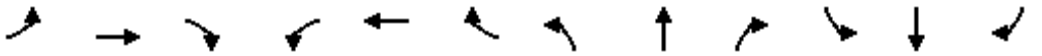
Intersection Summary	
HCM 2010 Ctrl Delay	4.3
HCM 2010 LOS	A

Notes



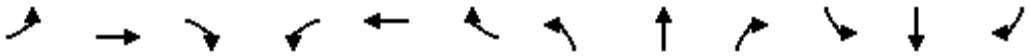
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	51	0	0	205	91	380	177	96	64	0	272
Future Volume (vph)	103	51	0	0	205	91	380	177	96	64	0	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frt	1.00	1.00			0.95		1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (prot)	1135	2270			2994		1117	2233		1299		2045
Flt Permitted	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (perm)	1135	2270			2994		1117	2233		1299		2045
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)	103	51	0	0	205	91	380	177	96	64	0	272
RTOR Reduction (vph)	0	0	0	0	49	0	0	21	0	0	0	226
Lane Group Flow (vph)	103	51	0	0	247	0	220	412	0	64	0	46
Heavy Vehicles (%)	59%	59%	59%	15%	15%	15%	47%	47%	47%	39%	39%	39%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	10.6	31.8			17.0		21.6	21.6		13.4		13.4
Effective Green, g (s)	10.8	32.5			17.7		22.3	22.3		13.6		13.6
Actuated g/C Ratio	0.13	0.40			0.22		0.28	0.28		0.17		0.17
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	152	917			659		309	619		219		345
v/s Ratio Prot	c0.09	0.02			c0.08					c0.05		
v/s Ratio Perm							c0.20	0.18				0.02
v/c Ratio	0.68	0.06			0.37		0.71	0.67		0.29		0.13
Uniform Delay, d1	33.1	14.6			26.6		26.2	25.7		29.2		28.4
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	9.0	0.0			0.3		7.0	2.4		0.5		0.1
Delay (s)	42.2	14.6			26.9		33.2	28.2		29.7		28.5
Level of Service	D	B			C		C	C		C		C
Approach Delay (s)		33.1			26.9			29.9			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	112	33	163	678	10	254	9	155	25	0	3
Future Volume (vph)	12	112	33	163	678	10	254	9	155	25	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
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)	12	112	33	163	678	10	254	9	155	25	0	3
RTOR Reduction (vph)	0	0	27	0	1	0	0	0	86	0	3	0
Lane Group Flow (vph)	12	112	6	163	687	0	132	131	69	25	0	0
Heavy Vehicles (%)	16%	16%	16%	11%	11%	11%	25%	25%	25%	57%	57%	57%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	14.8	14.8	11.5	25.3		36.4	36.4	36.4	2.2	2.2	
Effective Green, g (s)	1.2	16.3	16.3	11.7	26.8		37.0	37.0	37.0	2.4	2.4	
Actuated g/C Ratio	0.01	0.20	0.20	0.14	0.32		0.44	0.44	0.44	0.03	0.03	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	22	608	272	228	1042		608	612	573	33	56	
v/s Ratio Prot	0.01	0.04		c0.10	c0.21		c0.10	0.09	0.05	c0.02	0.00	
v/s Ratio Perm			0.00									
v/c Ratio	0.55	0.18	0.02	0.71	0.66		0.22	0.21	0.12	0.76	0.00	
Uniform Delay, d1	40.8	28.0	27.1	34.3	24.4		14.3	14.3	13.6	40.2	39.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.0	0.1	0.0	8.5	1.2		0.1	0.1	0.0	59.5	0.0	
Delay (s)	54.8	28.1	27.1	42.8	25.5		14.3	14.3	13.7	99.8	39.3	
Level of Service	D	C	C	D	C		B	B	B	F	D	
Approach Delay (s)		29.9			28.8			14.1			93.3	
Approach LOS		C			C			B			F	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	154	76	122	573	206	76	128	171	85	121	156
Future Volume (vph)	108	154	76	122	573	206	76	128	171	85	121	156
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.91		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1357	2569		1656	3312	1482	1357	2481		1190	2297	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1357	2569		1656	3312	1482	1357	2481		1190	2297	
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)	108	154	76	122	573	206	76	128	171	85	121	156
RTOR Reduction (vph)	0	54	0	0	0	149	0	144	0	0	131	0
Lane Group Flow (vph)	108	176	0	122	573	57	76	155	0	76	155	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	33%	33%	33%	9%	9%	9%	33%	33%	33%	38%	38%	38%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	7.0	15.1		6.5	15.5	15.5	7.8	7.8		8.1	8.1	
Effective Green, g (s)	7.2	16.2		6.7	15.7	15.7	8.9	8.9		9.2	9.2	
Actuated g/C Ratio	0.13	0.28		0.12	0.28	0.28	0.16	0.16		0.16	0.16	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	171	730		194	912	408	211	387		192	370	
v/s Ratio Prot	c0.08	0.07		0.07	c0.17		0.06	c0.06		0.06	c0.07	
v/s Ratio Perm						0.04						
v/c Ratio	0.63	0.24		0.63	0.63	0.14	0.36	0.40		0.40	0.42	
Uniform Delay, d1	23.6	15.7		24.0	18.1	15.6	21.5	21.6		21.4	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	0.1		4.5	1.0	0.1	0.4	0.2		0.5	0.3	
Delay (s)	29.1	15.7		28.5	19.1	15.6	21.9	21.9		21.9	21.8	
Level of Service	C	B		C	B	B	C	C		C	C	
Approach Delay (s)		20.0			19.6			21.9			21.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	730	30	89	368	32	29	80	579	21	11	17
Future Volume (veh/h)	26	730	30	89	368	32	29	80	579	21	11	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.94	0.99		0.91	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1810	1810	1900	1900	1863	1863	1900	1792	1900
Adj Flow Rate, veh/h	26	730	30	89	368	32	29	80	579	21	11	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	6	6	6
Cap, veh/h	492	1525	63	292	1429	123	229	603	707	255	137	174
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	924	3389	139	674	3175	274	383	1341	1572	424	304	387
Grp Volume(v), veh/h	26	374	386	89	198	202	109	0	579	49	0	0
Grp Sat Flow(s),veh/h/ln	924	1736	1793	674	1719	1729	1724	0	1572	1115	0	0
Q Serve(g_s), s	1.3	12.1	12.1	5.8	1.2	1.2	0.0	0.0	25.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	12.1	12.1	17.9	1.2	1.2	2.7	0.0	25.7	2.7	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.16	0.27		1.00	0.43		0.35
Lane Grp Cap(c), veh/h	492	781	807	292	774	778	833	0	707	566	0	0
V/C Ratio(X)	0.05	0.48	0.48	0.31	0.26	0.26	0.13	0.00	0.82	0.09	0.00	0.00
Avail Cap(c_a), veh/h	492	781	807	292	774	778	833	0	707	566	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.2	15.4	15.4	6.4	2.3	2.3	12.9	0.0	19.2	12.5	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.1	2.0	2.7	0.8	0.8	0.3	0.0	10.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.2	6.4	1.3	0.6	0.6	1.5	0.0	13.1	0.7	0.0	0.0
LnGrp Delay(d),s/veh	13.4	17.5	17.5	9.1	3.1	3.1	13.2	0.0	29.4	12.8	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		C	B		
Approach Vol, veh/h		786			489			688			49	
Approach Delay, s/veh		17.3			4.2			26.8			12.8	
Approach LOS		B			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		27.7		14.1		4.7		19.9
Green Ext Time (p_c), s		2.1		5.1		0.3		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	213	1	388	182	24	36	578	1022	2	85	41
Future Volume (veh/h)	88	213	1	388	182	24	36	578	1022	2	85	41
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1776	1776	1900	1845	1845	1845	1900	1696	1900
Adj Flow Rate, veh/h	88	213	-29	388	182	15	36	578	701	2	85	24
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	7	7	7	3	3	3	12	12	12
Cap, veh/h	348	553	0	482	400	33	75	651	783	55	626	169
Arrive On Green	0.20	0.30	0.00	0.15	0.25	0.25	0.04	0.35	0.35	0.26	0.26	0.26
Sat Flow, veh/h	1774	1863	0	3281	1617	133	1757	1845	1565	10	2427	653
Grp Volume(v), veh/h	88	184	0	388	0	197	36	578	701	59	0	52
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1640	0	1750	1757	1845	1565	1663	0	1427
Q Serve(g_s), s	3.0	5.5	0.0	8.2	0.0	6.8	1.4	21.1	25.2	0.0	0.0	2.0
Cycle Q Clear(g_c), s	3.0	5.5	0.0	8.2	0.0	6.8	1.4	21.1	25.2	1.9	0.0	2.0
Prop In Lane	1.00		0.00	1.00		0.08	1.00		1.00	0.03		0.46
Lane Grp Cap(c), veh/h	348	553	0	482	0	433	75	651	783	481	0	368
V/C Ratio(X)	0.25	0.33	0.00	0.80	0.00	0.45	0.48	0.89	0.90	0.12	0.00	0.14
Avail Cap(c_a), veh/h	348	961	0	566	0	861	150	941	1029	665	0	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	19.6	0.0	29.4	0.0	22.8	33.4	21.8	16.2	20.3	0.0	20.4
Incr Delay (d2), s/veh	0.1	0.3	0.0	7.2	0.0	0.6	3.5	8.7	9.2	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.9	0.0	4.1	0.0	3.3	0.8	12.2	14.4	0.9	0.0	0.8
LnGrp Delay(d),s/veh	24.4	19.8	0.0	36.6	0.0	23.3	36.8	30.5	25.3	20.4	0.0	20.4
LnGrp LOS	C	B		D		C	D	C	C	C		C
Approach Vol, veh/h		272			585			1315			111	
Approach Delay, s/veh		21.3			32.1			27.9			20.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	21.9	6.8	24.0	15.2	25.4		30.8
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	5.0	8.8	3.4	4.0	10.2	7.5		23.1
Green Ext Time (p_c), s	0.1	0.9	0.0	0.4	0.3	0.8		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	27.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1205	87	63	393	67	27	171	115	98	165	63
Future Volume (veh/h)	57	1205	87	63	393	67	27	171	115	98	165	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1827	1827	1900	1900	1863	1900
Adj Flow Rate, veh/h	57	1205	87	63	393	67	27	171	115	98	165	63
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	2	2	2
Cap, veh/h	479	1819	131	319	1005	830	395	708	446	300	513	208
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	912	3308	238	416	1827	1509	1119	2021	1275	649	1467	594
Grp Volume(v), veh/h	57	637	655	63	393	67	27	145	141	159	0	167
Grp Sat Flow(s),veh/h/ln	912	1752	1794	416	1827	1509	1119	1736	1561	1134	0	1575
Q Serve(g_s), s	1.3	0.0	0.0	6.4	9.9	1.7	1.4	4.7	5.2	6.0	0.0	6.2
Cycle Q Clear(g_c), s	11.1	0.0	0.0	6.4	9.9	1.7	7.6	4.7	5.2	11.1	0.0	6.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.82	0.62		0.38
Lane Grp Cap(c), veh/h	479	964	987	319	1005	830	395	607	546	470	0	551
V/C Ratio(X)	0.12	0.66	0.66	0.20	0.39	0.08	0.07	0.24	0.26	0.34	0.00	0.30
Avail Cap(c_a), veh/h	479	964	987	319	1005	830	395	607	546	470	0	551
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.2	0.0	0.0	9.5	10.3	8.5	21.7	18.4	18.6	21.2	0.0	18.9
Incr Delay (d2), s/veh	0.5	3.6	3.5	1.4	1.1	0.2	0.3	0.9	1.1	1.9	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.0	1.0	0.9	5.2	0.7	0.5	2.4	2.4	3.0	0.0	2.9
LnGrp Delay(d),s/veh	1.8	3.6	3.5	10.9	11.5	8.7	22.0	19.4	19.7	23.1	0.0	20.3
LnGrp LOS	A	A	A	B	B	A	C	B	B	C		C
Approach Vol, veh/h		1349			523			313			326	
Approach Delay, s/veh		3.5			11.0			19.8			21.7	
Approach LOS		A			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		9.6		13.1		13.1		11.9
Green Ext Time (p_c), s		1.7		11.7		1.7		4.1

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1036	110	70	331	43	255	203	114	172	117	8
Future Volume (veh/h)	63	1036	110	70	331	43	255	203	114	172	117	8
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1583	1583	1900	1667	1667	1667	1845	1845	1845
Adj Flow Rate, veh/h	63	1036	110	70	331	43	255	203	114	172	117	8
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	20	20	20	14	14	14	3	3	3
Cap, veh/h	104	1082	529	83	1225	158	337	354	297	267	281	234
Arrive On Green	0.34	0.34	0.34	0.06	0.46	0.46	0.21	0.21	0.21	0.15	0.15	0.15
Sat Flow, veh/h	131	3164	1546	1508	2680	345	1587	1667	1399	1757	1845	1540
Grp Volume(v), veh/h	576	523	110	70	185	189	255	203	114	172	117	8
Grp Sat Flow(s),veh/h/ln	1715	1579	1546	1508	1504	1522	1587	1667	1399	1757	1845	1540
Q Serve(g_s), s	15.8	21.9	3.4	3.1	5.1	5.2	10.1	7.3	4.7	6.2	3.9	0.3
Cycle Q Clear(g_c), s	22.3	21.9	3.4	3.1	5.1	5.2	10.1	7.3	4.7	6.2	3.9	0.3
Prop In Lane	0.11		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	646	540	529	83	687	695	337	354	297	267	281	234
V/C Ratio(X)	0.89	0.97	0.21	0.84	0.27	0.27	0.76	0.57	0.38	0.64	0.42	0.03
Avail Cap(c_a), veh/h	646	540	529	112	716	724	543	570	479	601	631	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	21.7	15.7	31.5	11.3	11.3	24.8	23.7	22.7	26.8	25.8	24.3
Incr Delay (d2), s/veh	14.2	30.4	0.1	29.7	0.2	0.2	3.8	1.6	0.9	2.6	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	14.0	1.4	2.0	2.1	2.2	4.7	3.5	1.9	3.2	2.0	0.1
LnGrp Delay(d),s/veh	35.9	52.1	15.7	61.1	11.5	11.5	28.6	25.3	23.6	29.4	26.8	24.3
LnGrp LOS	D	D	B	E	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1209			444			572			297	
Approach Delay, s/veh		41.1			19.3			26.4			28.2	
Approach LOS		D			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		34.7		18.3	7.7	27.0		14.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		7.2		12.1	5.1	24.3		8.2
Green Ext Time (p_c), s		2.4		1.4	0.0	0.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	115	24	86	116	126	0	285	144	68	168	15
Future Volume (veh/h)	31	115	24	86	116	126	0	285	144	68	168	15
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1759	1900	1900	1638	1900	0	1367	1900	1450	1450	1900
Adj Flow Rate, veh/h	31	115	24	86	116	126	0	285	144	68	168	15
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	16	16	16	0	39	39	31	31	31
Cap, veh/h	131	404	76	167	192	174	0	384	188	176	1182	104
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.23	0.23	0.13	0.46	0.46
Sat Flow, veh/h	172	1241	232	267	588	533	0	1745	822	1381	2556	226
Grp Volume(v), veh/h	170	0	0	328	0	0	0	219	210	68	90	93
Grp Sat Flow(s),veh/h/ln	1646	0	0	1388	0	0	0	1299	1200	1381	1378	1404
Q Serve(g_s), s	0.0	0.0	0.0	7.0	0.0	0.0	0.0	8.9	9.3	2.6	2.1	2.2
Cycle Q Clear(g_c), s	4.2	0.0	0.0	11.6	0.0	0.0	0.0	8.9	9.3	2.6	2.1	2.2
Prop In Lane	0.18		0.14	0.26		0.38	0.00		0.68	1.00		0.16
Lane Grp Cap(c), veh/h	611	0	0	532	0	0	0	298	275	176	637	649
V/C Ratio(X)	0.28	0.00	0.00	0.62	0.00	0.00	0.00	0.74	0.76	0.39	0.14	0.14
Avail Cap(c_a), veh/h	1084	0	0	948	0	0	0	573	529	268	1021	1040
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	0.0	0.0	16.6	0.0	0.0	0.0	20.3	20.4	22.7	8.8	8.8
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.0	1.3	1.7	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	4.5	0.0	0.0	0.0	3.3	3.2	1.0	0.8	0.8
LnGrp Delay(d),s/veh	14.4	0.0	0.0	17.1	0.0	0.0	0.0	21.6	22.1	23.2	8.8	8.8
LnGrp LOS	B			B				C	C	C	A	A
Approach Vol, veh/h		170			328			429			251	
Approach Delay, s/veh		14.4			17.1			21.8			12.7	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		32.2		24.5	13.2	19.0		24.5
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		4.2		13.6	4.6	11.3		6.2
Green Ext Time (p_c), s		0.7		1.5	0.0	1.6		0.7

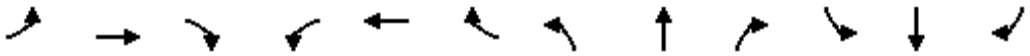
Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	153	43	112	62	73	2	46	117	103	45	16
Future Vol, veh/h	25	153	43	112	62	73	2	46	117	103	45	16
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	26	26	26	69	69	69	93	93	93	60	60	60
Mvmt Flow	25	153	43	112	62	73	2	46	117	103	45	16
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	12.2	13.6	14.7	13.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	1%	14%	0%	64%	0%	70%	0%
Vol Thru, %	28%	86%	0%	36%	0%	30%	0%
Vol Right, %	71%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	178	43	174	73	148	16
LT Vol	2	25	0	112	0	103	0
Through Vol	46	153	0	62	0	45	0
RT Vol	117	0	43	0	73	0	16
Lane Flow Rate	165	178	43	174	73	148	16
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.348	0.334	0.071	0.37	0.134	0.32	0.03
Departure Headway (Hd)	7.595	6.758	5.975	7.663	6.625	7.781	6.717
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	530	598	470	540	462	532
Service Time	5.65	4.511	3.727	5.416	4.377	5.536	4.471
HCM Lane V/C Ratio	0.348	0.336	0.072	0.37	0.135	0.32	0.03
HCM Control Delay	14.7	12.9	9.2	14.9	10.4	14.2	9.7
HCM Lane LOS	B	B	A	B	B	B	A
HCM 95th-tile Q	1.5	1.5	0.2	1.7	0.5	1.4	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	93	5	51	91	85	3	133	36	95	106	11
Future Volume (vph)	82	93	5	51	91	85	3	133	36	95	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	3008	1346	1271	2542	1137	1056	2038		2398	1283	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1504	3008	1346	1271	2542	1137	1056	2038		2398	1283	
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)	82	93	5	51	91	85	3	133	36	95	106	11
RTOR Reduction (vph)	0	0	3	0	0	50	0	29	0	0	4	0
Lane Group Flow (vph)	82	93	2	51	91	35	3	140	0	95	113	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	20%	20%	20%	42%	42%	42%	71%	71%	71%	46%	46%	46%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.5	35.0	35.0	5.3	32.8	32.8	1.1	14.5		6.9	20.3	
Effective Green, g (s)	7.5	35.0	35.0	5.3	32.8	32.8	1.1	14.5		6.9	20.3	
Actuated g/C Ratio	0.10	0.44	0.44	0.07	0.42	0.42	0.01	0.18		0.09	0.26	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	1337	598	85	1059	473	14	375		210	330	
v/s Ratio Prot	c0.05	0.03		0.04	c0.04		0.00	0.07		c0.04	c0.09	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.57	0.07	0.00	0.60	0.09	0.07	0.21	0.37		0.45	0.34	
Uniform Delay, d1	34.1	12.5	12.2	35.7	13.9	13.8	38.4	28.1		34.1	23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	0.1	0.0	10.9	0.0	0.1	7.6	0.6		1.5	0.6	
Delay (s)	39.5	12.6	12.2	46.6	13.9	13.9	45.9	28.8		35.7	24.4	
Level of Service	D	B	B	D	B	B	D	C		D	C	
Approach Delay (s)		24.9			21.2			29.1			29.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		

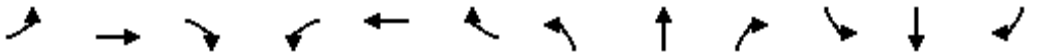
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	155	140	67	220	0	0
Future Volume (veh/h)	155	140	67	220	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.98	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1610	1610	1407	1407		
Adj Flow Rate, veh/h	155	140	67	220		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	18	18	35	35		
Cap, veh/h	1982	868	421	2420		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	3140	1340	2600	2744		
Grp Volume(v), veh/h	155	140	67	220		
Grp Sat Flow(s),veh/h/ln	1530	1340	1300	1337		
Q Serve(g_s), s	0.9	2.0	1.1	0.4		
Cycle Q Clear(g_c), s	0.9	2.0	1.1	0.4		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1982	868	421	2420		
V/C Ratio(X)	0.08	0.16	0.16	0.09		
Avail Cap(c_a), veh/h	1982	868	1579	2420		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.2	3.4	17.8	0.2		
Incr Delay (d2), s/veh	0.1	0.4	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.8	0.4	0.2		
LnGrp Delay(d),s/veh	3.3	3.8	18.0	0.2		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	295			287		
Approach Delay, s/veh	3.5			4.4		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		2.4			3.1	4.0		
Green Ext Time (p_c), s		0.6			0.2	1.1		

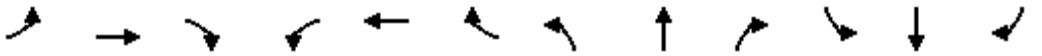
Intersection Summary	
HCM 2010 Ctrl Delay	4.0
HCM 2010 LOS	A

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	93	0	0	77	100	120	260	83	96	0	87
Future Volume (vph)	68	93	0	0	77	100	120	260	83	96	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1671	3343			2922		1416	2872		1504		2369
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1671	3343			2922		1416	2872		1504		2369
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)	68	93	0	0	77	100	120	260	83	96	0	87
RTOR Reduction (vph)	0	0	0	0	73	0	0	24	0	0	0	74
Lane Group Flow (vph)	68	93	0	0	104	0	108	331	0	96	0	13
Confl. Peds. (#/hr)	10					10						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	8%	8%	8%	12%	12%	12%	16%	16%	16%	20%	20%	20%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	6.1	28.2			17.9		14.1	14.1		9.8		9.8
Effective Green, g (s)	6.1	28.2			17.9		14.1	14.1		9.8		9.8
Actuated g/C Ratio	0.09	0.43			0.27		0.21	0.21		0.15		0.15
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	155	1434			796		303	616		224		353
v/s Ratio Prot	c0.04	0.03			c0.04					c0.06		
v/s Ratio Perm							0.08	0.12				0.01
v/c Ratio	0.44	0.06			0.13		0.36	0.54		0.43		0.04
Uniform Delay, d1	28.2	11.0			18.0		21.9	22.9		25.4		23.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.7	0.0			0.1		0.5	0.7		1.0		0.0
Delay (s)	28.9	11.0			18.1		22.5	23.6		26.4		23.9
Level of Service	C	B			B		C	C		C		C
Approach Delay (s)		18.6			18.1			23.3			25.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	17.8
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	629	120	65	423	6	128	1	121	17	1	18
Future Volume (vph)	16	629	120	65	423	6	128	1	121	17	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
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)	16	629	120	65	423	6	128	1	121	17	1	18
RTOR Reduction (vph)	0	0	92	0	1	0	0	0	68	0	19	0
Lane Group Flow (vph)	16	629	28	65	428	0	64	65	53	17	0	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	6%	6%	6%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	19.8	19.8	6.9	25.7		37.2	37.2	37.2	2.1	2.1	
Effective Green, g (s)	1.0	19.8	19.8	6.9	25.7		37.2	37.2	37.2	2.1	2.1	
Actuated g/C Ratio	0.01	0.23	0.23	0.08	0.30		0.44	0.44	0.44	0.02	0.02	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	20	798	352	136	1014		680	682	640	40	69	
v/s Ratio Prot	0.01	c0.18		c0.04	0.13		0.04	c0.04	0.04	c0.01	0.00	
v/s Ratio Perm			0.02									
v/c Ratio	0.80	0.79	0.08	0.48	0.42		0.09	0.10	0.08	0.42	0.01	
Uniform Delay, d1	41.7	30.4	25.2	37.1	23.5		13.8	13.8	13.7	40.6	40.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	105.9	4.8	0.0	1.0	0.1		0.0	0.0	0.0	2.6	0.0	
Delay (s)	147.5	35.2	25.3	38.0	23.6		13.8	13.8	13.8	43.2	40.2	
Level of Service	F	D	C	D	C		B	B	B	D	D	
Approach Delay (s)		36.0			25.5			13.8			41.6	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	84.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	550	45	76	447	142	48	106	277	234	78	31
Future Volume (vph)	196	550	45	76	447	142	48	106	277	234	78	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.89		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1719	3395		1703	3406	1524	1671	2980		1535	3085	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1719	3395		1703	3406	1524	1671	2980		1535	3085	
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)	196	550	45	76	447	142	48	106	277	234	78	31
RTOR Reduction (vph)	0	6	0	0	0	107	0	243	0	0	11	0
Lane Group Flow (vph)	196	589	0	76	447	35	48	140	0	117	215	0
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	10.0	18.4		5.1	14.4	14.4	7.1	7.1		8.3	8.3	
Effective Green, g (s)	10.0	18.4		5.1	14.4	14.4	7.1	7.1		8.3	8.3	
Actuated g/C Ratio	0.17	0.32		0.09	0.25	0.25	0.12	0.12		0.14	0.14	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	294	1069		148	839	375	203	362		218	438	
v/s Ratio Prot	c0.11	c0.17		0.04	0.13		0.03	c0.05		c0.08	0.07	
v/s Ratio Perm						0.02						
v/c Ratio	0.67	0.55		0.51	0.53	0.09	0.24	0.39		0.54	0.49	
Uniform Delay, d1	22.6	16.6		25.5	19.1	17.0	23.2	23.6		23.3	23.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.4		1.3	0.3	0.0	0.2	0.2		1.3	0.3	
Delay (s)	27.0	16.9		26.7	19.4	17.0	23.4	23.9		24.5	23.4	
Level of Service	C	B		C	B	B	C	C		C	C	
Approach Delay (s)		19.4			19.7			23.8			23.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	19.5
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	315	16	171	294	15	17	17	98	9	11	12
Future Volume (veh/h)	16	315	16	171	294	15	17	17	98	9	11	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.96	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1759	1759	1900	1900	1759	1759	1900	1743	1900
Adj Flow Rate, veh/h	16	315	16	171	294	15	17	17	98	9	11	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	10	10	8	8	8	8	8	8	9	9	9
Cap, veh/h	519	1429	72	472	1453	74	385	362	669	215	256	248
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	978	3175	161	981	3230	164	706	804	1487	349	570	551
Grp Volume(v), veh/h	16	162	169	171	151	158	34	0	98	32	0	0
Grp Sat Flow(s),veh/h/ln	978	1641	1695	981	1671	1723	1509	0	1487	1470	0	0
Q Serve(g_s), s	0.7	4.8	4.9	4.7	0.9	0.9	0.0	0.0	3.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	4.8	4.9	9.6	0.9	0.9	0.9	0.0	3.1	0.9	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.10	0.50		1.00	0.28		0.37
Lane Grp Cap(c), veh/h	519	738	763	472	752	775	747	0	669	719	0	0
V/C Ratio(X)	0.03	0.22	0.22	0.36	0.20	0.20	0.05	0.00	0.15	0.04	0.00	0.00
Avail Cap(c_a), veh/h	519	738	763	472	752	775	747	0	669	719	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	13.4	13.4	3.5	2.2	2.2	12.3	0.0	13.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	2.2	0.6	0.6	0.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.4	1.5	0.5	0.5	0.4	0.0	1.4	0.4	0.0	0.0
LnGrp Delay(d),s/veh	12.9	14.1	14.1	5.7	2.8	2.8	12.5	0.0	13.4	12.5	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		B	B		
Approach Vol, veh/h		347			480			132			32	
Approach Delay, s/veh		14.1			3.8			13.2			12.5	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		5.1		6.9		2.9		11.6
Green Ext Time (p_c), s		0.5		2.1		0.1		2.7

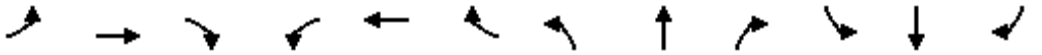
Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	69	0	313	102	21	37	99	597	1	166	23
Future Volume (veh/h)	9	69	0	313	102	21	37	99	597	1	166	23
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1387	1387	1900	1681	1681	1681	1900	1776	1900
Adj Flow Rate, veh/h	9	69	-30	313	102	12	37	99	276	1	166	6
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	9	9	37	37	37	13	13	13	7	7	7
Cap, veh/h	371	546	0	396	297	35	73	506	650	59	636	23
Arrive On Green	0.22	0.31	0.00	0.15	0.24	0.24	0.05	0.30	0.30	0.20	0.20	0.20
Sat Flow, veh/h	1660	1743	0	2562	1216	143	1601	1681	1428	4	3247	116
Grp Volume(v), veh/h	9	39	0	313	0	114	37	99	276	91	0	82
Grp Sat Flow(s),veh/h/ln	1660	1743	0	1281	0	1359	1601	1681	1428	1772	0	1595
Q Serve(g_s), s	0.3	1.0	0.0	7.4	0.0	4.3	1.4	2.7	8.2	0.0	0.0	2.7
Cycle Q Clear(g_c), s	0.3	1.0	0.0	7.4	0.0	4.3	1.4	2.7	8.2	2.7	0.0	2.7
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.01		0.07
Lane Grp Cap(c), veh/h	371	546	0	396	0	332	73	506	650	406	0	313
V/C Ratio(X)	0.02	0.07	0.00	0.79	0.00	0.34	0.51	0.20	0.42	0.22	0.00	0.26
Avail Cap(c_a), veh/h	372	1025	0	504	0	763	156	978	1052	820	0	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	15.1	0.0	25.5	0.0	19.5	29.2	16.3	11.5	21.3	0.0	21.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	6.5	0.0	0.5	4.0	0.3	0.6	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.0	3.0	0.0	1.7	0.7	1.3	3.3	1.3	0.0	1.2
LnGrp Delay(d),s/veh	19.0	15.1	0.0	32.0	0.0	20.0	33.2	16.5	12.1	21.4	0.0	21.5
LnGrp LOS	B	B		C		B	C	B	B	C		C
Approach Vol, veh/h		48			427			412			173	
Approach Delay, s/veh		15.9			28.8			15.1			21.4	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	19.5	6.5	17.9	14.4	23.8		24.4
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	2.3	6.3	3.4	4.7	9.4	3.0		4.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.6	0.3	0.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.7
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	365	46	53	413	55	17	70	36	43	59	45
Future Volume (veh/h)	31	365	46	53	413	55	17	70	36	43	59	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1900	1900	1776	1900
Adj Flow Rate, veh/h	31	365	46	53	413	55	17	70	36	43	59	45
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	7	7	7
Cap, veh/h	448	1641	205	593	968	818	474	764	365	325	419	327
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	868	2984	373	914	1759	1487	1210	2183	1043	730	1196	935
Grp Volume(v), veh/h	31	203	208	53	413	55	17	52	54	78	0	69
Grp Sat Flow(s),veh/h/ln	868	1671	1685	914	1759	1487	1210	1671	1555	1428	0	1432
Q Serve(g_s), s	0.8	0.0	0.0	2.2	11.0	1.4	0.8	1.7	1.9	1.0	0.0	2.6
Cycle Q Clear(g_c), s	11.8	0.0	0.0	2.2	11.0	1.4	3.4	1.7	1.9	2.8	0.0	2.6
Prop In Lane	1.00		0.22	1.00		1.00	1.00		0.67	0.55		0.65
Lane Grp Cap(c), veh/h	448	919	927	593	968	818	474	585	544	570	0	501
V/C Ratio(X)	0.07	0.22	0.22	0.09	0.43	0.07	0.04	0.09	0.10	0.14	0.00	0.14
Avail Cap(c_a), veh/h	448	919	927	593	968	818	474	585	544	570	0	501
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	0.0	0.0	8.6	10.6	8.4	18.9	17.4	17.5	17.7	0.0	17.8
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.3	1.4	0.2	0.1	0.3	0.4	0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.6	5.6	0.6	0.3	0.8	0.8	1.3	0.0	1.1
LnGrp Delay(d),s/veh	1.8	0.6	0.6	8.9	12.0	8.6	19.1	17.7	17.9	18.2	0.0	18.3
LnGrp LOS	A	A	A	A	B	A	B	B	B	B		B
Approach Vol, veh/h		442			521			123			147	
Approach Delay, s/veh		0.6			11.3			18.0			18.3	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		5.4		13.8		4.8		13.0
Green Ext Time (p_c), s		0.6		2.8		0.8		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	568	63	128	236	44	180	73	164	66	49	23
Future Volume (veh/h)	10	568	63	128	236	44	180	73	164	66	49	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1667	1667	1329	1329	1900	1195	1195	1195	1696	1696	1696
Adj Flow Rate, veh/h	10	568	63	128	236	44	180	73	164	66	49	23
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	14	14	14	43	43	43	59	59	59	12	12	12
Cap, veh/h	76	779	356	122	906	166	231	243	205	226	237	200
Arrive On Green	0.25	0.25	0.25	0.10	0.43	0.43	0.20	0.20	0.20	0.14	0.14	0.14
Sat Flow, veh/h	18	3076	1405	1265	2126	389	1138	1195	1011	1616	1696	1434
Grp Volume(v), veh/h	310	268	63	128	138	142	180	73	164	66	49	23
Grp Sat Flow(s),veh/h/ln	1654	1441	1405	1265	1262	1253	1138	1195	1011	1616	1696	1434
Q Serve(g_s), s	0.3	8.9	1.8	5.0	3.7	3.8	7.8	2.7	8.0	1.9	1.3	0.7
Cycle Q Clear(g_c), s	8.9	8.9	1.8	5.0	3.7	3.8	7.8	2.7	8.0	1.9	1.3	0.7
Prop In Lane	0.03		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	490	365	356	122	538	534	231	243	205	226	237	200
V/C Ratio(X)	0.63	0.73	0.18	1.05	0.26	0.26	0.78	0.30	0.80	0.29	0.21	0.11
Avail Cap(c_a), veh/h	798	637	622	122	777	771	503	529	447	715	750	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	17.8	15.2	23.5	9.6	9.6	19.6	17.6	19.7	20.1	19.8	19.6
Incr Delay (d2), s/veh	0.5	1.1	0.1	96.2	0.3	0.3	6.1	0.7	7.5	0.7	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	3.6	0.7	5.0	1.3	1.3	2.8	0.9	2.6	0.9	0.7	0.3
LnGrp Delay(d),s/veh	18.3	18.9	15.3	120.0	9.9	9.9	25.7	18.3	27.2	20.8	20.2	19.8
LnGrp LOS	B	B	B	F	A	A	C	B	C	C	C	B
Approach Vol, veh/h		641			408			417			138	
Approach Delay, s/veh		18.3			44.4			25.0			20.4	
Approach LOS		B			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		26.2		14.6	9.0	17.2		11.3
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		5.8		9.8	7.0	10.9		3.9
Green Ext Time (p_c), s		1.8		0.5	0.0	1.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	37	15	125	50	108	0	206	93	50	124	16
Future Volume (veh/h)	23	37	15	125	50	108	0	206	93	50	124	16
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1557	1900	1900	1258	1900	0	1124	1900	1131	1131	1900
Adj Flow Rate, veh/h	23	37	15	125	50	108	0	206	93	50	124	16
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	22	22	22	51	51	51	0	69	69	68	68	68
Cap, veh/h	185	249	85	223	84	126	0	315	137	118	856	109
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.22	0.22	0.11	0.45	0.45
Sat Flow, veh/h	290	789	270	379	266	398	0	1506	631	1077	1919	244
Grp Volume(v), veh/h	75	0	0	283	0	0	0	150	149	50	69	71
Grp Sat Flow(s),veh/h/ln	1348	0	0	1043	0	0	0	1068	1013	1077	1074	1088
Q Serve(g_s), s	0.0	0.0	0.0	10.2	0.0	0.0	0.0	6.4	6.8	2.2	1.9	2.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	12.7	0.0	0.0	0.0	6.4	6.8	2.2	1.9	2.0
Prop In Lane	0.31		0.20	0.44		0.38	0.00		0.62	1.00		0.22
Lane Grp Cap(c), veh/h	519	0	0	432	0	0	0	232	220	118	479	485
V/C Ratio(X)	0.14	0.00	0.00	0.65	0.00	0.00	0.00	0.65	0.68	0.42	0.14	0.15
Avail Cap(c_a), veh/h	1037	0	0	837	0	0	0	529	502	235	894	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	16.0	0.0	0.0	0.0	18.0	18.1	21.0	8.3	8.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.1	1.4	0.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.7	0.0	0.0	0.0	1.9	2.0	0.7	0.6	0.6
LnGrp Delay(d),s/veh	12.5	0.0	0.0	16.6	0.0	0.0	0.0	19.1	19.5	21.9	8.3	8.3
LnGrp LOS	B			B				B	B	C	A	A
Approach Vol, veh/h		75			283			299			190	
Approach Delay, s/veh		12.5			16.6			19.3			11.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		28.5		22.0	11.5	17.0		22.0
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		4.0		14.7	4.2	8.8		3.8
Green Ext Time (p_c), s		0.6		1.3	0.0	1.1		0.3

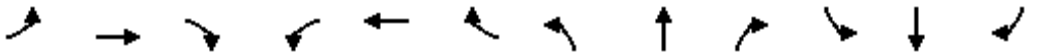
Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	128	130	57	98	247	0	12	207	77	7	73
Future Vol, veh/h	59	128	130	57	98	247	0	12	207	77	7	73
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	82	82	82	88	88	88	97	97	97	83	83	83
Mvmt Flow	59	128	130	57	98	247	0	12	207	77	7	73
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	16.2	17.7	20.2	14
HCM LOS	C	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	32%	0%	37%	0%	92%	0%
Vol Thru, %	5%	68%	0%	63%	0%	8%	0%
Vol Right, %	95%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	187	130	155	247	84	73
LT Vol	0	59	0	57	0	77	0
Through Vol	12	128	0	98	0	7	0
RT Vol	207	0	130	0	247	0	73
Lane Flow Rate	219	187	130	155	247	84	73
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.515	0.447	0.279	0.369	0.526	0.223	0.169
Departure Headway (Hd)	8.472	8.6	7.721	8.575	7.671	9.538	8.349
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	427	419	467	420	472	377	431
Service Time	6.505	6.333	5.453	6.307	5.402	7.276	6.086
HCM Lane V/C Ratio	0.513	0.446	0.278	0.369	0.523	0.223	0.169
HCM Control Delay	20.2	18.1	13.4	16.3	18.6	15	12.8
HCM Lane LOS	C	C	B	C	C	B	B
HCM 95th-tile Q	2.9	2.2	1.1	1.7	3	0.8	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	233	28	105	238	403	12	204	136	125	66	30
Future Volume (vph)	155	233	28	105	238	403	12	204	136	125	66	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1008	2017	902	1188	2375	1062	992	1852		2175	1125	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1008	2017	902	1188	2375	1062	992	1852		2175	1125	
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)	155	233	28	105	238	403	12	204	136	125	66	30
RTOR Reduction (vph)	0	0	18	0	0	263	0	107	0	0	15	0
Lane Group Flow (vph)	155	233	10	105	238	140	12	233	0	125	81	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	79%	79%	79%	52%	52%	52%	82%	82%	82%	61%	61%	61%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	12.2	32.5	32.5	11.0	31.3	31.3	1.6	18.9		10.4	27.7	
Effective Green, g (s)	12.2	32.5	32.5	11.0	31.3	31.3	1.6	18.9		10.4	27.7	
Actuated g/C Ratio	0.14	0.36	0.36	0.12	0.35	0.35	0.02	0.21		0.12	0.31	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	729	326	145	827	370	17	389		251	347	
v/s Ratio Prot	c0.15	0.12		0.09	0.10		0.01	c0.13		c0.06	0.07	
v/s Ratio Perm			0.01			c0.13						
v/c Ratio	1.14	0.32	0.03	0.72	0.29	0.38	0.71	0.60		0.50	0.23	
Uniform Delay, d1	38.8	20.7	18.5	37.9	21.2	22.0	43.9	32.0		37.3	23.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	119.6	1.2	0.2	16.4	0.2	0.7	84.0	2.5		1.6	0.3	
Delay (s)	158.4	21.8	18.7	54.3	21.4	22.6	127.8	34.5		38.8	23.5	
Level of Service	F	C	B	D	C	C	F	C		D	C	
Approach Delay (s)		72.5			26.7			37.7			32.1	
Approach LOS		E			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

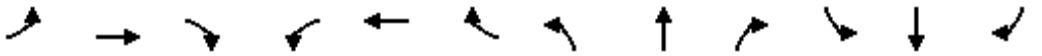
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	178	324	169	750	0	0
Future Volume (veh/h)	178	324	169	750	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1138	1138	1284	1284		
Adj Flow Rate, veh/h	178	324	169	750		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	67	67	48	48		
Cap, veh/h	1400	626	384	2207		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	2219	967	2372	2503		
Grp Volume(v), veh/h	178	324	169	750		
Grp Sat Flow(s),veh/h/ln	1081	967	1186	1220		
Q Serve(g_s), s	1.6	8.8	3.2	2.1		
Cycle Q Clear(g_c), s	1.6	8.8	3.2	2.1		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1400	626	384	2207		
V/C Ratio(X)	0.13	0.52	0.44	0.34		
Avail Cap(c_a), veh/h	1400	626	1440	2207		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	4.6	18.7	0.3		
Incr Delay (d2), s/veh	0.2	3.0	0.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	2.8	1.1	0.6		
LnGrp Delay(d),s/veh	3.5	7.6	19.5	0.4		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	502			919		
Approach Delay, s/veh	6.2			3.9		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		4.1			5.2	10.8		
Green Ext Time (p_c), s		2.3			0.6	1.9		

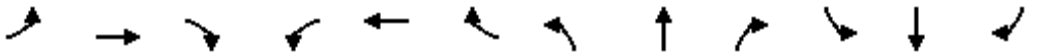
Intersection Summary	
HCM 2010 Ctrl Delay	4.7
HCM 2010 LOS	A

Notes



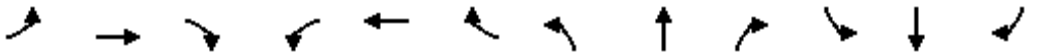
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	51	0	0	205	91	416	177	96	64	0	298
Future Volume (vph)	132	51	0	0	205	91	416	177	96	64	0	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frt	1.00	1.00			0.95		1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (prot)	1135	2270			2994		1117	2233		1299		2045
Flt Permitted	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (perm)	1135	2270			2994		1117	2233		1299		2045
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)	132	51	0	0	205	91	416	177	96	64	0	298
RTOR Reduction (vph)	0	0	0	0	50	0	0	19	0	0	0	253
Lane Group Flow (vph)	132	51	0	0	246	0	229	441	0	64	0	45
Heavy Vehicles (%)	59%	59%	59%	15%	15%	15%	47%	47%	47%	39%	39%	39%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	15.0	36.2			17.0		23.2	23.2		13.0		13.0
Effective Green, g (s)	15.0	36.2			17.0		23.2	23.2		13.0		13.0
Actuated g/C Ratio	0.17	0.42			0.20		0.27	0.27		0.15		0.15
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	197	955			591		301	602		196		309
v/s Ratio Prot	c0.12	0.02			c0.08					c0.05		
v/s Ratio Perm							c0.20	0.20				0.02
v/c Ratio	0.67	0.05			0.42		0.76	0.73		0.33		0.15
Uniform Delay, d1	33.2	14.8			30.2		28.9	28.6		32.6		31.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	6.8	0.0			0.3		10.3	4.3		0.7		0.2
Delay (s)	40.0	14.8			30.5		39.2	32.9		33.3		31.8
Level of Service	D	B			C		D	C		C		C
Approach Delay (s)		33.0			30.5			35.0			32.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	86.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	112	41	181	678	10	264	9	175	25	0	3
Future Volume (vph)	12	112	41	181	678	10	264	9	175	25	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1556	3112	1392	1626	3245		1372	1380	1292	1150	1954	
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)	12	112	41	181	678	10	264	9	175	25	0	3
RTOR Reduction (vph)	0	0	34	0	1	0	0	0	99	0	3	0
Lane Group Flow (vph)	12	112	7	181	687	0	137	136	76	25	0	0
Heavy Vehicles (%)	16%	16%	16%	11%	11%	11%	25%	25%	25%	57%	57%	57%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	14.8	14.8	12.0	25.8		36.4	36.4	36.4	2.2	2.2	
Effective Green, g (s)	1.0	14.8	14.8	12.0	25.8		36.4	36.4	36.4	2.2	2.2	
Actuated g/C Ratio	0.01	0.18	0.18	0.14	0.31		0.43	0.43	0.43	0.03	0.03	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	18	548	245	232	997		595	598	560	30	51	
v/s Ratio Prot	0.01	0.04		c0.11	c0.21		c0.10	0.10	0.06	c0.02	0.00	
v/s Ratio Perm			0.01									
v/c Ratio	0.67	0.20	0.03	0.78	0.69		0.23	0.23	0.14	0.83	0.00	
Uniform Delay, d1	41.3	29.5	28.6	34.7	25.5		14.9	14.9	14.3	40.7	39.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	54.1	0.1	0.0	14.4	1.6		0.1	0.1	0.0	93.0	0.0	
Delay (s)	95.4	29.6	28.6	49.1	27.1		15.0	15.0	14.3	133.6	39.8	
Level of Service	F	C	C	D	C		B	B	B	F	D	
Approach Delay (s)		34.1			31.7			14.7			123.6	
Approach LOS		C			C			B			F	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	18.5
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	154	76	122	573	206	76	157	171	85	147	174
Future Volume (vph)	128	154	76	122	573	206	76	157	171	85	147	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.92		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1357	2569		1656	3312	1482	1357	2502		1190	2304	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1357	2569		1656	3312	1482	1357	2502		1190	2304	
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)	128	154	76	122	573	206	76	157	171	85	147	174
RTOR Reduction (vph)	0	55	0	0	0	151	0	147	0	0	148	0
Lane Group Flow (vph)	128	175	0	122	573	55	76	181	0	76	182	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	33%	33%	33%	9%	9%	9%	33%	33%	33%	38%	38%	38%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	8.0	16.4		6.7	16.0	16.0	8.5	8.5		8.9	8.9	
Effective Green, g (s)	8.0	16.4		6.7	16.0	16.0	8.5	8.5		8.9	8.9	
Actuated g/C Ratio	0.13	0.27		0.11	0.27	0.27	0.14	0.14		0.15	0.15	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	180	702		184	883	395	192	354		176	341	
v/s Ratio Prot	c0.09	0.07		0.07	c0.17		0.06	c0.07		0.06	c0.08	
v/s Ratio Perm						0.04						
v/c Ratio	0.71	0.25		0.66	0.65	0.14	0.40	0.51		0.43	0.53	
Uniform Delay, d1	24.9	17.0		25.6	19.5	16.8	23.4	23.8		23.2	23.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.5	0.1		6.8	1.2	0.1	0.5	0.5		0.6	0.8	
Delay (s)	35.4	17.1		32.3	20.8	16.8	23.9	24.4		23.9	24.4	
Level of Service	D	B		C	C	B	C	C		C	C	
Approach Delay (s)		23.6			21.4			24.3			24.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	728	30	89	365	29	29	80	579	19	11	17
Future Volume (veh/h)	26	728	30	89	365	29	29	80	579	19	11	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.94	0.99		0.91	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1810	1810	1900	1900	1863	1863	1900	1792	1900
Adj Flow Rate, veh/h	26	728	30	89	365	29	29	80	579	19	11	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	6	6	6
Cap, veh/h	494	1525	63	292	1441	114	229	603	707	246	145	186
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	929	3389	140	676	3202	252	383	1341	1572	405	323	412
Grp Volume(v), veh/h	26	373	385	89	195	199	109	0	579	47	0	0
Grp Sat Flow(s),veh/h/ln	929	1736	1793	676	1719	1736	1724	0	1572	1140	0	0
Q Serve(g_s), s	1.3	12.0	12.0	5.7	1.2	1.2	0.0	0.0	25.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	12.0	12.0	17.8	1.2	1.2	2.7	0.0	25.7	1.3	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.15	0.27		1.00	0.40		0.36
Lane Grp Cap(c), veh/h	494	781	807	292	774	781	833	0	707	576	0	0
V/C Ratio(X)	0.05	0.48	0.48	0.30	0.25	0.26	0.13	0.00	0.82	0.08	0.00	0.00
Avail Cap(c_a), veh/h	494	781	807	292	774	781	833	0	707	576	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	15.4	15.4	6.4	2.3	2.3	12.9	0.0	19.2	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.1	2.0	2.7	0.8	0.8	0.3	0.0	10.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.1	6.3	1.3	0.6	0.6	1.5	0.0	13.1	0.6	0.0	0.0
LnGrp Delay(d),s/veh	13.3	17.5	17.4	9.0	3.0	3.0	13.2	0.0	29.4	12.7	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		C	B		
Approach Vol, veh/h		784			483			688			47	
Approach Delay, s/veh		17.3			4.1			26.8			12.7	
Approach LOS		B			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		27.7		14.0		3.3		19.8
Green Ext Time (p_c), s		2.1		5.1		0.3		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	213	1	356	182	24	36	578	1003	2	85	41
Future Volume (veh/h)	88	213	1	356	182	24	36	578	1003	2	85	41
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1776	1776	1900	1845	1845	1845	1900	1696	1900
Adj Flow Rate, veh/h	88	213	-29	356	182	15	36	578	682	2	85	24
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	7	7	7	3	3	3	12	12	12
Cap, veh/h	348	569	0	453	400	33	75	652	770	55	628	169
Arrive On Green	0.20	0.31	0.00	0.14	0.25	0.25	0.04	0.35	0.35	0.26	0.26	0.26
Sat Flow, veh/h	1774	1863	0	3281	1617	133	1757	1845	1565	10	2427	653
Grp Volume(v), veh/h	88	184	0	356	0	197	36	578	682	59	0	52
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1640	0	1750	1757	1845	1565	1664	0	1427
Q Serve(g_s), s	3.0	5.4	0.0	7.5	0.0	6.8	1.4	21.1	25.2	0.0	0.0	2.0
Cycle Q Clear(g_c), s	3.0	5.4	0.0	7.5	0.0	6.8	1.4	21.1	25.2	1.9	0.0	2.0
Prop In Lane	1.00		0.00	1.00		0.08	1.00		1.00	0.03		0.46
Lane Grp Cap(c), veh/h	348	569	0	453	0	433	75	652	770	482	0	369
V/C Ratio(X)	0.25	0.32	0.00	0.79	0.00	0.45	0.48	0.89	0.89	0.12	0.00	0.14
Avail Cap(c_a), veh/h	348	960	0	565	0	861	150	941	1015	665	0	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	19.1	0.0	29.7	0.0	22.8	33.4	21.7	16.4	20.3	0.0	20.4
Incr Delay (d2), s/veh	0.1	0.2	0.0	5.8	0.0	0.6	3.5	8.6	8.5	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.8	0.0	3.7	0.0	3.4	0.8	12.2	13.8	0.9	0.0	0.8
LnGrp Delay(d),s/veh	24.4	19.3	0.0	35.5	0.0	23.3	36.8	30.4	24.9	20.4	0.0	20.4
LnGrp LOS	C	B		D		C	D	C	C	C		C
Approach Vol, veh/h		272			553			1296			111	
Approach Delay, s/veh		21.0			31.2			27.7			20.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	21.9	6.8	24.1	14.6	26.0		30.8
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	5.0	8.8	3.4	4.0	9.5	7.4		23.1
Green Ext Time (p_c), s	0.1	0.9	0.0	0.4	0.4	0.8		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1205	83	53	393	67	21	150	99	98	153	63
Future Volume (veh/h)	57	1205	83	53	393	67	21	150	99	98	153	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1827	1827	1900	1900	1863	1900
Adj Flow Rate, veh/h	57	1205	83	53	393	67	21	150	99	98	153	63
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	2	2	2
Cap, veh/h	479	1826	126	320	1005	830	403	715	440	318	501	218
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	912	3320	228	418	1827	1509	1131	2043	1257	698	1430	622
Grp Volume(v), veh/h	57	635	653	53	393	67	21	126	123	155	0	159
Grp Sat Flow(s),veh/h/ln	912	1752	1796	418	1827	1509	1131	1736	1564	1181	0	1569
Q Serve(g_s), s	1.3	0.0	0.0	5.2	9.9	1.7	1.1	4.1	4.4	5.7	0.0	5.9
Cycle Q Clear(g_c), s	11.1	0.0	0.0	5.2	9.9	1.7	7.0	4.1	4.4	10.1	0.0	5.9
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.80	0.63		0.40
Lane Grp Cap(c), veh/h	479	964	988	320	1005	830	403	607	547	487	0	549
V/C Ratio(X)	0.12	0.66	0.66	0.17	0.39	0.08	0.05	0.21	0.23	0.32	0.00	0.29
Avail Cap(c_a), veh/h	479	964	988	320	1005	830	403	607	547	487	0	549
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.2	0.0	0.0	9.3	10.3	8.5	21.3	18.2	18.3	20.7	0.0	18.8
Incr Delay (d2), s/veh	0.5	3.5	3.5	1.1	1.1	0.2	0.2	0.8	1.0	1.7	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	1.0	0.7	5.2	0.7	0.4	2.1	2.1	2.9	0.0	2.7
LnGrp Delay(d),s/veh	1.8	3.5	3.5	10.4	11.5	8.7	21.6	19.0	19.3	22.5	0.0	20.1
LnGrp LOS	A	A	A	B	B	A	C	B	B	C		C
Approach Vol, veh/h		1345			513			270			314	
Approach Delay, s/veh		3.4			11.0			19.3			21.3	
Approach LOS		A			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		9.0		13.1		12.1		11.9
Green Ext Time (p_c), s		1.4		11.6		1.7		3.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1036	91	51	331	43	223	160	82	172	91	8
Future Volume (veh/h)	63	1036	91	51	331	43	223	160	82	172	91	8
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1583	1583	1900	1667	1667	1667	1845	1845	1845
Adj Flow Rate, veh/h	63	1036	91	51	331	43	223	160	82	172	91	8
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	20	20	20	14	14	14	3	3	3
Cap, veh/h	109	1139	556	58	1237	159	311	326	274	269	282	236
Arrive On Green	0.36	0.36	0.36	0.04	0.46	0.46	0.20	0.20	0.20	0.15	0.15	0.15
Sat Flow, veh/h	128	3169	1546	1508	2680	345	1587	1667	1397	1757	1845	1540
Grp Volume(v), veh/h	576	523	91	51	185	189	223	160	82	172	91	8
Grp Sat Flow(s),veh/h/ln	1717	1579	1546	1508	1504	1522	1587	1667	1397	1757	1845	1540
Q Serve(g_s), s	13.6	20.0	2.5	2.1	4.8	4.8	8.3	5.4	3.2	5.8	2.8	0.3
Cycle Q Clear(g_c), s	20.4	20.0	2.5	2.1	4.8	4.8	8.3	5.4	3.2	5.8	2.8	0.3
Prop In Lane	0.11		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	681	568	556	58	694	702	311	326	274	269	282	236
V/C Ratio(X)	0.85	0.92	0.16	0.87	0.27	0.27	0.72	0.49	0.30	0.64	0.32	0.03
Avail Cap(c_a), veh/h	687	574	562	119	761	770	577	606	508	639	671	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	19.4	13.8	30.2	10.5	10.5	23.8	22.6	21.7	25.2	23.9	22.8
Incr Delay (d2), s/veh	9.1	19.7	0.1	24.2	0.2	0.2	3.4	1.2	0.7	2.5	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	11.8	1.1	1.3	2.0	2.0	3.9	2.6	1.3	3.0	1.5	0.1
LnGrp Delay(d),s/veh	28.4	39.1	13.8	54.4	10.7	10.7	27.1	23.9	22.4	27.7	24.5	22.9
LnGrp LOS	C	D	B	D	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1190			425			465			271	
Approach Delay, s/veh		32.0			15.9			25.2			26.5	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		33.2		16.4	6.4	26.7		13.7
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		6.8		10.3	4.1	22.4		7.8
Green Ext Time (p_c), s		2.4		1.2	0.0	0.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	27.1
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	115	24	86	116	126	0	177	144	68	104	15
Future Volume (veh/h)	31	115	24	86	116	126	0	177	144	68	104	15
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1759	1900	1900	1638	1900	0	1367	1900	1450	1450	1900
Adj Flow Rate, veh/h	31	115	24	86	116	126	0	177	144	68	104	15
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	16	16	16	0	39	39	31	31	31
Cap, veh/h	135	411	77	171	195	176	0	287	219	180	1082	153
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.21	0.21	0.13	0.45	0.45
Sat Flow, veh/h	169	1244	232	264	591	534	0	1461	1058	1381	2417	341
Grp Volume(v), veh/h	170	0	0	328	0	0	0	164	157	68	58	61
Grp Sat Flow(s),veh/h/ln	1645	0	0	1389	0	0	0	1299	1152	1381	1378	1380
Q Serve(g_s), s	0.0	0.0	0.0	6.4	0.0	0.0	0.0	6.2	6.8	2.4	1.3	1.4
Cycle Q Clear(g_c), s	4.0	0.0	0.0	10.9	0.0	0.0	0.0	6.2	6.8	2.4	1.3	1.4
Prop In Lane	0.18		0.14	0.26		0.38	0.00		0.92	1.00		0.25
Lane Grp Cap(c), veh/h	622	0	0	543	0	0	0	268	238	180	617	618
V/C Ratio(X)	0.27	0.00	0.00	0.60	0.00	0.00	0.00	0.61	0.66	0.38	0.09	0.10
Avail Cap(c_a), veh/h	1137	0	0	996	0	0	0	601	533	281	1071	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.5	0.0	0.0	15.6	0.0	0.0	0.0	19.5	19.7	21.5	8.6	8.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.8	1.2	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	4.3	0.0	0.0	0.0	2.3	2.2	0.9	0.5	0.5
LnGrp Delay(d),s/veh	13.5	0.0	0.0	16.0	0.0	0.0	0.0	20.3	20.9	22.0	8.6	8.6
LnGrp LOS	B			B				C	C	C	A	A
Approach Vol, veh/h		170			328			321			187	
Approach Delay, s/veh		13.5			16.0			20.6			13.5	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		30.2		23.8	13.0	17.2		23.8
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		3.4		12.9	4.4	8.8		6.0
Green Ext Time (p_c), s		0.5		1.5	0.0	1.2		0.7

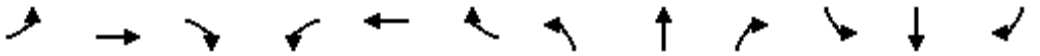
Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	111	61	85	42	74	2	58	73	98	45	33
Future Vol, veh/h	56	111	61	85	42	74	2	58	73	98	45	33
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	26	26	26	69	69	69	93	93	93	60	60	60
Mvmt Flow	56	111	61	85	42	74	2	58	73	98	45	33
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	11.4	12	13.4	12.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	34%	0%	67%	0%	69%	0%
Vol Thru, %	44%	66%	0%	33%	0%	31%	0%
Vol Right, %	55%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	167	61	127	74	143	33
LT Vol	2	56	0	85	0	98	0
Through Vol	58	111	0	42	0	45	0
RT Vol	73	0	61	0	74	0	33
Lane Flow Rate	133	167	61	127	74	143	33
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.278	0.308	0.097	0.266	0.134	0.299	0.059
Departure Headway (Hd)	7.513	6.629	5.749	7.547	6.497	7.516	6.46
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	479	543	623	476	552	479	554
Service Time	5.556	4.368	3.487	5.286	4.236	5.257	4.201
HCM Lane V/C Ratio	0.278	0.308	0.098	0.267	0.134	0.299	0.06
HCM Control Delay	13.4	12.3	9.1	13	10.2	13.4	9.6
HCM Lane LOS	B	B	A	B	B	B	A
HCM 95th-tile Q	1.1	1.3	0.3	1.1	0.5	1.2	0.2



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	126	5	65	116	90	3	143	69	103	104	20
Future Volume (vph)	96	126	5	65	116	90	3	143	69	103	104	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	3008	1346	1271	2542	1137	1056	2000		2398	1270	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1504	3008	1346	1271	2542	1137	1056	2000		2398	1270	
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)	96	126	5	65	116	90	3	143	69	103	104	20
RTOR Reduction (vph)	0	0	3	0	0	53	0	56	0	0	7	0
Lane Group Flow (vph)	96	126	2	65	116	38	3	156	0	103	117	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	20%	20%	20%	42%	42%	42%	71%	71%	71%	46%	46%	46%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.8	34.0	34.0	7.3	33.5	33.5	1.1	15.0		7.1	21.0	
Effective Green, g (s)	7.8	34.0	34.0	7.3	33.5	33.5	1.1	15.0		7.1	21.0	
Actuated g/C Ratio	0.10	0.42	0.42	0.09	0.42	0.42	0.01	0.19		0.09	0.26	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	145	1272	569	115	1059	473	14	373		211	331	
v/s Ratio Prot	c0.06	0.04		0.05	c0.05		0.00	c0.08		c0.04	0.09	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.66	0.10	0.00	0.57	0.11	0.08	0.21	0.42		0.49	0.35	
Uniform Delay, d1	35.0	14.0	13.4	35.0	14.3	14.1	39.2	28.8		34.9	24.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.8	0.2	0.0	6.2	0.0	0.1	7.6	0.8		1.8	0.7	
Delay (s)	45.8	14.1	13.4	41.3	14.4	14.2	46.8	29.6		36.7	24.8	
Level of Service	D	B	B	D	B	B	D	C		D	C	
Approach Delay (s)		27.5			20.8			29.8			30.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

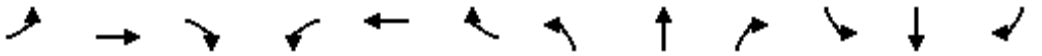
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	187	183	67	264	0	0
Future Volume (veh/h)	187	183	67	264	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.98	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1610	1610	1407	1407		
Adj Flow Rate, veh/h	187	183	67	264		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	18	18	35	35		
Cap, veh/h	1982	868	421	2420		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	3140	1340	2600	2744		
Grp Volume(v), veh/h	187	183	67	264		
Grp Sat Flow(s),veh/h/ln	1530	1340	1300	1337		
Q Serve(g_s), s	1.1	2.8	1.1	0.5		
Cycle Q Clear(g_c), s	1.1	2.8	1.1	0.5		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1982	868	421	2420		
V/C Ratio(X)	0.09	0.21	0.16	0.11		
Avail Cap(c_a), veh/h	1982	868	1579	2420		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	3.5	17.8	0.2		
Incr Delay (d2), s/veh	0.1	0.6	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	1.1	0.4	0.2		
LnGrp Delay(d),s/veh	3.4	4.1	18.0	0.3		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	370			331		
Approach Delay, s/veh	3.7			3.8		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		2.5			3.1	4.8		
Green Ext Time (p_c), s		0.7			0.2	1.4		

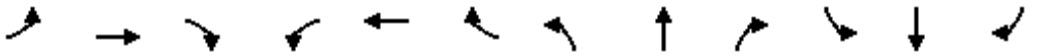
Intersection Summary	
HCM 2010 Ctrl Delay	3.8
HCM 2010 LOS	A

Notes



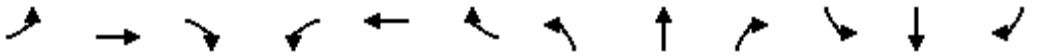
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	93	0	0	77	100	146	260	83	96	0	106
Future Volume (vph)	100	93	0	0	77	100	146	260	83	96	0	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1671	3343			2922		1416	2871		1504		2369
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1671	3343			2922		1416	2871		1504		2369
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)	100	93	0	0	77	100	146	260	83	96	0	106
RTOR Reduction (vph)	0	0	0	0	74	0	0	25	0	0	0	91
Lane Group Flow (vph)	100	93	0	0	103	0	131	333	0	96	0	15
Confl. Peds. (#/hr)	10					10						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	8%	8%	8%	12%	12%	12%	16%	16%	16%	20%	20%	20%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	9.4	31.6			18.0		14.5	14.5		9.6		9.6
Effective Green, g (s)	9.4	31.6			18.0		14.5	14.5		9.6		9.6
Actuated g/C Ratio	0.14	0.46			0.26		0.21	0.21		0.14		0.14
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	226	1524			758		296	600		208		328
v/s Ratio Prot	c0.06	0.03			c0.04					c0.06		
v/s Ratio Perm							0.09	0.12				0.01
v/c Ratio	0.44	0.06			0.14		0.44	0.56		0.46		0.04
Uniform Delay, d1	27.5	10.5			19.7		23.9	24.5		27.5		25.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.5	0.0			0.1		0.8	0.9		1.2		0.0
Delay (s)	28.0	10.6			19.7		24.6	25.4		28.7		25.9
Level of Service	C	B			B		C	C		C		C
Approach Delay (s)		19.6			19.7			25.2			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	69.3	Sum of lost time (s)	17.8
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



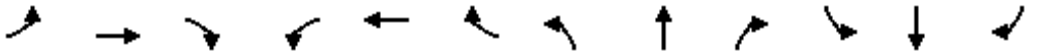
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	629	126	78	423	6	139	1	143	17	1	18
Future Volume (vph)	16	629	126	78	423	6	139	1	143	17	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
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)	16	629	126	78	423	6	139	1	143	17	1	18
RTOR Reduction (vph)	0	0	96	0	1	0	0	0	80	0	19	0
Lane Group Flow (vph)	16	629	30	78	428	0	69	71	63	17	0	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	6%	6%	6%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	20.0	20.0	7.0	26.0		37.3	37.3	37.3	2.1	2.1	
Effective Green, g (s)	1.0	20.0	20.0	7.0	26.0		37.3	37.3	37.3	2.1	2.1	
Actuated g/C Ratio	0.01	0.24	0.24	0.08	0.31		0.44	0.44	0.44	0.02	0.02	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	20	802	354	137	1021		678	680	639	40	69	
v/s Ratio Prot	0.01	c0.18		c0.05	0.13		0.04	c0.05	0.04	c0.01	0.00	
v/s Ratio Perm			0.02									
v/c Ratio	0.80	0.78	0.08	0.57	0.42		0.10	0.10	0.10	0.42	0.01	
Uniform Delay, d1	41.9	30.4	25.3	37.5	23.4		14.0	14.0	13.9	40.8	40.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	105.9	4.7	0.0	3.2	0.1		0.0	0.0	0.0	2.6	0.0	
Delay (s)	147.7	35.1	25.3	40.7	23.5		14.0	14.0	14.0	43.4	40.4	
Level of Service	F	D	C	D	C		B	B	B	D	D	
Approach Delay (s)		35.8			26.2			14.0			41.8	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	550	45	76	447	142	48	138	277	234	97	44
Future Volume (vph)	218	550	45	76	447	142	48	138	277	234	97	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1719	3395		1703	3406	1524	1671	3008		1535	3079	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1719	3395		1703	3406	1524	1671	3008		1535	3079	
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)	218	550	45	76	447	142	48	138	277	234	97	44
RTOR Reduction (vph)	0	6	0	0	0	107	0	243	0	0	16	0
Lane Group Flow (vph)	218	589	0	76	447	35	48	172	0	126	233	0
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	11.2	19.9		5.2	14.8	14.8	7.5	7.5		8.8	8.8	
Effective Green, g (s)	11.2	19.9		5.2	14.8	14.8	7.5	7.5		8.8	8.8	
Actuated g/C Ratio	0.18	0.33		0.09	0.24	0.24	0.12	0.12		0.14	0.14	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	316	1109		145	827	370	205	370		221	444	
v/s Ratio Prot	c0.13	c0.17		0.04	0.13		0.03	c0.06		c0.08	0.08	
v/s Ratio Perm						0.02						
v/c Ratio	0.69	0.53		0.52	0.54	0.09	0.23	0.47		0.57	0.52	
Uniform Delay, d1	23.2	16.7		26.7	20.1	17.9	24.1	24.8		24.3	24.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	0.2		1.6	0.4	0.0	0.2	0.3		2.2	0.5	
Delay (s)	28.2	16.9		28.2	20.5	17.9	24.3	25.2		26.5	24.6	
Level of Service	C	B		C	C	B	C	C		C	C	
Approach Delay (s)		20.0			20.8			25.1			25.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	19.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	313	16	171	291	12	17	17	98	7	11	12
Future Volume (veh/h)	16	313	16	171	291	12	17	17	98	7	11	12
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	0.99		0.96	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1727	1727	1900	1759	1759	1900	1900	1759	1759	1900	1743	1900
Adj Flow Rate, veh/h	16	313	16	171	291	12	17	17	98	7	11	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	10	10	8	8	8	8	8	8	9	9	9
Cap, veh/h	522	1428	73	473	1470	60	385	362	669	182	277	269
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	983	3174	162	983	3266	134	706	804	1487	280	616	597
Grp Volume(v), veh/h	16	161	168	171	148	155	34	0	98	30	0	0
Grp Sat Flow(s),veh/h/ln	983	1641	1694	983	1671	1729	1509	0	1487	1493	0	0
Q Serve(g_s), s	0.7	4.8	4.8	4.7	0.9	0.9	0.0	0.0	3.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	4.8	4.8	9.6	0.9	0.9	0.9	0.0	3.1	0.8	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.08	0.50		1.00	0.23		0.40
Lane Grp Cap(c), veh/h	522	738	762	473	752	778	747	0	669	727	0	0
V/C Ratio(X)	0.03	0.22	0.22	0.36	0.20	0.20	0.05	0.00	0.15	0.04	0.00	0.00
Avail Cap(c_a), veh/h	522	738	762	473	752	778	747	0	669	727	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	13.4	13.4	3.5	2.2	2.2	12.3	0.0	13.0	12.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.7	2.1	0.6	0.6	0.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.3	2.4	1.5	0.5	0.5	0.4	0.0	1.4	0.4	0.0	0.0
LnGrp Delay(d),s/veh	12.9	14.1	14.1	5.6	2.8	2.8	12.5	0.0	13.4	12.4	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		B	B		
Approach Vol, veh/h		345			474			132			30	
Approach Delay, s/veh		14.0			3.8			13.2			12.4	
Approach LOS		B			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		5.1		6.8		2.8		11.6
Green Ext Time (p_c), s		0.5		2.1		0.1		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	69	0	283	102	21	37	99	570	1	166	23
Future Volume (veh/h)	9	69	0	283	102	21	37	99	570	1	166	23
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1743	1743	1900	1387	1387	1900	1681	1681	1681	1900	1776	1900
Adj Flow Rate, veh/h	9	69	-30	283	102	12	37	99	249	1	166	6
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	9	9	37	37	37	13	13	13	7	7	7
Cap, veh/h	370	565	0	367	297	35	73	506	634	59	637	23
Arrive On Green	0.22	0.32	0.00	0.14	0.24	0.24	0.05	0.30	0.30	0.20	0.20	0.20
Sat Flow, veh/h	1660	1743	0	2562	1216	143	1601	1681	1428	4	3247	116
Grp Volume(v), veh/h	9	39	0	283	0	114	37	99	249	91	0	82
Grp Sat Flow(s),veh/h/ln	1660	1743	0	1281	0	1359	1601	1681	1428	1772	0	1595
Q Serve(g_s), s	0.3	1.0	0.0	6.7	0.0	4.3	1.4	2.7	7.3	0.0	0.0	2.7
Cycle Q Clear(g_c), s	0.3	1.0	0.0	6.7	0.0	4.3	1.4	2.7	7.3	2.7	0.0	2.7
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.01		0.07
Lane Grp Cap(c), veh/h	370	565	0	367	0	332	73	506	634	406	0	313
V/C Ratio(X)	0.02	0.07	0.00	0.77	0.00	0.34	0.51	0.20	0.39	0.22	0.00	0.26
Avail Cap(c_a), veh/h	372	1026	0	504	0	763	156	979	1036	821	0	689
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	14.6	0.0	25.8	0.0	19.5	29.2	16.2	11.7	21.3	0.0	21.3
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.9	0.0	0.5	4.0	0.3	0.6	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.0	2.6	0.0	1.7	0.7	1.3	3.0	1.3	0.0	1.2
LnGrp Delay(d),s/veh	19.0	14.6	0.0	30.8	0.0	19.9	33.2	16.5	12.3	21.4	0.0	21.5
LnGrp LOS	B	B		C		B	C	B	B	C		C
Approach Vol, veh/h		48			397			385			173	
Approach Delay, s/veh		15.5			27.7			15.4			21.4	
Approach LOS		B			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	19.5	6.5	17.9	13.6	24.5		24.4
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	2.3	6.3	3.4	4.7	8.7	3.0		4.7
Green Ext Time (p_c), s	0.0	0.5	0.0	0.6	0.4	0.1		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	365	40	39	413	55	11	51	21	43	42	45
Future Volume (veh/h)	31	365	40	39	413	55	11	51	21	43	42	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1759	1900	1759	1759	1759	1759	1759	1900	1900	1776	1900
Adj Flow Rate, veh/h	31	365	40	39	413	55	11	51	21	43	42	45
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	8	8	8	8	8	8	7	7	7
Cap, veh/h	448	1669	182	596	968	818	484	821	317	365	334	368
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	868	3035	330	919	1759	1487	1229	2346	907	834	955	1052
Grp Volume(v), veh/h	31	200	205	39	413	55	11	35	37	70	0	60
Grp Sat Flow(s),veh/h/ln	868	1671	1694	919	1759	1487	1229	1671	1582	1432	0	1409
Q Serve(g_s), s	0.8	0.0	0.0	1.6	11.0	1.4	0.5	1.1	1.2	1.1	0.0	2.3
Cycle Q Clear(g_c), s	11.8	0.0	0.0	1.6	11.0	1.4	2.8	1.1	1.2	2.4	0.0	2.3
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.57	0.62		0.75
Lane Grp Cap(c), veh/h	448	919	932	596	968	818	484	585	554	574	0	493
V/C Ratio(X)	0.07	0.22	0.22	0.07	0.43	0.07	0.02	0.06	0.07	0.12	0.00	0.12
Avail Cap(c_a), veh/h	448	919	932	596	968	818	484	585	554	574	0	493
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.5	0.0	0.0	8.5	10.6	8.4	18.6	17.3	17.3	17.6	0.0	17.7
Incr Delay (d2), s/veh	0.3	0.5	0.5	0.2	1.4	0.2	0.1	0.2	0.2	0.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.4	5.6	0.6	0.2	0.6	0.6	1.1	0.0	1.0
LnGrp Delay(d),s/veh	1.8	0.5	0.5	8.7	12.0	8.6	18.7	17.5	17.5	18.1	0.0	18.2
LnGrp LOS	A	A	A	A	B	A	B	B	B	B		B
Approach Vol, veh/h		436			507			83			130	
Approach Delay, s/veh		0.6			11.3			17.7			18.1	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		4.8		13.8		4.4		13.0
Green Ext Time (p_c), s		0.3		2.8		0.7		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.5
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	568	36	101	236	44	150	33	134	66	13	23
Future Volume (veh/h)	10	568	36	101	236	44	150	33	134	66	13	23
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1667	1667	1329	1329	1900	1195	1195	1195	1696	1696	1696
Adj Flow Rate, veh/h	10	568	36	101	236	44	150	33	134	66	13	23
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	14	14	14	43	43	43	59	59	59	12	12	12
Cap, veh/h	83	807	369	113	927	170	202	212	180	214	224	190
Arrive On Green	0.26	0.26	0.26	0.09	0.44	0.44	0.18	0.18	0.18	0.13	0.13	0.13
Sat Flow, veh/h	18	3076	1406	1265	2126	389	1138	1195	1011	1616	1696	1434
Grp Volume(v), veh/h	310	268	36	101	138	142	150	33	134	66	13	23
Grp Sat Flow(s),veh/h/ln	1654	1441	1406	1265	1262	1253	1138	1195	1011	1616	1696	1434
Q Serve(g_s), s	0.0	8.0	0.9	3.7	3.3	3.4	5.9	1.1	5.9	1.7	0.3	0.7
Cycle Q Clear(g_c), s	8.0	8.0	0.9	3.7	3.3	3.4	5.9	1.1	5.9	1.7	0.3	0.7
Prop In Lane	0.03		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	513	378	369	113	551	546	202	212	180	214	224	190
V/C Ratio(X)	0.60	0.71	0.10	0.90	0.25	0.26	0.74	0.16	0.75	0.31	0.06	0.12
Avail Cap(c_a), veh/h	879	702	685	134	855	849	554	582	492	787	826	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	15.8	13.2	21.3	8.4	8.5	18.4	16.4	18.4	18.5	17.9	18.1
Incr Delay (d2), s/veh	0.4	0.9	0.0	42.3	0.2	0.2	5.7	0.4	6.5	0.8	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	3.2	0.4	2.6	1.2	1.2	2.2	0.4	2.0	0.8	0.2	0.3
LnGrp Delay(d),s/veh	16.2	16.7	13.2	63.6	8.7	8.7	24.1	16.8	25.0	19.4	18.0	18.4
LnGrp LOS	B	B	B	E	A	A	C	B	C	B	B	B
Approach Vol, veh/h		614			381			317			102	
Approach Delay, s/veh		16.3			23.3			23.7			19.0	
Approach LOS		B			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		24.6		12.4	8.2	16.4		10.2
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		5.4		7.9	5.7	10.0		3.7
Green Ext Time (p_c), s		1.9		0.3	0.0	2.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	37	15	125	50	108	0	107	93	50	35	16
Future Volume (veh/h)	23	37	15	125	50	108	0	107	93	50	35	16
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1557	1900	1900	1258	1900	0	1124	1900	1131	1131	1900
Adj Flow Rate, veh/h	23	37	15	125	50	108	0	107	93	50	35	16
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	22	22	22	51	51	51	0	69	69	68	68	68
Cap, veh/h	186	250	85	224	84	126	0	242	192	119	651	278
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.21	0.21	0.11	0.44	0.44
Sat Flow, veh/h	289	791	270	378	267	398	0	1188	901	1077	1467	628
Grp Volume(v), veh/h	75	0	0	283	0	0	0	100	100	50	25	26
Grp Sat Flow(s),veh/h/ln	1350	0	0	1043	0	0	0	1068	965	1077	1074	1020
Q Serve(g_s), s	0.0	0.0	0.0	10.1	0.0	0.0	0.0	4.1	4.5	2.2	0.7	0.7
Cycle Q Clear(g_c), s	1.8	0.0	0.0	12.6	0.0	0.0	0.0	4.1	4.5	2.2	0.7	0.7
Prop In Lane	0.31		0.20	0.44		0.38	0.00		0.93	1.00		0.62
Lane Grp Cap(c), veh/h	521	0	0	434	0	0	0	228	206	119	477	452
V/C Ratio(X)	0.14	0.00	0.00	0.65	0.00	0.00	0.00	0.44	0.48	0.42	0.05	0.06
Avail Cap(c_a), veh/h	1047	0	0	845	0	0	0	534	483	237	903	857
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.3	0.0	0.0	15.8	0.0	0.0	0.0	17.1	17.2	20.8	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.5	0.7	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	3.7	0.0	0.0	0.0	1.2	1.2	0.7	0.2	0.2
LnGrp Delay(d),s/veh	12.3	0.0	0.0	16.5	0.0	0.0	0.0	17.6	17.9	21.6	7.9	8.0
LnGrp LOS	B			B				B	B	C	A	A
Approach Vol, veh/h		75			283			200			101	
Approach Delay, s/veh		12.3			16.5			17.7			14.7	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		28.2		21.8	11.5	16.7		21.8
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		2.7		14.6	4.2	6.5		3.8
Green Ext Time (p_c), s		0.2		1.3	0.0	0.8		0.3

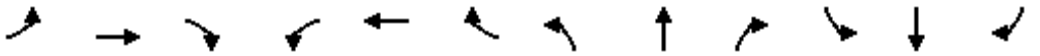
Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	91	154	21	67	245	0	23	167	74	7	97
Future Vol, veh/h	88	91	154	21	67	245	0	23	167	74	7	97
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	82	82	82	88	88	88	97	97	97	83	83	83
Mvmt Flow	88	91	154	21	67	245	0	23	167	74	7	97
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	15.6	16.9	18	13.6
HCM LOS	C	C	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	49%	0%	24%	0%	91%	0%
Vol Thru, %	12%	51%	0%	76%	0%	9%	0%
Vol Right, %	88%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	179	154	88	245	81	97
LT Vol	0	88	0	21	0	74	0
Through Vol	23	91	0	67	0	7	0
RT Vol	167	0	154	0	245	0	97
Lane Flow Rate	190	179	154	88	245	81	97
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.444	0.421	0.32	0.207	0.518	0.208	0.217
Departure Headway (Hd)	8.405	8.469	7.48	8.45	7.612	9.251	8.066
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	429	428	482	427	475	389	445
Service Time	6.44	6.18	5.213	6.156	5.318	6.989	5.804
HCM Lane V/C Ratio	0.443	0.418	0.32	0.206	0.516	0.208	0.218
HCM Control Delay	18	17.2	13.7	13.3	18.2	14.4	13
HCM Lane LOS	C	C	B	B	C	B	B
HCM 95th-tile Q	2.2	2	1.4	0.8	2.9	0.8	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	264	28	125	273	410	12	210	167	133	67	43
Future Volume (vph)	166	264	28	125	273	410	12	210	167	133	67	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1008	2017	902	1188	2375	1062	992	1838		2175	1111	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1008	2017	902	1188	2375	1062	992	1838		2175	1111	
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)	166	264	28	125	273	410	12	210	167	133	67	43
RTOR Reduction (vph)	0	0	18	0	0	266	0	132	0	0	21	0
Lane Group Flow (vph)	166	264	10	125	273	144	12	245	0	133	89	0
Confl. Peds. (#/hr)									4	4		
Heavy Vehicles (%)	79%	79%	79%	52%	52%	52%	82%	82%	82%	61%	61%	61%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	12.1	32.3	32.3	11.8	32.0	32.0	1.6	19.3		10.7	28.4	
Effective Green, g (s)	12.1	32.3	32.3	11.8	32.0	32.0	1.6	19.3		10.7	28.4	
Actuated g/C Ratio	0.13	0.35	0.35	0.13	0.35	0.35	0.02	0.21		0.12	0.31	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	715	319	153	834	373	17	389		255	346	
v/s Ratio Prot	c0.16	0.13		0.11	0.11		0.01	c0.13		c0.06	0.08	
v/s Ratio Perm			0.01			c0.14						
v/c Ratio	1.25	0.37	0.03	0.82	0.33	0.39	0.71	0.63		0.52	0.26	
Uniform Delay, d1	39.5	21.8	19.2	38.6	21.7	22.2	44.5	32.7		37.8	23.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.4	1.5	0.2	27.4	0.2	0.7	84.0	3.3		1.9	0.4	
Delay (s)	198.9	23.3	19.4	66.0	21.9	22.8	128.5	36.0		39.7	23.8	
Level of Service	F	C	B	E	C	C	F	D		D	C	
Approach Delay (s)		86.7			29.2			38.8			32.5	
Approach LOS		F			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	45.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

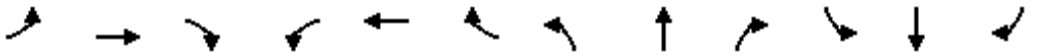
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	208	365	169	812	0	0
Future Volume (veh/h)	208	365	169	812	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1138	1138	1284	1284		
Adj Flow Rate, veh/h	208	365	169	812		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	67	67	48	48		
Cap, veh/h	1400	626	384	2207		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	2219	967	2372	2503		
Grp Volume(v), veh/h	208	365	169	812		
Grp Sat Flow(s),veh/h/ln	1081	967	1186	1220		
Q Serve(g_s), s	1.9	10.5	3.2	2.3		
Cycle Q Clear(g_c), s	1.9	10.5	3.2	2.3		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1400	626	384	2207		
V/C Ratio(X)	0.15	0.58	0.44	0.37		
Avail Cap(c_a), veh/h	1400	626	1440	2207		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.4	4.9	18.7	0.3		
Incr Delay (d2), s/veh	0.2	3.9	0.8	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.6	3.4	1.1	0.7		
LnGrp Delay(d),s/veh	3.6	8.9	19.5	0.4		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	573			981		
Approach Delay, s/veh	7.0			3.7		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		4.3			5.2	12.5		
Green Ext Time (p_c), s		2.5			0.6	2.2		

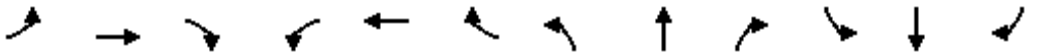
Intersection Summary	
HCM 2010 Ctrl Delay	4.9
HCM 2010 LOS	A

Notes



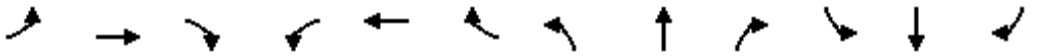
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	51	0	0	205	91	452	177	96	64	0	324
Future Volume (vph)	162	51	0	0	205	91	452	177	96	64	0	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frt	1.00	1.00			0.95		1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (prot)	1135	2270			2994		1117	2234		1299		2045
Flt Permitted	0.95	1.00			1.00		0.95	0.98		0.95		1.00
Satd. Flow (perm)	1135	2270			2994		1117	2234		1299		2045
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)	162	51	0	0	205	91	452	177	96	64	0	324
RTOR Reduction (vph)	0	0	0	0	50	0	0	17	0	0	0	277
Lane Group Flow (vph)	162	51	0	0	246	0	244	464	0	64	0	47
Heavy Vehicles (%)	59%	59%	59%	15%	15%	15%	47%	47%	47%	39%	39%	39%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	17.0	38.2			17.0		24.8	24.8		12.9		12.9
Effective Green, g (s)	17.0	38.2			17.0		24.8	24.8		12.9		12.9
Actuated g/C Ratio	0.19	0.43			0.19		0.28	0.28		0.14		0.14
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	215	968			568		309	619		187		294
v/s Ratio Prot	c0.14	0.02			c0.08					c0.05		
v/s Ratio Perm							c0.22	0.21				0.02
v/c Ratio	0.75	0.05			0.43		0.79	0.75		0.34		0.16
Uniform Delay, d1	34.3	15.0			32.0		29.9	29.5		34.5		33.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	12.4	0.0			0.4		12.2	4.7		0.8		0.2
Delay (s)	46.7	15.1			32.4		42.1	34.2		35.3		33.7
Level of Service	D	B			C		D	C		D		C
Approach Delay (s)		39.1			32.4			36.9			34.0	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	17.8
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	112	50	199	678	10	273	9	195	25	0	3
Future Volume (vph)	12	112	50	199	678	10	273	9	195	25	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1556	3112	1392	1626	3245		1372	1379	1292	1150	1954	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1556	3112	1392	1626	3245		1372	1379	1292	1150	1954	
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)	12	112	50	199	678	10	273	9	195	25	0	3
RTOR Reduction (vph)	0	0	41	0	1	0	0	0	111	0	3	0
Lane Group Flow (vph)	12	112	9	199	687	0	142	140	84	25	0	0
Heavy Vehicles (%)	16%	16%	16%	11%	11%	11%	25%	25%	25%	57%	57%	57%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	14.8	14.8	12.8	26.6		36.4	36.4	36.4	2.2	2.2	
Effective Green, g (s)	1.0	14.8	14.8	12.8	26.6		36.4	36.4	36.4	2.2	2.2	
Actuated g/C Ratio	0.01	0.17	0.17	0.15	0.31		0.43	0.43	0.43	0.03	0.03	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	18	543	243	245	1019		589	592	555	29	50	
v/s Ratio Prot	0.01	0.04		c0.12	c0.21		c0.10	0.10	0.06	c0.02	0.00	
v/s Ratio Perm			0.01									
v/c Ratio	0.67	0.21	0.04	0.81	0.67		0.24	0.24	0.15	0.86	0.00	
Uniform Delay, d1	41.7	29.9	29.0	34.8	25.3		15.4	15.3	14.7	41.1	40.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	54.1	0.1	0.0	17.4	1.4		0.1	0.1	0.0	106.7	0.0	
Delay (s)	95.8	30.0	29.0	52.1	26.7		15.4	15.4	14.8	147.8	40.2	
Level of Service	F	C	C	D	C		B	B	B	F	D	
Approach Delay (s)		34.3			32.4			15.2			136.3	
Approach LOS		C			C			B			F	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	18.5
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	154	76	122	573	206	76	187	171	85	173	192
Future Volume (vph)	148	154	76	122	573	206	76	187	171	85	173	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.93		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1357	2569		1656	3312	1482	1357	2520		1190	2310	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1357	2569		1656	3312	1482	1357	2520		1190	2310	
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)	148	154	76	122	573	206	76	187	171	85	173	192
RTOR Reduction (vph)	0	53	0	0	0	152	0	147	0	0	164	0
Lane Group Flow (vph)	148	177	0	122	573	54	76	211	0	76	210	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	33%	33%	33%	9%	9%	9%	33%	33%	33%	38%	38%	38%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	10.9	20.2		7.2	17.4	17.4	9.2	9.2		9.7	9.7	
Effective Green, g (s)	10.9	20.2		7.2	17.4	17.4	9.2	9.2		9.7	9.7	
Actuated g/C Ratio	0.17	0.31		0.11	0.26	0.26	0.14	0.14		0.15	0.15	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	224	788		181	875	391	189	352		175	340	
v/s Ratio Prot	c0.11	c0.07		0.07	c0.17		0.06	c0.08		0.06	c0.09	
v/s Ratio Perm						0.04						
v/c Ratio	0.66	0.23		0.67	0.65	0.14	0.40	0.60		0.43	0.62	
Uniform Delay, d1	25.7	17.0		28.2	21.5	18.5	25.8	26.6		25.6	26.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.6	0.1		7.5	1.4	0.1	0.5	1.8		0.6	2.4	
Delay (s)	31.3	17.0		35.7	22.9	18.5	26.3	28.4		26.2	28.7	
Level of Service	C	B		D	C	B	C	C		C	C	
Approach Delay (s)		22.6			23.6			28.0			28.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	19.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	726	30	89	362	26	29	80	579	17	11	17
Future Volume (veh/h)	26	726	30	89	362	26	29	80	579	17	11	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.94	0.99		0.91	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1810	1810	1900	1900	1863	1863	1900	1792	1900
Adj Flow Rate, veh/h	26	726	30	89	362	26	29	80	579	17	11	17
Adj No. of Lanes	1	2	0	1	2	0	0	1	1	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	5	5	5	2	2	2	6	6	6
Cap, veh/h	496	1525	63	293	1454	104	229	603	707	234	154	198
Arrive On Green	0.45	0.45	0.45	0.90	0.90	0.90	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	933	3388	140	677	3231	230	383	1341	1572	383	343	441
Grp Volume(v), veh/h	26	372	384	89	191	197	109	0	579	45	0	0
Grp Sat Flow(s),veh/h/ln	933	1736	1792	677	1719	1742	1724	0	1572	1167	0	0
Q Serve(g_s), s	1.3	12.0	12.0	5.7	1.1	1.2	0.0	0.0	25.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.5	12.0	12.0	17.7	1.1	1.2	2.7	0.0	25.7	1.2	0.0	0.0
Prop In Lane	1.00		0.08	1.00		0.13	0.27		1.00	0.38		0.38
Lane Grp Cap(c), veh/h	496	781	807	293	774	784	833	0	707	587	0	0
V/C Ratio(X)	0.05	0.48	0.48	0.30	0.25	0.25	0.13	0.00	0.82	0.08	0.00	0.00
Avail Cap(c_a), veh/h	496	781	807	293	774	784	833	0	707	587	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	15.4	15.4	6.3	2.3	2.3	12.9	0.0	19.2	12.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.1	2.0	2.7	0.8	0.8	0.3	0.0	10.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	6.1	6.3	1.3	0.6	0.6	1.5	0.0	13.1	0.6	0.0	0.0
LnGrp Delay(d),s/veh	13.3	17.5	17.4	9.0	3.0	3.0	13.2	0.0	29.4	12.7	0.0	0.0
LnGrp LOS	B	B	B	A	A	A	B		C	B		
Approach Vol, veh/h		782			477			688			45	
Approach Delay, s/veh		17.3			4.1			26.8			12.7	
Approach LOS		B			A			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		40.0		40.0		40.0		40.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		36.0		36.0		36.0		36.0
Max Q Clear Time (g_c+I1), s		27.7		14.0		3.2		19.7
Green Ext Time (p_c), s		2.1		5.1		0.3		2.8

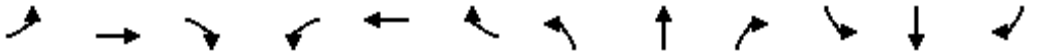
Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	213	1	323	182	24	36	578	983	2	85	41
Future Volume (veh/h)	88	213	1	323	182	24	36	578	983	2	85	41
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1776	1776	1900	1845	1845	1845	1900	1696	1900
Adj Flow Rate, veh/h	88	213	-29	323	182	15	36	578	662	2	85	24
Adj No. of Lanes	1	1	0	2	1	0	1	1	1	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	7	7	7	3	3	3	12	12	12
Cap, veh/h	348	586	0	422	400	33	75	653	755	55	629	169
Arrive On Green	0.20	0.31	0.00	0.13	0.25	0.25	0.04	0.35	0.35	0.26	0.26	0.26
Sat Flow, veh/h	1774	1863	0	3281	1617	133	1757	1845	1565	10	2428	653
Grp Volume(v), veh/h	88	184	0	323	0	197	36	578	662	59	0	52
Grp Sat Flow(s),veh/h/ln	1774	1863	0	1640	0	1750	1757	1845	1565	1665	0	1427
Q Serve(g_s), s	3.0	5.4	0.0	6.8	0.0	6.8	1.4	21.1	25.3	0.0	0.0	2.0
Cycle Q Clear(g_c), s	3.0	5.4	0.0	6.8	0.0	6.8	1.4	21.1	25.3	1.9	0.0	2.0
Prop In Lane	1.00		0.00	1.00		0.08	1.00		1.00	0.03		0.46
Lane Grp Cap(c), veh/h	348	586	0	422	0	433	75	653	755	483	0	370
V/C Ratio(X)	0.25	0.31	0.00	0.77	0.00	0.46	0.48	0.89	0.88	0.12	0.00	0.14
Avail Cap(c_a), veh/h	348	960	0	565	0	860	150	940	999	665	0	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	18.6	0.0	30.1	0.0	22.8	33.4	21.7	16.6	20.3	0.0	20.4
Incr Delay (d2), s/veh	0.1	0.2	0.0	4.4	0.0	0.6	3.5	8.6	7.9	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.8	0.0	3.3	0.0	3.4	0.8	12.1	13.2	0.9	0.0	0.8
LnGrp Delay(d),s/veh	24.4	18.8	0.0	34.5	0.0	23.4	36.9	30.3	24.5	20.3	0.0	20.4
LnGrp LOS	C	B		C		C	D	C	C	C		C
Approach Vol, veh/h		272			520			1276			111	
Approach Delay, s/veh		20.6			30.3			27.5			20.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	18.7	21.9	6.8	24.1	13.9	26.7		30.9
Change Period (Y+Rc), s	* 4.7	* 4.2	3.7	* 5.6	* 4.7	* 4.2		5.6
Max Green Setting (Gmax), s	* 14	* 35	6.1	* 27	* 12	* 37		36.4
Max Q Clear Time (g_c+I1), s	5.0	8.8	3.4	4.0	8.8	7.4		23.1
Green Ext Time (p_c), s	0.1	0.9	0.0	0.4	0.4	0.8		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	26.9
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1205	79	43	393	67	14	130	83	98	140	63
Future Volume (veh/h)	57	1205	79	43	393	67	14	130	83	98	140	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	0.99		0.97	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1827	1827	1900	1900	1863	1900
Adj Flow Rate, veh/h	57	1205	79	43	393	67	14	130	83	98	140	63
Adj No. of Lanes	1	2	0	1	1	1	1	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	4	4	4	4	4	4	2	2	2
Cap, veh/h	479	1833	120	321	1005	830	411	726	431	337	484	229
Arrive On Green	1.00	1.00	1.00	0.55	0.55	0.55	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	912	3332	218	419	1827	1509	1144	2075	1230	751	1382	654
Grp Volume(v), veh/h	57	633	651	43	393	67	14	107	106	150	0	151
Grp Sat Flow(s),veh/h/ln	912	1752	1798	419	1827	1509	1144	1736	1570	1224	0	1563
Q Serve(g_s), s	1.3	0.0	0.0	4.1	9.9	1.7	0.7	3.4	3.8	5.4	0.0	5.5
Cycle Q Clear(g_c), s	11.1	0.0	0.0	4.1	9.9	1.7	6.3	3.4	3.8	9.2	0.0	5.5
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.78	0.65		0.42
Lane Grp Cap(c), veh/h	479	964	989	321	1005	830	411	607	549	503	0	547
V/C Ratio(X)	0.12	0.66	0.66	0.13	0.39	0.08	0.03	0.18	0.19	0.30	0.00	0.28
Avail Cap(c_a), veh/h	479	964	989	321	1005	830	411	607	549	503	0	547
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.2	0.0	0.0	9.0	10.3	8.5	21.0	18.0	18.1	20.3	0.0	18.7
Incr Delay (d2), s/veh	0.5	3.5	3.4	0.9	1.1	0.2	0.2	0.6	0.8	1.5	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.9	0.9	0.6	5.2	0.7	0.2	1.7	1.7	2.8	0.0	2.6
LnGrp Delay(d),s/veh	1.8	3.5	3.4	9.9	11.5	8.7	21.1	18.6	18.9	21.9	0.0	19.9
LnGrp LOS	A	A	A	A	B	A	C	B	B	C		B
Approach Vol, veh/h		1341			503			227			301	
Approach Delay, s/veh		3.4			11.0			18.9			20.9	
Approach LOS		A			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		32.0		48.0		32.0		48.0
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		28.0		44.0		28.0		44.0
Max Q Clear Time (g_c+I1), s		8.3		13.1		11.2		11.9
Green Ext Time (p_c), s		1.2		11.6		1.7		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1036	71	31	331	43	190	117	49	172	65	8
Future Volume (veh/h)	63	1036	71	31	331	43	190	117	49	172	65	8
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1827	1583	1583	1900	1667	1667	1667	1845	1845	1845
Adj Flow Rate, veh/h	63	1036	71	31	331	43	190	117	49	172	65	8
Adj No. of Lanes	0	2	1	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	20	20	20	14	14	14	3	3	3
Cap, veh/h	114	1176	573	41	1247	161	283	297	249	269	283	236
Arrive On Green	0.37	0.37	0.37	0.03	0.47	0.47	0.18	0.18	0.18	0.15	0.15	0.15
Sat Flow, veh/h	125	3174	1547	1508	2680	345	1587	1667	1395	1757	1845	1540
Grp Volume(v), veh/h	577	522	71	31	185	189	190	117	49	172	65	8
Grp Sat Flow(s),veh/h/ln	1720	1579	1547	1508	1504	1522	1587	1667	1395	1757	1845	1540
Q Serve(g_s), s	11.7	18.4	1.8	1.2	4.4	4.5	6.6	3.7	1.8	5.4	1.8	0.3
Cycle Q Clear(g_c), s	18.6	18.4	1.8	1.2	4.4	4.5	6.6	3.7	1.8	5.4	1.8	0.3
Prop In Lane	0.11		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	705	585	573	41	700	708	283	297	249	269	283	236
V/C Ratio(X)	0.82	0.89	0.12	0.76	0.26	0.27	0.67	0.39	0.20	0.64	0.23	0.03
Avail Cap(c_a), veh/h	736	615	602	128	814	824	618	649	543	684	718	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.4	17.5	12.3	28.6	9.6	9.6	22.7	21.5	20.7	23.5	22.0	21.3
Incr Delay (d2), s/veh	6.4	14.2	0.0	19.2	0.2	0.2	3.0	0.9	0.4	2.5	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	10.3	0.8	0.7	1.8	1.9	3.1	1.8	0.7	2.8	1.0	0.1
LnGrp Delay(d),s/veh	23.8	31.7	12.3	47.8	9.8	9.8	25.7	22.4	21.1	26.0	22.4	21.3
LnGrp LOS	C	C	B	D	A	A	C	C	C	C	C	C
Approach Vol, veh/h		1170			405			356			245	
Approach Delay, s/veh		26.6			12.7			24.0			24.9	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		31.5		14.5	5.6	25.9		13.1
Change Period (Y+Rc), s		4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		32.0		23.0	5.0	23.0		23.0
Max Q Clear Time (g_c+I1), s		6.5		8.6	3.2	20.6		7.4
Green Ext Time (p_c), s		2.4		1.0	0.0	1.3		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	115	24	86	116	126	0	69	144	68	37	15
Future Volume (veh/h)	31	115	24	86	116	126	0	69	144	68	37	15
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1759	1900	1900	1638	1900	0	1367	1900	1450	1450	1900
Adj Flow Rate, veh/h	31	115	24	86	116	126	0	69	144	68	37	15
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8	16	16	16	0	39	39	31	31	31
Cap, veh/h	135	411	77	172	196	176	0	265	232	180	866	328
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.20	0.20	0.13	0.45	0.45
Sat Flow, veh/h	169	1244	232	264	592	534	0	1367	1137	1381	1942	735
Grp Volume(v), veh/h	170	0	0	328	0	0	0	69	144	68	25	27
Grp Sat Flow(s),veh/h/ln	1645	0	0	1389	0	0	0	1299	1137	1381	1378	1299
Q Serve(g_s), s	0.0	0.0	0.0	6.4	0.0	0.0	0.0	2.4	6.2	2.4	0.6	0.6
Cycle Q Clear(g_c), s	4.0	0.0	0.0	10.8	0.0	0.0	0.0	2.4	6.2	2.4	0.6	0.6
Prop In Lane	0.18		0.14	0.26		0.38	0.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	623	0	0	544	0	0	0	265	232	180	615	580
V/C Ratio(X)	0.27	0.00	0.00	0.60	0.00	0.00	0.00	0.26	0.62	0.38	0.04	0.05
Avail Cap(c_a), veh/h	1142	0	0	1001	0	0	0	604	529	283	1077	1016
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	15.5	0.0	0.0	0.0	18.0	19.5	21.4	8.4	8.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.2	1.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	4.3	0.0	0.0	0.0	0.9	2.0	0.9	0.2	0.2
LnGrp Delay(d),s/veh	13.5	0.0	0.0	15.9	0.0	0.0	0.0	18.2	20.5	21.8	8.4	8.4
LnGrp LOS	B			B				B	C	C	A	A
Approach Vol, veh/h		170			328			213			120	
Approach Delay, s/veh		13.5			15.9			19.8			16.0	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		30.0		23.8	13.0	17.0		23.8
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s		42.0		36.0	11.0	25.0		36.0
Max Q Clear Time (g_c+I1), s		2.6		12.8	4.4	8.2		6.0
Green Ext Time (p_c), s		0.2		1.5	0.0	0.8		0.7

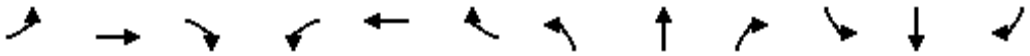
Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	88	70	79	58	20	73	2	69	29	93	45	51
Future Vol, veh/h	88	70	79	58	20	73	2	69	29	93	45	51
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	26	26	26	69	69	69	93	93	93	60	60	60
Mvmt Flow	88	70	79	58	20	73	2	69	29	93	45	51
Number of Lanes	0	1	1	0	1	1	0	0	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	10.9	10.8	12.5	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	2%	56%	0%	74%	0%	67%	0%
Vol Thru, %	69%	44%	0%	26%	0%	33%	0%
Vol Right, %	29%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	158	79	78	73	138	51
LT Vol	2	88	0	58	0	93	0
Through Vol	69	70	0	20	0	45	0
RT Vol	29	0	79	0	73	0	51
Lane Flow Rate	100	158	79	78	73	138	51
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.208	0.286	0.121	0.162	0.129	0.278	0.088
Departure Headway (Hd)	7.495	6.519	5.529	7.46	6.374	7.263	6.215
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	553	649	482	564	495	578
Service Time	5.522	4.245	3.254	5.188	4.101	4.987	3.94
HCM Lane V/C Ratio	0.208	0.286	0.122	0.162	0.129	0.279	0.088
HCM Control Delay	12.5	11.8	9	11.6	10	12.8	9.5
HCM Lane LOS	B	B	A	B	A	B	A
HCM 95th-tile Q	0.8	1.2	0.4	0.6	0.4	1.1	0.3



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	160	5	80	143	95	3	152	103	112	101	31
Future Volume (vph)	110	160	5	80	143	95	3	152	103	112	101	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1504	3008	1346	1271	2542	1137	1056	1973		2398	1256	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1504	3008	1346	1271	2542	1137	1056	1973		2398	1256	
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)	110	160	5	80	143	95	3	152	103	112	101	31
RTOR Reduction (vph)	0	0	3	0	0	56	0	84	0	0	11	0
Lane Group Flow (vph)	110	160	2	80	143	39	3	171	0	112	121	0
Confl. Peds. (#/hr)									1	1		
Heavy Vehicles (%)	20%	20%	20%	42%	42%	42%	71%	71%	71%	46%	46%	46%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	8.2	34.0	34.0	7.8	33.6	33.6	1.1	15.4		7.3	21.6	
Effective Green, g (s)	8.2	34.0	34.0	7.8	33.6	33.6	1.1	15.4		7.3	21.6	
Actuated g/C Ratio	0.10	0.42	0.42	0.10	0.41	0.41	0.01	0.19		0.09	0.27	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	151	1254	561	121	1047	468	14	372		214	332	
v/s Ratio Prot	c0.07	0.05		0.06	c0.06		0.00	c0.09		c0.05	0.10	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.73	0.13	0.00	0.66	0.14	0.08	0.21	0.46		0.52	0.36	
Uniform Delay, d1	35.6	14.6	13.9	35.6	14.9	14.6	39.8	29.4		35.4	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.1	0.2	0.0	12.8	0.1	0.1	7.6	0.9		2.3	0.7	
Delay (s)	51.6	14.8	13.9	48.3	15.0	14.7	47.3	30.3		37.7	25.0	
Level of Service	D	B	B	D	B	B	D	C		D	C	
Approach Delay (s)		29.5			23.3			30.5			30.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

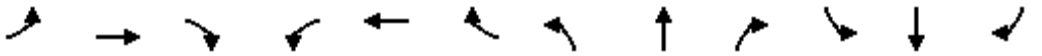
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	219	228	67	312	0	0
Future Volume (veh/h)	219	228	67	312	0	0
Number	6	16	5	2		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.98	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1610	1610	1407	1407		
Adj Flow Rate, veh/h	219	228	67	312		
Adj No. of Lanes	2	1	2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	18	18	35	35		
Cap, veh/h	1982	868	421	2420		
Arrive On Green	0.65	0.65	0.16	0.90		
Sat Flow, veh/h	3140	1340	2600	2744		
Grp Volume(v), veh/h	219	228	67	312		
Grp Sat Flow(s),veh/h/ln	1530	1340	1300	1337		
Q Serve(g_s), s	1.3	3.6	1.1	0.6		
Cycle Q Clear(g_c), s	1.3	3.6	1.1	0.6		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1982	868	421	2420		
V/C Ratio(X)	0.11	0.26	0.16	0.13		
Avail Cap(c_a), veh/h	1982	868	1579	2420		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.3	3.7	17.8	0.3		
Incr Delay (d2), s/veh	0.1	0.7	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.6	1.4	0.4	0.2		
LnGrp Delay(d),s/veh	3.4	4.4	18.0	0.3		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	447			379		
Approach Delay, s/veh	3.9			3.4		
Approach LOS	A			A		

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2			5	6		
Phs Duration (G+Y+Rc), s		49.4			12.7	36.7		
Change Period (Y+Rc), s		* 4.7			* 4.7	* 4.7		
Max Green Setting (Gmax), s		* 12			* 30	* 32		
Max Q Clear Time (g_c+I1), s		2.6			3.1	5.6		
Green Ext Time (p_c), s		0.9			0.2	1.7		

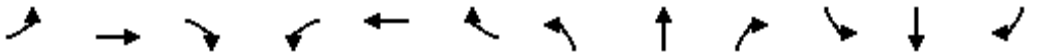
Intersection Summary	
HCM 2010 Ctrl Delay	3.7
HCM 2010 LOS	A

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	93	0	0	77	100	173	260	83	96	0	125
Future Volume (vph)	132	93	0	0	77	100	173	260	83	96	0	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.97		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1671	3343			2921		1416	2871		1504		2369
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1671	3343			2921		1416	2871		1504		2369
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)	132	93	0	0	77	100	173	260	83	96	0	125
RTOR Reduction (vph)	0	0	0	0	78	0	0	24	0	0	0	103
Lane Group Flow (vph)	132	93	0	0	99	0	156	336	0	96	0	22
Confl. Peds. (#/hr)	10					10						
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	8%	8%	8%	12%	12%	12%	16%	16%	16%	20%	20%	20%
Turn Type	Prot	NA			NA		Perm	NA		Prot		Perm
Protected Phases	1	6			2			4		3		
Permitted Phases							4					3
Actuated Green, G (s)	13.7	34.6			16.7		14.3	14.3		13.5		13.5
Effective Green, g (s)	13.7	34.6			16.7		14.3	14.3		13.5		13.5
Actuated g/C Ratio	0.18	0.46			0.22		0.19	0.19		0.18		0.18
Clearance Time (s)	4.2	4.7			4.7		4.7	4.7		4.2		4.2
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	301	1521			641		266	540		267		420
v/s Ratio Prot	c0.08	0.03			c0.03					c0.06		
v/s Ratio Perm							0.11	0.12				0.01
v/c Ratio	0.44	0.06			0.15		0.59	0.62		0.36		0.05
Uniform Delay, d1	27.7	11.6			23.9		28.2	28.4		27.5		25.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.4	0.0			0.1		2.7	1.9		0.6		0.0
Delay (s)	28.1	11.6			24.0		30.9	30.3		28.1		26.0
Level of Service	C	B			C		C	C		C		C
Approach Delay (s)		21.3			24.0			30.5			26.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	17.8
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	629	133	92	423	6	149	1	164	17	1	18
Future Volume (vph)	16	629	133	92	423	6	149	1	164	17	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1703	3406	1504	1671	3336		1545	1550	1455	1626	2790	
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)	16	629	133	92	423	6	149	1	164	17	1	18
RTOR Reduction (vph)	0	0	102	0	1	0	0	0	92	0	19	0
Lane Group Flow (vph)	16	629	31	92	428	0	74	76	72	17	0	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	6%	6%	6%	8%	8%	8%	11%	11%	11%	11%	11%	11%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	7	7	
Permitted Phases			2									
Actuated Green, G (s)	1.0	20.1	20.1	7.2	26.3		37.3	37.3	37.3	2.1	2.1	
Effective Green, g (s)	1.0	20.1	20.1	7.2	26.3		37.3	37.3	37.3	2.1	2.1	
Actuated g/C Ratio	0.01	0.24	0.24	0.08	0.31		0.44	0.44	0.44	0.02	0.02	
Clearance Time (s)	4.2	5.5	5.5	4.2	5.5		4.6	4.6	4.6	4.2	4.2	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)	19	803	354	141	1029		676	678	636	40	68	
v/s Ratio Prot	0.01	c0.18		c0.06	0.13		0.05	0.05	c0.05	c0.01	0.00	
v/s Ratio Perm			0.02									
v/c Ratio	0.84	0.78	0.09	0.65	0.42		0.11	0.11	0.11	0.42	0.01	
Uniform Delay, d1	42.0	30.5	25.4	37.8	23.4		14.1	14.2	14.2	41.0	40.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	128.3	4.6	0.0	8.0	0.1		0.0	0.0	0.0	2.6	0.0	
Delay (s)	170.3	35.1	25.4	45.8	23.5		14.2	14.2	14.2	43.6	40.5	
Level of Service	F	D	C	D	C		B	B	B	D	D	
Approach Delay (s)		36.3			27.4			14.2			42.0	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	85.2	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	550	45	76	447	142	48	170	277	234	116	58
Future Volume (vph)	239	550	45	76	447	142	48	170	277	234	116	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1719	3395		1703	3406	1524	1671	3032		1535	3073	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1719	3395		1703	3406	1524	1671	3032		1535	3073	
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	550	45	76	447	142	48	170	277	234	116	58
RTOR Reduction (vph)	0	6	0	0	0	109	0	241	0	0	21	0
Lane Group Flow (vph)	239	589	0	76	447	33	48	206	0	136	251	0
Confl. Peds. (#/hr)			3	3								
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	8%	8%	8%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	12.4	21.2		5.3	15.0	15.0	8.2	8.2		9.4	9.4	
Effective Green, g (s)	12.4	21.2		5.3	15.0	15.0	8.2	8.2		9.4	9.4	
Actuated g/C Ratio	0.19	0.33		0.08	0.24	0.24	0.13	0.13		0.15	0.15	
Clearance Time (s)	4.2	5.1		4.2	4.2	4.2	5.1	5.1		5.1	5.1	
Vehicle Extension (s)	0.2	0.2		0.2	0.2	0.2	0.2	0.2		0.2	0.2	
Lane Grp Cap (vph)	335	1131		141	803	359	215	390		226	454	
v/s Ratio Prot	c0.14	c0.17		0.04	0.13		0.03	c0.07		c0.09	0.08	
v/s Ratio Perm						0.02						
v/c Ratio	0.71	0.52		0.54	0.56	0.09	0.22	0.53		0.60	0.55	
Uniform Delay, d1	23.9	17.1		28.0	21.4	19.0	24.8	25.9		25.3	25.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	0.2		2.0	0.5	0.0	0.2	0.6		3.1	0.8	
Delay (s)	29.8	17.3		30.0	21.9	19.0	25.0	26.5		28.4	26.0	
Level of Service	C	B		C	C	B	C	C		C	C	
Approach Delay (s)		20.9			22.2			26.3			26.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	63.6	Sum of lost time (s)	19.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix B – Existing Conditions, Plus Project, and Sensitivity Testing Queue Tables

Appendix B-1: Existing Conditions Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Length Average (95th)[1]
1	Union Street & 7th Street	EBL	125	MD PM	25 (25) 25 (25)
		EBT	225	MD PM	50 (75) 150 (200)
		WBL	125	MD PM	50 (75) 25 (50)
		WBT	600	MD PM	50 (75) 50 (75)
		NBT	250	MD PM	25 (50) 50 (75)
		NBR	250	MD PM	25 (50) 200 (**350**)
		SBT	75	MD PM	25 (25) 25 (50)
2	Union Street & 5th Street	EBL	800	MD PM	25 (25) 50 (125)
		EBT	800	MD PM	25 (50) 125 (200)
		WBL	600	MD PM	25 (100) 50 (100)
		WBT	600	MD PM	25 (75) 100 (175)
		NBL	225	MD PM	25 (50) 25 (75)
		NBT	925	MD PM	25 (75) 225 (500)
		SBT	250	MD PM	25 (75) 25 (50)
3	Adeline Street & 7th Street	EBL	175	MD PM	25 (25) 25 (25)
		EBT	600	MD PM	25 (50) 175 (200)
		WBL	175	MD PM	25 (50) 25 (75)
		WBT	1,375	MD PM	50 (75) 50 (75)
		WBR	1,375	MD PM	25 (25) 25 (25)
		NBL	100	MD PM	25 (25) 25 (25)
		NBT	300	MD PM	25 (50) 50 (75)

Appendix B-1: Existing Conditions Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Length Average (95th)[1]
		SBT	425	MD PM	25 (50) 75 (100)
4	Adeline Street & 5th Street	EBL	625	MD PM	25 (25) 50 (100)
		EBT	625	MD PM	125 (225) 225 (450)
		WBL	400	MD PM	75 (150) 50 (75)
		WBT	1,000	MD PM	25 (50) 50 (75)
		NBL	650	MD PM	75 (150) 100 (175)
		NBT	650	MD PM	25 (75) 50 (100)
		SBL	175	MD PM	25 (75) 75 (150)
		SBT	300	MD PM	25 (75) 50 (100)
5	Adeline Street & 3rd Street	Queues not available for stop-controlled intersections			
6	Middle Harbor Road & Maritime Street	Queues not available for stop-controlled intersections			
7	Maritime Street & 7th Street	EBL	125	MD PM	75 (**225**) 50 (100)
		EBT	325	MD PM	50 (100) 25 (50)
		EBR	300	MD PM	25 (25) 25 (25)
		WBL	100	MD PM	50 (100) 25 (75)
		WBT	1,925	MD PM	50 (75) 25 (50)
		WBR	275	MD PM	25 (100) 25 (25)
		NBL	325	MD PM	25 (50) 25 (25)
		NBT	350	MD PM	50 (100) 50 (75)
		SBL	500	MD PM	50 (75) 25 (75)
		SBT	500	MD PM	25 (75) 50 (100)

Appendix B-1: Existing Conditions Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Length Average (95th)[1]
8	I-880 On-Ramp & 7th Street	EBT	1,925	MD PM	25 (25) 25 (25)
		EBR	275	MD PM	25 (25) 25 (25)
		WBL	275	MD PM	25 (50) 25 (25)
		WBT	275	MD PM	25 (25) 25 (25)
9	I-880 Off-Ramp/Frontage Road & 7th Street	EBL	275	MD PM	50 (150) 25 (100)
		EBT	275	MD PM	25 (25) 25 (50)
		WBT	225	MD PM	75 (125) 25 (50)
		NBL	450	MD PM	100 (350) 50 (125)
		NBT	450	MD PM	100 (250) 75 (175)
		SBL	175	MD PM	50 (100) 50 (125)
10	Maritime Street/Wake Avenue & W Grand Avenue	EBL	425	MD PM	25 (50) 25 (50)
		EBT	525	MD PM	50 (75) 175 (250)
		EBR	525	MD PM	25 (25) 25 (50)
		WBL	875	MD PM	75 (150) 50 (75)
		WBT	2,175	MD PM	175 (275) 100 (150)
		NBL	475	MD PM	50 (100) 25 (75)
		NBT	575	MD PM	50 (100) 25 (75)
		NBR	575	MD PM	25 (50) 25 (50)
		SBL	125	MD PM	25 (75) 25 (50)
		SBT	350	MD PM	25 (25) 25 (25)
11	Frontage Road/I-80 & W Grand Avenue	EBL	800	MD PM	50 (100) 75 (150)

Appendix B-1: Existing Conditions Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Length Average (95th)[1]
		EBT	2,175	MD PM	25 (75) 100 (175)
		WBL	275	MD PM	50 (125) 25 (75)
		WBT	750	MD PM	100 (200) 75 (150)
		WBR	325	MD PM	25 (50) 25 (50)
		NBL	625	MD PM	25 (75) 25 (75)
		NBT	750	MD PM	25 (75) 25 (75)
		SBL	425	MD PM	25 (100) 50 (125)
		SBT	450	MD PM	25 (75) 50 (100)

Notes:

1. Average = average queue length. 95th = 95th percentile queue length. Queues are reported in feet. Queues that exceed available storage are shown in **bold**

Source: Fehr & Peers, 2019.

Appendix B-2: Existing and Existing Plus Project and Sensitivity Testing Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Lengths Average (95th)[1]			
					Existing	Existing Plus Project	Existing Plus Project Plus 25% Rerouting	Existing Plus Project Plus 50% Rerouting
1	Union Street & 7th Street	EBL	125	MD PM	25 (25) 25 (25)	25 (25) 25 (25)		
		EBT	225	MD PM	50 (75) 150 (200)	75 (100) 150 (200)		
		WBL	125	MD PM	50 (75) 25 (50)	50 (75) 25 (50)		
		WBT	600	MD PM	50 (75) 50 (75)	50 (75) 50 (75)		
		NBT	250	MD PM	25 (50) 50 (75)	25 (50) 50 (75)		
		NBR	250	MD PM	25 (50) 200 (**350**)	25 (50) 225 (**375**)		
		SBT	75	MD PM	25 (25) 25 (50)	25 (25) 25 (50)		
2	Union Street & 5th Street[3]	EBL	450	MD PM	25 (25) 50 (125)	25 (25) 50 (100)	Intersections not evaluated because operating assumption is that drivers to and from the Port avoid these intersections because of ballgames.	
		EBT	450	MD PM	25 (50) 125 (200)	25 (50) 100 (175)		
		WBL	325	MD PM	25 (100) 50 (100)	75 (175) 100 (225)		
		WBT	625	MD PM	25 (75) 100 (175)	25 (100) 100 (175)		
		NBL	225	MD PM	25 (50) 25 (75)	25 (50) 25 (75)		
		NBT	925	MD PM	25 (75) 225 (500)	50 (100) 225 (**525**)		
		NBR	925	MD PM		25 (75) 175 (**450**)		
		SBT	250	MD PM	25 (75) 25 (50)	25 (100) 25 (50)		
3	Adeline Street & 7th Street	EBL	175	MD PM	25 (25) 25 (25)	25 (25) 25 (25)		
		EBT	600	MD PM	25 (50) 175 (200)	25 (50) 175 (200)		
		WBL	175	MD PM	25 (50) 25 (75)	25 (50) 25 (100)		
		WBT	1,375	MD PM	50 (75) 50 (75)	125 (200) 125 (175)		

Appendix B-2: Existing and Existing Plus Project and Sensitivity Testing Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Lengths Average (95th)[1]			
					Existing	Existing Plus Project	Existing Plus Project Plus 25% Rerouting	Existing Plus Project Plus 50% Rerouting
		WBR	1,375	MD PM	25 (25) 25 (25)	25 (25) 25 (25)		
		NBL	100	MD PM	25 (25) 25 (25)	25 (25) 25 (50)		
		NBT	300	MD PM	25 (50) 50 (75)	25 (50) 50 (75)		
		SBT	425	MD PM	25 (50) 75 (100)	25 (50) 75 (100)		
4	Adeline Street & 5th Street[3]	EBT	625	MD PM	125 (225) 225 (450)	125 (200) 325 (550)		
		EBR	625	MD PM		25 (25) 25 (50)		
		WBL	325	MD PM	75 (150) 50 (75)	100 (250) 50 (125)		
		WBT	325	MD PM	25 (50) 50 (75)	50 (75) 75 (125)		
		NBL	650	MD PM	75 (150) 100 (175)	100 (175) 125 (225)		
		NBT	650	MD PM	25 (75) 50 (100)	50 (100) 100 (175)		
		SBL	175	MD PM	25 (75) 75 (150)	25 (50) 25 (50)		
		SBT	300	MD PM	25 (75) 50 (100)	50 (75) 75 (150)		
5	Adeline Street & 3rd Street	EBT	375	MD PM	Queues not available for stop-controlled intersections	50 (100) 50 (125)		
		WBT	425	MD PM		25 (75) 75 (125)		
		NBT	1000	MD PM		125 (275) 125 (250)		
		SBL	500	MD PM		100 (175) 100 (175)		
		SBT	650	MD PM		25 (75) 50 (100)		
6	Middle Harbor Road & Maritime Street	Queues not available for stop-controlled intersections						

Appendix B-2: Existing and Existing Plus Project and Sensitivity Testing Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Lengths Average (95th)[1]			
					Existing	Existing Plus Project	Existing Plus Project Plus 25% Rerouting	Existing Plus Project Plus 50% Rerouting
7	Maritime Street & 7th Street	EBL	125	MD PM	75 (**225**) 50 (100)	100 (**250**) 50 (100)	100 (**275**) 50 (125)	125 (**300**) 75 (**150**)
		EBT	325	MD PM	50 (100) 25 (50)	50 (100) 25 (50)	50 (100) 25 (75)	75 (125) 50 (75)
		EBR	300	MD PM	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)
		WBL	100	MD PM	50 (100) 25 (75)	50 (**125**) 25 (75)	75 (**175**) 50 (100)	75 (**200**) 50 (100)
		WBT	1,925	MD PM	50 (75) 25 (50)	50 (100) 25 (50)	50 (100) 25 (50)	75 (125) 25 (75)
		WBR	275	MD PM	25 (100) 25 (25)	25 (100) 25 (25)	25 (100) 25 (25)	25 (100) 25 (25)
		NBL	325	MD PM	25 (50) 25 (25)	25 (50) 25 (25)	25 (50) 25 (25)	25 (50) 25 (25)
		NBT	350	MD PM	50 (100) 50 (75)	75 (125) 50 (75)	75 (125) 50 (75)	75 (125) 50 (100)
		SBL	500	MD PM	50 (75) 25 (75)	50 (75) 25 (75)	50 (75) 25 (75)	50 (75) 50 (75)
		SBT	500	MD PM	25 (75) 50 (100)	50 (75) 50 (125)	50 (100) 50 (125)	50 (100) 50 (125)
8	I-880 On-Ramp & 7th Street	EBT	1,925	MD PM	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)
		EBR	275	MD PM	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)	25 (50) 25 (25)
		WBL	275	MD PM	25 (50) 25 (25)	25 (50) 25 (25)	25 (50) 25 (25)	25 (50) 25 (25)
		WBT	275	MD PM	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)
9	I-880 Off-Ramp/Frontage Road & 7th Street	EBL	275	MD PM	50 (150) 25 (100)	50 (150) 25 (100)	75 (200) 50 (150)	100 (250) 50 (175)
		EBT	275	MD PM	25 (25) 25 (50)	25 (25) 25 (50)	25 (25) 25 (50)	25 (25) 25 (50)
		WBT	225	MD PM	75 (125) 25 (50)	75 (125) 25 (50)	75 (125) 25 (50)	75 (125) 25 (50)
		NBL	450	MD PM	100 (350) 50 (125)	100 (375) 50 (150)	125 (400) 75 (175)	150 (425) 75 (225)
		NBT	450	MD PM	100 (250) 75 (175)	100 (275) 75 (175)	125 (300) 75 (200)	125 (325) 75 (200)

Appendix B-2: Existing and Existing Plus Project and Sensitivity Testing Queues

#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Lengths Average (95th)[1]			
					Existing	Existing Plus Project	Existing Plus Project Plus 25% Rerouting	Existing Plus Project Plus 50% Rerouting
		SBL	175	MD PM	50 (100) 50 (125)	50 (100) 50 (125)	50 (100) 50 (125)	50 (100) 50 (150)
10	Maritime Street/Wake Avenue & W Grand Avenue	EBL	425	MD PM	25 (50) 25 (50)	25 (50) 25 (50)	25 (50) 25 (50)	25 (50) 25 (50)
		EBT	525	MD PM	50 (75) 175 (250)	50 (75) 175 (250)	50 (75) 175 (250)	50 (75) 175 (250)
		EBR	525	MD PM	25 (25) 25 (50)	25 (25) 25 (50)	25 (25) 25 (50)	25 (25) 25 (50)
		WBL	875	MD PM	75 (150) 50 (75)	100 (175) 50 (100)	100 (175) 50 (100)	100 (200) 50 (125)
		WBT	2,175	MD PM	175 (275) 100 (150)	150 (250) 100 (150)	175 (275) 100 (150)	175 (275) 100 (150)
		NBL	475	MD PM	50 (100) 25 (75)	50 (100) 25 (75)	50 (125) 25 (75)	50 (125) 50 (75)
		NBT	575	MD PM	50 (100) 25 (75)	50 (100) 25 (75)	50 (125) 25 (75)	50 (125) 50 (75)
		NBR	575	MD PM	25 (50) 25 (50)	25 (50) 25 (50)	25 (50) 25 (50)	25 (50) 25 (50)
		SBL	125	MD PM	25 (75) 25 (50)	25 (75) 25 (50)	25 (75) 25 (50)	25 (75) 25 (50)
		SBT	350	MD PM	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)	25 (25) 25 (25)

Appendix B-2: Existing and Existing Plus Project and Sensitivity Testing Queues

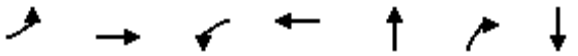
#	Study Intersection	Movement	Storage (ft)	Peak Hour	Queue Lengths Average (95th)[1]			
					Existing	Existing Plus Project	Existing Plus Project Plus 25% Rerouting	Existing Plus Project Plus 50% Rerouting
11	Frontage Road/I-80 & W Grand Avenue	EBL	800	MD PM	50 (100) 75 (150)	50 (100) 75 (150)	50 (125) 75 (175)	75 (150) 100 (200)
		EBT	2,175	MD PM	25 (75) 100 (175)	25 (75) 100 (175)	25 (75) 100 (200)	25 (75) 100 (200)
		WBL	275	MD PM	50 (125) 25 (75)	50 (125) 25 (75)	50 (125) 25 (100)	50 (125) 50 (100)
		WBT	750	MD PM	100 (200) 75 (150)	100 (200) 75 (150)	100 (225) 75 (175)	125 (225) 100 (175)
		WBR	325	MD PM	25 (50) 25 (50)	25 (50) 25 (50)	25 (75) 25 (50)	25 (75) 25 (50)
		NBL	625	MD PM	25 (75) 25 (75)	25 (100) 25 (75)	25 (100) 25 (75)	50 (100) 25 (75)
		NBT	750	MD PM	25 (75) 25 (75)	25 (75) 25 (75)	50 (100) 25 (100)	50 (125) 50 (100)
		SBL	425	MD PM	25 (100) 50 (125)	25 (100) 50 (125)	50 (100) 50 (150)	50 (100) 50 (150)
		SBT	450	MD PM	25 (75) 50 (100)	25 (75) 50 (100)	50 (100) 50 (100)	50 (125) 50 (125)

Notes:

1. Average = average queue length. 95th = 95th percentile queue length. Queues are reported in feet. Queues that exceed available storage are shown in **bold**

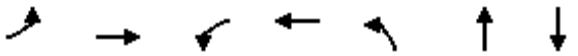
Source: Fehr & Peers, 2020.

Appendix C – Detailed Queue Calculation Worksheets



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	318	171	293	34	98	33
v/c Ratio	0.04	0.23	0.41	0.20	0.05	0.14	0.05
Control Delay	12.8	13.7	15.4	10.9	12.7	3.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	13.7	15.4	10.9	12.7	3.5	9.3
Queue Length 50th (ft)	4	47	39	33	9	0	6
Queue Length 95th (ft)	15	74	66	50	25	25	21
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	409	1370	418	1444	723	715	713
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.23	0.41	0.20	0.05	0.14	0.05

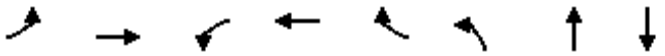
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	9	69	163	99	37	588	190
v/c Ratio	0.02	0.11	0.29	0.17	0.20	0.47	0.21
Control Delay	22.6	14.0	26.5	10.7	31.0	5.5	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	14.0	26.5	10.7	31.0	5.5	20.1
Queue Length 50th (ft)	2	14	21	10	10	12	21
Queue Length 95th (ft)	16	41	#80	60	48	61	73
Internal Link Dist (ft)		437		622		920	236
Turn Bay Length (ft)			300		220		
Base Capacity (vph)	456	1265	565	823	188	2117	1685
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.29	0.12	0.20	0.28	0.11

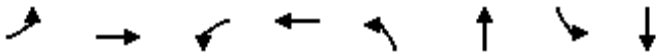
Intersection Summary

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



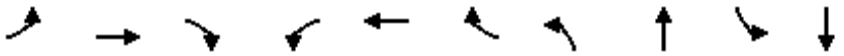
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	31	398	57	395	55	20	122	153
v/c Ratio	0.07	0.23	0.12	0.21	0.07	0.05	0.11	0.15
Control Delay	4.7	3.8	9.5	9.6	2.8	17.8	12.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	3.8	9.5	9.6	2.8	17.8	12.0	13.0
Queue Length 50th (ft)	3	14	13	48	0	7	13	18
Queue Length 95th (ft)	9	30	31	72	15	21	31	38
Internal Link Dist (ft)		585		1374			281	414
Turn Bay Length (ft)	160		150			75		
Base Capacity (vph)	476	1752	490	1838	832	402	1129	998
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.23	0.12	0.21	0.07	0.05	0.11	0.15

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	523	136	146	135	270	46	103
v/c Ratio	0.08	0.65	0.55	0.12	0.55	0.47	0.23	0.24
Control Delay	41.0	29.3	38.8	9.7	38.3	13.6	37.7	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	29.3	38.8	9.7	38.3	13.6	37.7	29.1
Queue Length 50th (ft)	4	101	52	11	51	16	19	17
Queue Length 95th (ft)	23	206	137	39	139	63	69	53
Internal Link Dist (ft)		622		310		636		281
Turn Bay Length (ft)			300				150	
Base Capacity (vph)	456	1496	465	1452	418	858	540	1104
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.35	0.29	0.10	0.32	0.31	0.09	0.09

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	133	185	28	73	174	393	12	271	114	55
v/c Ratio	0.83	0.21	0.06	0.49	0.21	0.63	0.12	0.66	0.41	0.16
Control Delay	78.3	20.9	0.2	49.2	21.4	7.8	42.8	30.7	41.3	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	20.9	0.2	49.2	21.4	7.8	42.8	30.7	41.3	22.9
Queue Length 50th (ft)	69	33	0	36	32	0	6	48	28	19
Queue Length 95th (ft)	#216	76	0	91	70	85	25	95	61	56
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	161	863	467	190	916	651	265	802	436	432
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.21	0.06	0.38	0.19	0.60	0.05	0.34	0.26	0.13

Intersection Summary

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



Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	148	247	169	645
v/c Ratio	0.11	0.35	0.39	0.26
Control Delay	4.2	2.3	21.1	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.2	2.3	21.1	0.3
Queue Length 50th (ft)	7	0	23	0
Queue Length 95th (ft)	17	21	45	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1367	702	1402	2439
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	0.11	0.35	0.12	0.26

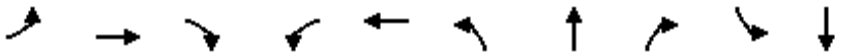
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	102	51	296	206	405	64	271
v/c Ratio	0.50	0.06	0.43	0.72	0.68	0.29	0.47
Control Delay	45.1	14.5	24.4	46.4	33.8	40.4	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	14.5	24.4	46.4	33.8	40.4	8.5
Queue Length 50th (ft)	45	7	53	92	82	27	0
Queue Length 95th (ft)	134	19	104	#327	#237	92	43
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	308	1679	1312	380	779	317	705
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.03	0.23	0.54	0.52	0.20	0.38

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	112	33	145	688	132	131	139	25	3
v/c Ratio	0.10	0.24	0.11	0.64	0.66	0.21	0.20	0.21	0.42	0.01
Control Delay	39.7	32.1	0.8	46.4	27.5	15.6	15.6	4.0	62.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	32.1	0.8	46.4	27.5	15.6	15.6	4.0	62.4	0.0
Queue Length 50th (ft)	6	26	0	69	153	38	37	0	12	0
Queue Length 95th (ft)	25	53	0	139	250	98	97	36	#53	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	283	1618	773	359	1815	641	645	678	59	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.04	0.40	0.38	0.21	0.20	0.21	0.42	0.01

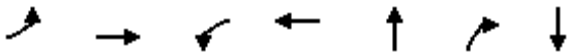
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	230	122	573	206	76	298	76	267
v/c Ratio	0.49	0.32	0.52	0.62	0.37	0.41	0.61	0.45	0.60
Control Delay	34.8	14.7	33.7	22.9	5.8	32.7	17.8	34.3	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	14.7	33.7	22.9	5.8	32.7	17.8	34.3	19.1
Queue Length 50th (ft)	27	20	35	82	0	22	19	24	20
Queue Length 95th (ft)	85	60	104	182	47	74	67	81	69
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	769	2022	469	1752	881	359	782	449	957
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.11	0.26	0.33	0.23	0.21	0.38	0.17	0.28

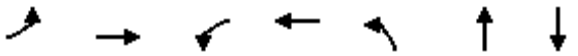
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	26	743	89	374	109	579	48
v/c Ratio	0.07	0.51	0.40	0.25	0.14	0.77	0.07
Control Delay	13.2	17.1	18.1	10.8	13.6	23.9	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	18.1	0.0
Total Delay	13.2	17.1	18.1	10.8	13.6	42.0	9.4
Queue Length 50th (ft)	7	133	22	44	31	198	8
Queue Length 95th (ft)	21	183	44	64	60	#348	27
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	381	1449	221	1478	783	752	698
Starvation Cap Reductn	0	0	0	0	0	173	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.51	0.40	0.25	0.14	1.00	0.07

Intersection Summary

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

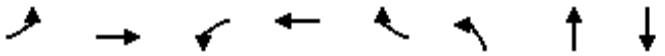


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	88	214	153	177	36	1437	128
v/c Ratio	0.30	0.46	0.41	0.39	0.25	0.88dr	0.11
Control Delay	40.2	32.4	42.1	32.2	46.1	19.0	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	32.4	42.1	32.2	46.1	19.0	15.1
Queue Length 50th (ft)	44	104	41	87	19	220	15
Queue Length 95th (ft)	108	180	84	150	57	#476	47
Internal Link Dist (ft)		437		622		920	236
Turn Bay Length (ft)			300		220		
Base Capacity (vph)	336	515	777	567	332	1948	1148
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.42	0.20	0.31	0.11	0.74	0.11

Intersection Summary

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

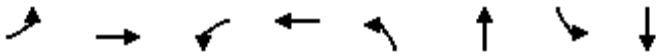
dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	57	1273	57	371	67	24	267	318
v/c Ratio	0.11	0.69	0.43	0.19	0.08	0.07	0.23	0.33
Control Delay	7.7	12.8	23.4	9.4	2.6	18.2	15.1	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	12.8	23.4	9.4	2.6	18.2	15.1	17.6
Queue Length 50th (ft)	12	162	16	45	0	8	38	51
Queue Length 95th (ft)	m18	195	55	67	16	24	65	84
Internal Link Dist (ft)		585		1374			281	414
Turn Bay Length (ft)	160		150			75		
Base Capacity (vph)	510	1848	132	1909	860	338	1166	955
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.69	0.43	0.19	0.08	0.07	0.23	0.33

Intersection Summary

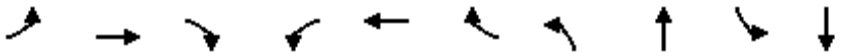
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	983	57	197	164	280	119	161
v/c Ratio	0.38	0.73	0.37	0.17	0.57	0.46	0.50	0.33
Control Delay	44.2	27.7	43.8	16.3	39.5	23.7	41.6	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	27.7	43.8	16.3	39.5	23.7	41.6	33.4
Queue Length 50th (ft)	30	215	27	26	75	46	60	39
Queue Length 95th (ft)	78	#442	72	66	151	91	135	79
Internal Link Dist (ft)		622		310		636		281
Turn Bay Length (ft)			300				150	
Base Capacity (vph)	406	1340	450	1353	473	946	477	983
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.73	0.13	0.15	0.35	0.30	0.25	0.16

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	73	93	5	43	71	82	3	156	95	97
v/c Ratio	0.39	0.06	0.01	0.29	0.06	0.13	0.03	0.45	0.33	0.27
Control Delay	40.8	16.8	0.0	40.1	17.4	1.0	39.0	27.0	37.3	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	16.8	0.0	40.1	17.4	1.0	39.0	27.0	37.3	24.0
Queue Length 50th (ft)	32	13	0	19	10	0	1	27	21	34
Queue Length 95th (ft)	87	39	0	59	32	5	11	59	53	87
Internal Link Dist (ft)		312			1908			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	253	1450	722	213	1210	616	296	875	504	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.06	0.01	0.20	0.06	0.13	0.01	0.18	0.19	0.21

Intersection Summary



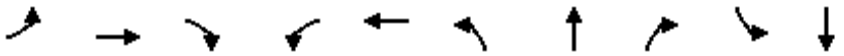
Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	154	103	67	190
v/c Ratio	0.08	0.11	0.16	0.07
Control Delay	3.4	1.2	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.4	1.2	18.9	0.1
Queue Length 50th (ft)	6	0	8	0
Queue Length 95th (ft)	13	10	22	0
Internal Link Dist (ft)	1908			285
Turn Bay Length (ft)		260		
Base Capacity (vph)	1981	912	1575	2674
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	0.08	0.11	0.04	0.07

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	67	93	177	82	352	96	86
v/c Ratio	0.18	0.07	0.20	0.27	0.54	0.27	0.14
Control Delay	33.1	12.7	11.9	30.6	28.2	32.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	12.7	11.9	30.6	28.2	32.9	6.4
Queue Length 50th (ft)	23	11	13	31	65	34	0
Queue Length 95th (ft)	90	30	43	105	165	117	18
Internal Link Dist (ft)		285	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	628	2769	1725	665	1367	508	870
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.10	0.12	0.26	0.19	0.10

Intersection Summary



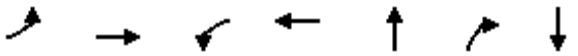
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	629	120	52	429	64	65	104	17	19
v/c Ratio	0.12	0.81	0.28	0.25	0.44	0.08	0.09	0.13	0.19	0.03
Control Delay	41.8	38.1	7.4	39.9	23.2	16.2	16.2	3.8	46.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	38.1	7.4	39.9	23.2	16.2	16.2	3.8	46.9	0.1
Queue Length 50th (ft)	8	173	0	27	86	21	22	0	9	0
Queue Length 95th (ft)	29	234	41	65	148	52	53	27	31	0
Internal Link Dist (ft)		503			2174		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	324	1854	873	386	1953	757	759	771	88	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.14	0.13	0.22	0.08	0.09	0.13	0.19	0.03

Intersection Summary



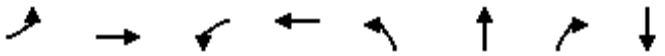
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	179	595	76	447	142	48	382	117	212
v/c Ratio	0.63	0.56	0.41	0.56	0.30	0.23	0.63	0.53	0.47
Control Delay	33.8	20.2	33.1	23.9	6.0	28.6	13.4	33.9	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	20.2	33.1	23.9	6.0	28.6	13.4	33.9	26.6
Queue Length 50th (ft)	53	83	23	65	0	14	16	38	32
Queue Length 95th (ft)	134	173	73	145	37	50	63	107	80
Internal Link Dist (ft)		2174		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	928	2576	460	1717	844	421	957	552	1122
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.23	0.17	0.26	0.17	0.11	0.40	0.21	0.19

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	334	171	315	34	98	35
v/c Ratio	0.04	0.24	0.42	0.22	0.05	0.14	0.05
Control Delay	12.8	13.8	15.6	11.6	12.7	3.5	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	13.8	15.6	11.6	12.7	3.5	9.5
Queue Length 50th (ft)	4	51	39	35	9	0	6
Queue Length 95th (ft)	15	77	74	60	25	25	22
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	396	1371	409	1443	723	715	709
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24	0.42	0.22	0.05	0.14	0.05

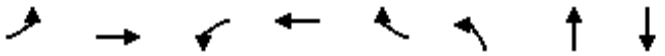
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	9	69	343	123	37	99	623	190
v/c Ratio	0.02	0.11	0.49	0.19	0.19	0.20	0.57	0.24
Control Delay	24.3	15.9	27.0	10.8	32.6	20.2	3.5	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	15.9	27.0	10.8	32.6	20.2	3.5	22.2
Queue Length 50th (ft)	2	16	50	13	11	26	0	24
Queue Length 95th (ft)	17	45	#173	75	49	82	55	76
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	469	1292	699	962	197	1240	1085	1737
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.49	0.13	0.19	0.08	0.57	0.11

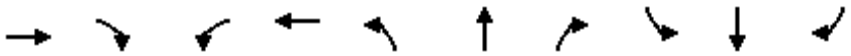
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	31	416	66	413	55	23	140	164
v/c Ratio	0.08	0.24	0.14	0.43	0.07	0.06	0.12	0.16
Control Delay	4.7	3.8	9.8	12.3	2.8	17.9	11.8	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	3.8	9.8	12.3	2.8	17.9	11.8	13.4
Queue Length 50th (ft)	3	14	15	113	0	8	15	21
Queue Length 95th (ft)	9	30	35	177	15	23	34	42
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	411	1754	479	967	832	398	1132	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24	0.14	0.43	0.07	0.06	0.12	0.16

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	578	89	154	280	210	113	194	66	84	23
v/c Ratio	0.70	0.19	1.44	0.26	0.66	0.34	0.46	0.26	0.32	0.07
Control Delay	27.6	4.5	277.0	13.6	34.5	24.3	7.9	31.6	32.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	4.5	277.0	13.6	34.5	24.3	7.9	31.6	32.5	0.4
Queue Length 50th (ft)	115	0	~97	36	77	37	0	26	33	0
Queue Length 95th (ft)	188	24	#234	71	#169	89	49	65	79	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	1172	619	107	1347	443	466	508	629	662	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.14	1.44	0.21	0.47	0.24	0.38	0.10	0.13	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

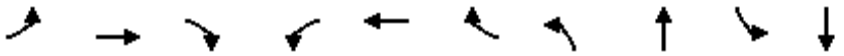
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	75	283	399	50	228
v/c Ratio	0.16	0.80	0.69	0.24	0.27
Control Delay	17.3	40.5	32.0	37.3	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	40.5	32.0	37.3	14.4
Queue Length 50th (ft)	24	121	95	22	33
Queue Length 95th (ft)	57	#274	160	63	63
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	774	576	915	209	1476
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	0.10	0.49	0.44	0.24	0.15

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	142	202	28	85	203	396	12	303	117	81
v/c Ratio	0.89	0.23	0.06	0.55	0.24	0.62	0.12	0.70	0.42	0.23
Control Delay	90.4	20.9	0.2	52.9	21.2	7.6	43.4	31.1	42.0	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.4	20.9	0.2	52.9	21.2	7.6	43.4	31.1	42.0	21.8
Queue Length 50th (ft)	~78	38	0	43	37	0	6	54	30	26
Queue Length 95th (ft)	#232	81	0	#117	80	84	25	104	63	72
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	159	877	473	187	947	661	261	800	430	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.23	0.06	0.45	0.21	0.60	0.05	0.38	0.27	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	149	283	169	688
v/c Ratio	0.11	0.39	0.37	0.28
Control Delay	3.9	2.4	20.0	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.9	2.4	20.0	0.3
Queue Length 50th (ft)	6	0	22	0
Queue Length 95th (ft)	16	21	44	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1397	724	1435	2439
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	0.11	0.39	0.12	0.28

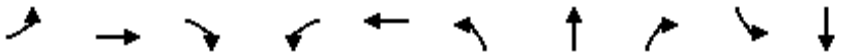
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	103	51	296	220	433	64	272
v/c Ratio	0.50	0.06	0.42	0.71	0.68	0.29	0.47
Control Delay	45.4	14.3	24.0	44.5	33.3	40.6	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	14.3	24.0	44.5	33.3	40.6	8.5
Queue Length 50th (ft)	46	7	54	98	89	28	0
Queue Length 95th (ft)	135	18	103	#352	#262	91	43
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	306	1677	1320	383	786	316	703
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.03	0.22	0.57	0.55	0.20	0.39

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	112	33	163	688	132	131	155	25	3
v/c Ratio	0.10	0.22	0.11	0.67	0.62	0.20	0.20	0.22	0.40	0.01
Control Delay	39.6	31.1	0.7	46.9	25.3	15.5	15.5	3.9	60.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	31.1	0.7	46.9	25.3	15.5	15.5	3.9	60.0	0.0
Queue Length 50th (ft)	6	26	0	78	148	38	38	0	12	0
Queue Length 95th (ft)	25	52	0	152	243	97	96	37	#51	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	285	1670	795	361	1869	649	653	693	62	438
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.04	0.45	0.37	0.20	0.20	0.22	0.40	0.01

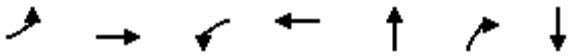
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	230	122	573	206	76	299	76	286
v/c Ratio	0.52	0.29	0.51	0.63	0.37	0.36	0.56	0.39	0.57
Control Delay	34.8	13.8	33.7	23.5	5.9	30.5	16.3	31.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	13.8	33.7	23.5	5.9	30.5	16.3	31.6	17.1
Queue Length 50th (ft)	31	19	35	83	0	22	18	24	20
Queue Length 95th (ft)	98	59	107	188	49	75	68	82	71
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	765	2035	470	1743	877	382	822	468	998
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.11	0.26	0.33	0.23	0.20	0.36	0.16	0.29

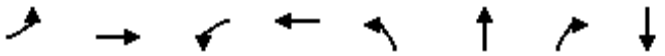
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	26	760	89	400	109	579	49
v/c Ratio	0.07	0.52	0.41	0.27	0.14	0.77	0.07
Control Delay	13.3	17.3	17.6	10.9	13.6	24.3	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.4	0.0
Total Delay	13.3	17.3	17.6	10.9	13.6	43.7	9.5
Queue Length 50th (ft)	7	136	21	47	31	201	9
Queue Length 95th (ft)	21	187	44	68	60	#354	27
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	366	1449	215	1478	783	749	696
Starvation Cap Reductn	0	0	0	0	0	173	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.41	0.27	0.14	1.01	0.07

Intersection Summary

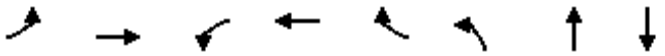
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	88	214	388	206	36	578	1022	128
v/c Ratio	0.27	0.45	0.73	0.40	0.26	0.81	0.94	0.13
Control Delay	33.9	27.9	42.6	27.0	43.2	32.6	25.1	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	27.9	42.6	27.0	43.2	32.6	25.1	15.9
Queue Length 50th (ft)	35	86	87	83	16	219	152	15
Queue Length 95th (ft)	99	155	#219	152	55	#523	#439	45
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	329	909	534	815	141	892	1085	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.24	0.73	0.25	0.26	0.65	0.94	0.12

Intersection Summary

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

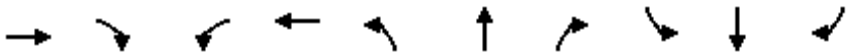


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	57	1292	63	393	67	27	286	326
v/c Ratio	0.13	0.70	0.50	0.39	0.08	0.08	0.25	0.34
Control Delay	7.9	12.8	28.0	11.8	2.6	18.3	15.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	12.8	28.0	11.8	2.6	18.3	15.6	17.9
Queue Length 50th (ft)	12	163	18	104	0	9	42	54
Queue Length 95th (ft)	m18	198	#76	164	16	26	71	87
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	443	1848	127	1004	860	333	1165	951
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.70	0.50	0.39	0.08	0.08	0.25	0.34

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	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1099	110	70	374	255	203	114	172	117	8
v/c Ratio	1.12	0.20	0.69	0.29	0.70	0.53	0.28	0.57	0.37	0.02
Control Delay	97.8	6.4	73.4	15.6	37.7	31.0	7.2	37.0	31.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.8	6.4	73.4	15.6	37.7	31.0	7.2	37.0	31.6	0.1
Queue Length 50th (ft)	~319	0	33	54	107	81	0	74	49	0
Queue Length 95th (ft)	#537	38	#114	108	202	158	39	141	100	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	977	559	101	1290	493	519	510	546	575	552
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.20	0.69	0.29	0.52	0.39	0.22	0.32	0.20	0.01

Intersection Summary

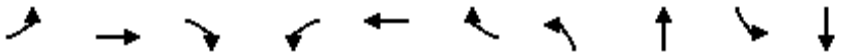
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	170	328	429	68	183
v/c Ratio	0.32	0.72	0.62	0.25	0.16
Control Delay	18.7	29.9	27.5	33.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	29.9	27.5	33.2	12.2
Queue Length 50th (ft)	53	122	86	25	20
Queue Length 95th (ft)	113	248	164	78	50
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	930	801	1120	277	1959
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	0.18	0.41	0.38	0.25	0.09

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	82	93	5	51	91	85	3	169	95	117
v/c Ratio	0.42	0.07	0.01	0.33	0.08	0.15	0.03	0.47	0.33	0.33
Control Delay	41.6	17.1	0.0	41.1	18.5	1.3	39.3	28.0	37.6	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	17.1	0.0	41.1	18.5	1.3	39.3	28.0	37.6	24.2
Queue Length 50th (ft)	37	13	0	23	13	0	1	31	21	40
Queue Length 95th (ft)	96	39	0	67	39	7	11	65	53	101
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	256	1427	713	216	1132	585	300	888	511	475
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.07	0.01	0.24	0.08	0.15	0.01	0.19	0.19	0.25

Intersection Summary



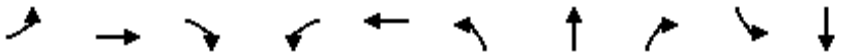
Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	155	140	67	220
v/c Ratio	0.08	0.15	0.16	0.08
Control Delay	3.4	1.2	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.4	1.2	18.9	0.1
Queue Length 50th (ft)	6	0	8	0
Queue Length 95th (ft)	13	12	22	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1981	936	1575	2674
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	0.08	0.15	0.04	0.08

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	68	93	177	108	355	96	87
v/c Ratio	0.18	0.07	0.20	0.35	0.55	0.27	0.14
Control Delay	33.2	12.8	11.9	31.9	28.3	33.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	12.8	11.9	31.9	28.3	33.0	6.7
Queue Length 50th (ft)	24	11	13	42	66	34	0
Queue Length 95th (ft)	92	30	43	134	168	117	19
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	626	2767	1723	663	1361	507	868
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.10	0.16	0.26	0.19	0.10

Intersection Summary



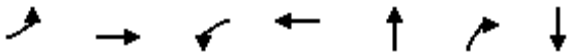
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	629	120	65	429	64	65	121	17	19
v/c Ratio	0.12	0.84	0.28	0.33	0.40	0.09	0.09	0.16	0.20	0.03
Control Delay	42.1	41.6	7.4	42.0	22.2	16.8	16.8	4.4	47.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	41.6	7.4	42.0	22.2	16.8	16.8	4.4	47.5	0.1
Queue Length 50th (ft)	8	173	0	33	86	21	22	0	9	0
Queue Length 95th (ft)	30	236	41	77	148	53	53	34	32	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	309	1771	839	369	1866	723	725	745	84	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.36	0.14	0.18	0.23	0.09	0.09	0.16	0.20	0.03

Intersection Summary



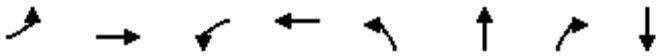
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	196	595	76	447	142	48	383	117	226
v/c Ratio	0.66	0.55	0.41	0.57	0.30	0.24	0.63	0.53	0.50
Control Delay	34.6	19.9	33.8	24.5	6.1	29.3	13.7	34.7	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	19.9	33.8	24.5	6.1	29.3	13.7	34.7	27.0
Queue Length 50th (ft)	58	83	23	66	0	14	16	38	35
Queue Length 95th (ft)	147	173	74	148	38	52	65	110	85
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	917	2545	454	1696	836	416	950	546	1105
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.23	0.17	0.26	0.17	0.12	0.40	0.21	0.20

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	331	171	309	34	98	32
v/c Ratio	0.04	0.24	0.42	0.21	0.05	0.14	0.04
Control Delay	12.8	13.8	15.6	11.7	12.7	3.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	13.8	15.6	11.7	12.7	3.5	9.2
Queue Length 50th (ft)	4	50	39	34	9	0	5
Queue Length 95th (ft)	15	77	73	58	25	25	20
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	400	1371	411	1445	723	715	714
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24	0.42	0.21	0.05	0.14	0.04

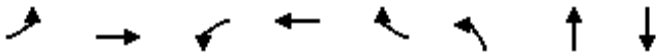
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	9	69	313	123	37	99	597	190
v/c Ratio	0.02	0.11	0.45	0.19	0.19	0.20	0.56	0.24
Control Delay	24.3	15.9	26.3	10.8	32.6	20.2	3.4	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	15.9	26.3	10.8	32.6	20.2	3.4	22.2
Queue Length 50th (ft)	2	16	44	13	11	26	0	24
Queue Length 95th (ft)	17	45	#153	75	49	82	55	76
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	469	1292	699	962	197	1240	1075	1737
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.45	0.13	0.19	0.08	0.56	0.11

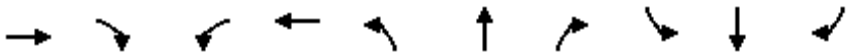
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	31	411	53	413	55	17	106	147
v/c Ratio	0.08	0.23	0.11	0.43	0.07	0.04	0.09	0.15
Control Delay	4.7	3.8	9.4	12.3	2.8	17.6	12.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	3.8	9.4	12.3	2.8	17.6	12.4	12.8
Queue Length 50th (ft)	2	14	12	113	0	6	12	17
Queue Length 95th (ft)	9	30	29	177	15	19	28	37
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	411	1755	482	967	832	405	1127	997
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.23	0.11	0.43	0.07	0.04	0.09	0.15

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	578	63	128	280	180	73	164	66	49	23
v/c Ratio	0.69	0.13	1.13	0.26	0.62	0.24	0.43	0.26	0.18	0.07
Control Delay	25.9	2.0	164.5	12.5	32.7	22.5	8.1	30.8	29.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	2.0	164.5	12.5	32.7	22.5	8.1	30.8	29.6	0.4
Queue Length 50th (ft)	102	0	~63	31	61	22	0	23	17	0
Queue Length 95th (ft)	184	10	#196	69	138	60	44	65	52	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	1238	648	113	1422	468	493	508	665	700	659
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.10	1.13	0.20	0.38	0.15	0.32	0.10	0.07	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

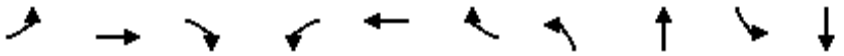
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	75	283	299	50	140
v/c Ratio	0.16	0.79	0.56	0.23	0.17
Control Delay	15.8	37.7	29.5	35.0	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	37.7	29.5	35.0	14.0
Queue Length 50th (ft)	21	109	64	20	18
Queue Length 95th (ft)	54	#265	118	62	41
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	805	599	943	218	1505
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	0.09	0.47	0.32	0.23	0.09

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	233	28	105	238	403	12	340	125	96
v/c Ratio	1.10	0.31	0.07	0.70	0.28	0.63	0.14	0.77	0.48	0.26
Control Delay	144.5	23.0	0.3	63.9	22.5	7.8	44.5	32.3	43.5	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.5	23.0	0.3	63.9	22.5	7.8	44.5	32.3	43.5	20.1
Queue Length 50th (ft)	~98	46	0	55	47	0	6	56	33	28
Queue Length 95th (ft)	#255	95	0	#154	94	88	25	110	67	79
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	141	755	427	166	857	640	232	738	382	393
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.31	0.07	0.63	0.28	0.63	0.05	0.46	0.33	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	178	324	169	750
v/c Ratio	0.13	0.44	0.39	0.31
Control Delay	4.3	2.8	21.1	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.3	2.8	21.1	0.3
Queue Length 50th (ft)	8	0	23	0
Queue Length 95th (ft)	20	24	45	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1367	730	1402	2439
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	0.13	0.44	0.12	0.31

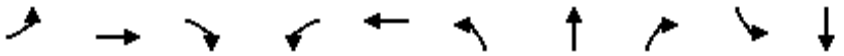
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	132	51	296	229	460	64	298
v/c Ratio	0.67	0.05	0.47	0.77	0.74	0.33	0.53
Control Delay	54.4	14.7	26.5	49.9	37.8	43.0	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	14.7	26.5	49.9	37.8	43.0	8.9
Queue Length 50th (ft)	63	8	58	109	103	29	0
Queue Length 95th (ft)	#189	19	104	#375	#296	92	45
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	271	1514	1168	334	686	279	674
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.03	0.25	0.69	0.67	0.23	0.44

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	112	41	181	688	137	136	175	25	3
v/c Ratio	0.10	0.25	0.14	0.73	0.65	0.22	0.21	0.25	0.42	0.01
Control Delay	40.3	33.2	1.0	50.5	26.8	16.3	16.2	4.0	63.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	33.2	1.0	50.5	26.8	16.3	16.2	4.0	63.6	0.0
Queue Length 50th (ft)	6	27	0	88	153	43	42	0	12	0
Queue Length 95th (ft)	25	54	0	168	250	102	101	40	#53	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	279	1599	765	354	1793	634	637	691	59	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.05	0.51	0.38	0.22	0.21	0.25	0.42	0.01

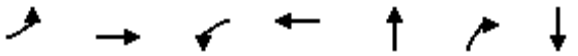
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	128	230	122	573	206	76	328	76	330
v/c Ratio	0.59	0.31	0.54	0.65	0.38	0.40	0.66	0.43	0.68
Control Delay	38.8	15.0	37.4	26.0	6.3	34.7	21.0	35.9	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	15.0	37.4	26.0	6.3	34.7	21.0	35.9	21.3
Queue Length 50th (ft)	40	21	39	92	0	24	26	26	26
Queue Length 95th (ft)	120	64	116	206	51	81	85	89	90
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	729	1920	445	1662	846	340	756	426	938
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.12	0.27	0.34	0.24	0.22	0.43	0.18	0.35

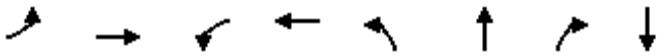
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	26	758	89	394	109	579	47
v/c Ratio	0.07	0.52	0.41	0.27	0.14	0.77	0.07
Control Delay	13.3	17.3	17.5	11.0	13.6	24.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.4	0.0
Total Delay	13.3	17.3	17.5	11.0	13.6	43.7	9.3
Queue Length 50th (ft)	7	136	21	46	31	201	8
Queue Length 95th (ft)	21	187	44	67	60	#354	27
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	369	1449	216	1479	783	749	701
Starvation Cap Reductn	0	0	0	0	0	173	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.41	0.27	0.14	1.01	0.07

Intersection Summary

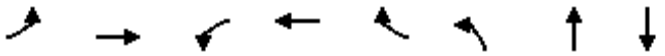
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	88	214	356	206	36	578	1003	128
v/c Ratio	0.27	0.45	0.67	0.40	0.26	0.81	0.92	0.13
Control Delay	33.9	27.9	40.3	27.0	43.2	32.6	22.6	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	27.9	40.3	27.0	43.2	32.6	22.6	15.9
Queue Length 50th (ft)	35	86	79	83	16	219	140	15
Queue Length 95th (ft)	99	155	#194	152	55	#523	#596	45
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	329	909	534	815	141	892	1085	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.24	0.67	0.25	0.26	0.65	0.92	0.12

Intersection Summary

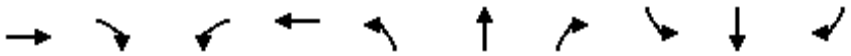
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	57	1288	53	393	67	21	249	314
v/c Ratio	0.13	0.70	0.41	0.39	0.08	0.06	0.21	0.33
Control Delay	7.9	12.8	22.8	11.8	2.6	18.0	14.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	12.8	22.8	11.8	2.6	18.0	14.8	17.5
Queue Length 50th (ft)	12	162	14	104	0	7	35	50
Queue Length 95th (ft)	m18	196	51	164	16	22	61	83
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	443	1848	128	1004	860	340	1165	960
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.70	0.41	0.39	0.08	0.06	0.21	0.33

Intersection Summary

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1099	91	51	374	223	160	82	172	91	8
v/c Ratio	1.02	0.15	0.46	0.31	0.62	0.43	0.21	0.53	0.27	0.02
Control Delay	61.0	4.6	51.2	15.4	34.0	28.3	4.4	34.2	28.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.0	4.6	51.2	15.4	34.0	28.3	4.4	34.2	28.7	0.1
Queue Length 50th (ft)	~304	0	23	52	91	62	0	72	36	0
Queue Length 95th (ft)	#536	27	#81	108	175	126	21	141	81	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	1077	604	112	1418	542	571	546	600	633	597
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.15	0.46	0.26	0.41	0.28	0.15	0.29	0.14	0.01

Intersection Summary

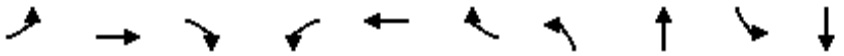
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	170	328	321	68	119
v/c Ratio	0.32	0.71	0.53	0.23	0.11
Control Delay	17.1	27.3	26.5	30.6	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	27.3	26.5	30.6	12.1
Queue Length 50th (ft)	48	112	60	23	12
Queue Length 95th (ft)	105	229	123	74	35
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	978	844	1153	291	2017
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	0.17	0.39	0.28	0.23	0.06

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	126	5	65	116	90	3	212	103	124
v/c Ratio	0.49	0.09	0.01	0.41	0.10	0.16	0.03	0.55	0.35	0.35
Control Delay	44.6	18.4	0.0	44.1	19.0	1.6	40.3	26.9	39.0	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	18.4	0.0	44.1	19.0	1.6	40.3	26.9	39.0	24.7
Queue Length 50th (ft)	44	19	0	30	18	0	1	34	24	43
Queue Length 95th (ft)	110	51	0	82	48	10	11	72	57	105
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	249	1336	677	211	1113	578	292	869	497	467
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.09	0.01	0.31	0.10	0.16	0.01	0.24	0.21	0.27

Intersection Summary



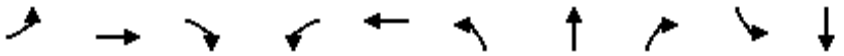
Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	187	183	67	264
v/c Ratio	0.09	0.19	0.16	0.10
Control Delay	3.4	1.2	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.4	1.2	18.9	0.1
Queue Length 50th (ft)	8	0	8	0
Queue Length 95th (ft)	15	14	22	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1981	951	1575	2674
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	0.09	0.19	0.04	0.10

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	100	93	177	131	358	96	106
v/c Ratio	0.27	0.06	0.21	0.44	0.57	0.29	0.18
Control Delay	34.8	12.5	12.7	35.4	30.4	35.0	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	12.5	12.7	35.4	30.4	35.0	8.9
Queue Length 50th (ft)	36	11	13	52	67	34	0
Queue Length 95th (ft)	126	31	45	164	176	122	27
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	587	2655	1623	622	1279	476	822
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.04	0.11	0.21	0.28	0.20	0.13

Intersection Summary



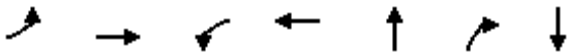
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	629	126	78	429	69	71	143	17	19
v/c Ratio	0.12	0.84	0.29	0.39	0.40	0.10	0.10	0.19	0.20	0.03
Control Delay	42.4	41.7	7.4	43.3	22.1	17.1	17.1	4.2	47.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	41.7	7.4	43.3	22.1	17.1	17.1	4.2	47.8	0.1
Queue Length 50th (ft)	8	173	0	40	86	23	24	0	9	0
Queue Length 95th (ft)	30	239	42	90	147	57	60	37	32	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	309	1767	840	368	1861	721	723	755	84	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.36	0.15	0.21	0.23	0.10	0.10	0.19	0.20	0.03

Intersection Summary



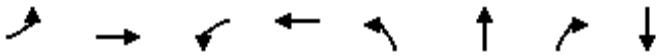
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	218	595	76	447	142	48	415	126	249
v/c Ratio	0.69	0.53	0.42	0.58	0.31	0.23	0.67	0.57	0.54
Control Delay	36.0	20.1	36.1	26.1	6.3	30.4	16.1	37.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	20.1	36.1	26.1	6.3	30.4	16.1	37.2	28.3
Queue Length 50th (ft)	67	85	24	70	0	15	22	42	39
Queue Length 95th (ft)	171	183	79	161	39	54	80	125	97
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	885	2456	438	1636	812	401	932	527	1069
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.24	0.17	0.27	0.17	0.12	0.45	0.24	0.23

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	329	171	303	34	98	30
v/c Ratio	0.04	0.24	0.41	0.21	0.05	0.14	0.04
Control Delay	12.8	13.8	15.6	11.7	12.7	3.5	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	13.8	15.6	11.7	12.7	3.5	9.1
Queue Length 50th (ft)	4	50	38	33	9	0	5
Queue Length 95th (ft)	15	76	72	57	25	25	19
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	404	1371	413	1447	723	715	719
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.24	0.41	0.21	0.05	0.14	0.04

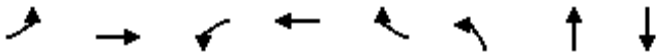
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	9	69	283	123	37	99	570	190
v/c Ratio	0.02	0.11	0.40	0.19	0.19	0.20	0.54	0.24
Control Delay	24.3	15.9	25.5	10.8	32.6	20.2	3.3	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	15.9	25.5	10.8	32.6	20.2	3.3	22.2
Queue Length 50th (ft)	2	16	40	13	11	26	0	24
Queue Length 95th (ft)	17	45	#132	75	49	82	54	76
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	469	1292	699	962	197	1240	1063	1737
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.40	0.13	0.19	0.08	0.54	0.11

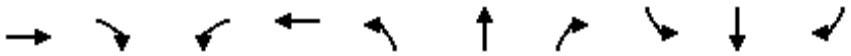
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	31	405	39	413	55	11	72	130
v/c Ratio	0.08	0.23	0.08	0.43	0.07	0.03	0.06	0.13
Control Delay	4.6	3.8	9.1	12.3	2.8	17.5	13.4	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	3.8	9.1	12.3	2.8	17.5	13.4	12.2
Queue Length 50th (ft)	2	14	9	113	0	4	8	14
Queue Length 95th (ft)	9	29	23	177	15	14	22	33
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	411	1757	486	967	832	411	1127	990
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.23	0.08	0.43	0.07	0.03	0.06	0.13

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	578	36	101	280	150	33	134	66	13	23
v/c Ratio	0.63	0.07	0.92	0.24	0.56	0.12	0.40	0.27	0.05	0.07
Control Delay	23.7	0.3	106.2	11.9	31.0	20.9	8.4	29.8	27.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	0.3	106.2	11.9	31.0	20.9	8.4	29.8	27.4	0.4
Queue Length 50th (ft)	96	0	37	28	48	9	0	22	4	0
Queue Length 95th (ft)	184	0	#158	69	115	32	40	65	21	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	1204	633	110	1381	454	478	481	645	679	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.06	0.92	0.20	0.33	0.07	0.28	0.10	0.02	0.04

Intersection Summary

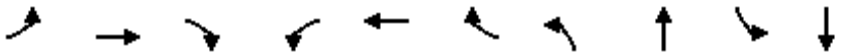
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	75	283	200	50	51
v/c Ratio	0.15	0.78	0.43	0.22	0.07
Control Delay	14.0	34.4	28.3	31.7	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	34.4	28.3	31.7	13.6
Queue Length 50th (ft)	19	98	39	18	6
Queue Length 95th (ft)	49	#238	82	58	18
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	838	624	957	227	1513
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	0.09	0.45	0.21	0.22	0.03

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	166	264	28	125	273	410	12	377	133	110
v/c Ratio	1.19	0.36	0.07	0.79	0.32	0.63	0.14	0.80	0.51	0.29
Control Delay	176.9	24.1	0.3	73.1	23.2	7.8	44.9	32.4	44.5	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	176.9	24.1	0.3	73.1	23.2	7.8	44.9	32.4	44.5	19.1
Queue Length 50th (ft)	~113	55	0	68	56	0	6	58	36	30
Queue Length 95th (ft)	#275	108	0	#191	107	90	25	116	70	85
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	139	741	422	164	864	647	227	743	375	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.36	0.07	0.76	0.32	0.63	0.05	0.51	0.35	0.28

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	208	365	169	812
v/c Ratio	0.15	0.49	0.39	0.33
Control Delay	4.4	3.2	21.1	0.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.4	3.2	21.1	0.4
Queue Length 50th (ft)	10	0	23	0
Queue Length 95th (ft)	23	26	45	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1367	745	1402	2439
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	0.15	0.49	0.12	0.33

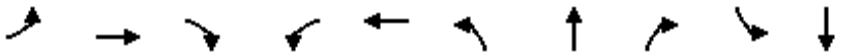
Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	162	51	296	244	481	64	324
v/c Ratio	0.76	0.05	0.48	0.79	0.76	0.34	0.57
Control Delay	59.8	14.5	27.8	52.8	39.4	44.7	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	14.5	27.8	52.8	39.4	44.7	9.2
Queue Length 50th (ft)	80	8	61	127	118	31	0
Queue Length 95th (ft)	#248	19	104	#407	#318	92	46
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	259	1445	1119	318	654	266	677
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.04	0.26	0.77	0.74	0.24	0.48

Intersection Summary

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



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	112	50	199	688	142	140	195	25	3
v/c Ratio	0.10	0.25	0.17	0.76	0.63	0.23	0.22	0.28	0.43	0.01
Control Delay	40.7	33.6	1.7	52.1	26.4	16.7	16.7	4.0	64.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.7	33.6	1.7	52.1	26.4	16.7	16.7	4.0	64.6	0.0
Queue Length 50th (ft)	6	27	0	98	153	46	45	0	13	0
Queue Length 95th (ft)	25	54	3	#196	250	105	104	42	#53	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	277	1583	759	351	1775	627	631	697	58	416
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.07	0.57	0.39	0.23	0.22	0.28	0.43	0.01

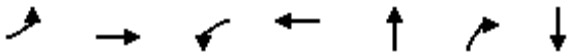
Intersection Summary

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



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	148	230	122	573	206	76	358	76	374
v/c Ratio	0.66	0.27	0.57	0.70	0.40	0.40	0.72	0.43	0.74
Control Delay	42.9	15.0	41.6	29.7	6.8	37.0	24.9	37.3	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	15.0	41.6	29.7	6.8	37.0	24.9	37.3	24.2
Queue Length 50th (ft)	52	23	43	103	0	26	34	28	35
Queue Length 95th (ft)	142	66	124	221	53	87	105	92	106
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	658	1772	401	1500	783	307	702	384	877
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.13	0.30	0.38	0.26	0.25	0.51	0.20	0.43

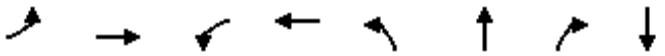
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	26	756	89	388	109	579	45
v/c Ratio	0.07	0.52	0.41	0.26	0.14	0.77	0.06
Control Delay	13.3	17.3	17.5	11.0	13.6	24.2	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.4	0.0
Total Delay	13.3	17.3	17.5	11.0	13.6	43.6	9.2
Queue Length 50th (ft)	7	136	21	45	31	201	8
Queue Length 95th (ft)	21	186	43	65	60	#352	25
Internal Link Dist (ft)		224		585	236		69
Turn Bay Length (ft)	100		100				
Base Capacity (vph)	373	1449	216	1481	784	749	705
Starvation Cap Reductn	0	0	0	0	0	173	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.52	0.41	0.26	0.14	1.01	0.06

Intersection Summary

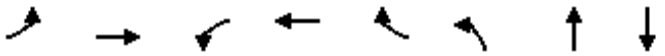
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	88	214	323	206	36	578	983	128
v/c Ratio	0.27	0.45	0.60	0.40	0.26	0.81	0.91	0.13
Control Delay	33.9	27.9	38.4	27.0	43.2	32.6	20.3	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	27.9	38.4	27.0	43.2	32.6	20.3	15.9
Queue Length 50th (ft)	35	86	71	83	16	219	128	15
Queue Length 95th (ft)	99	155	#169	152	55	#523	#569	45
Internal Link Dist (ft)		437		622		265		236
Turn Bay Length (ft)					220			
Base Capacity (vph)	329	909	534	815	141	892	1085	1065
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.24	0.60	0.25	0.26	0.65	0.91	0.12

Intersection Summary

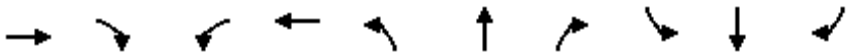
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	57	1284	43	393	67	14	213	301
v/c Ratio	0.13	0.69	0.33	0.39	0.08	0.04	0.18	0.31
Control Delay	7.8	12.7	18.8	11.8	2.6	17.7	13.9	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	12.7	18.8	11.8	2.6	17.7	13.9	17.0
Queue Length 50th (ft)	12	162	11	104	0	5	28	47
Queue Length 95th (ft)	m18	195	39	164	16	17	52	78
Internal Link Dist (ft)		585		1506			281	426
Turn Bay Length (ft)	160		150		100	75		
Base Capacity (vph)	443	1850	129	1004	860	348	1168	970
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.69	0.33	0.39	0.08	0.04	0.18	0.31

Intersection Summary

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



Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1099	71	31	374	190	117	49	172	65	8
v/c Ratio	0.96	0.11	0.26	0.31	0.56	0.33	0.13	0.52	0.19	0.02
Control Delay	44.8	2.5	40.3	14.9	31.1	25.9	0.7	32.3	26.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	2.5	40.3	14.9	31.1	25.9	0.7	32.3	26.3	0.1
Queue Length 50th (ft)	197	0	11	47	62	36	0	57	20	0
Queue Length 95th (ft)	#528	15	44	106	147	94	1	142	62	0
Internal Link Dist (ft)	622			310		636			281	
Turn Bay Length (ft)			300				350	150		
Base Capacity (vph)	1143	633	118	1501	575	605	572	636	670	626
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.11	0.26	0.25	0.33	0.19	0.09	0.27	0.10	0.01

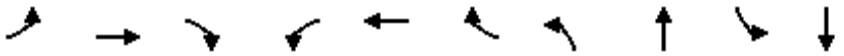
Intersection Summary

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



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	170	328	213	68	52
v/c Ratio	0.32	0.71	0.39	0.23	0.05
Control Delay	15.9	26.0	25.3	27.7	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	26.0	25.3	27.7	11.7
Queue Length 50th (ft)	46	106	36	21	5
Queue Length 95th (ft)	95	209	82	69	17
Internal Link Dist (ft)	367	898	318		636
Turn Bay Length (ft)				250	
Base Capacity (vph)	1013	873	1145	301	2027
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	0.17	0.38	0.19	0.23	0.03

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	110	160	5	80	143	95	3	255	112	132
v/c Ratio	0.54	0.12	0.01	0.49	0.13	0.17	0.03	0.61	0.38	0.37
Control Delay	47.4	18.8	0.0	47.1	19.4	2.0	40.7	25.8	39.8	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	18.8	0.0	47.1	19.4	2.0	40.7	25.8	39.8	24.1
Queue Length 50th (ft)	52	26	0	38	24	0	1	37	27	44
Queue Length 95th (ft)	#135	63	0	97	58	13	11	80	60	107
Internal Link Dist (ft)		312			1921			349		487
Turn Bay Length (ft)	110		280	80		270	300			
Base Capacity (vph)	246	1316	669	208	1100	573	288	869	492	466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.12	0.01	0.38	0.13	0.17	0.01	0.29	0.23	0.28

Intersection Summary

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



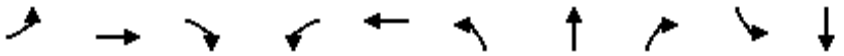
Lane Group	EBT	EBR	WBL	WBT
Lane Group Flow (vph)	219	228	67	312
v/c Ratio	0.11	0.24	0.16	0.12
Control Delay	3.5	1.3	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	3.5	1.3	18.9	0.1
Queue Length 50th (ft)	10	0	8	0
Queue Length 95th (ft)	18	15	22	0
Internal Link Dist (ft)	1921			273
Turn Bay Length (ft)		260		
Base Capacity (vph)	1981	967	1575	2674
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	0.11	0.24	0.04	0.12

Intersection Summary



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	132	93	177	156	360	96	125
v/c Ratio	0.44	0.06	0.25	0.60	0.65	0.36	0.24
Control Delay	37.5	12.6	13.0	41.0	33.7	37.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	12.6	13.0	41.0	33.7	37.4	8.8
Queue Length 50th (ft)	48	11	14	63	68	34	0
Queue Length 95th (ft)	161	31	47	201	184	126	31
Internal Link Dist (ft)		273	218		446		
Turn Bay Length (ft)				110		170	
Base Capacity (vph)	462	2564	1319	489	1011	374	683
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.04	0.13	0.32	0.36	0.26	0.18

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	629	133	92	429	74	76	164	17	19
v/c Ratio	0.12	0.84	0.31	0.45	0.39	0.10	0.11	0.21	0.20	0.03
Control Delay	42.9	41.9	7.4	44.9	21.9	17.5	17.5	4.1	48.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	41.9	7.4	44.9	21.9	17.5	17.5	4.1	48.3	0.1
Queue Length 50th (ft)	8	173	0	48	86	25	25	0	9	0
Queue Length 95th (ft)	30	243	43	103	147	63	65	40	32	0
Internal Link Dist (ft)		503			2173		560			336
Turn Bay Length (ft)	400			850		460			100	
Base Capacity (vph)	308	1762	842	367	1856	719	721	765	84	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.36	0.16	0.25	0.23	0.10	0.11	0.21	0.20	0.03

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	239	595	76	447	142	48	447	136	272
v/c Ratio	0.72	0.52	0.43	0.59	0.31	0.22	0.71	0.60	0.57
Control Delay	37.9	20.6	38.6	28.0	6.6	31.2	18.2	39.6	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	20.6	38.6	28.0	6.6	31.2	18.2	39.6	29.5
Queue Length 50th (ft)	77	90	26	75	0	16	30	49	44
Queue Length 95th (ft)	196	191	84	171	40	56	95	140	110
Internal Link Dist (ft)		2173		725			735		443
Turn Bay Length (ft)	775		250		310	600		400	
Base Capacity (vph)	850	2361	421	1573	786	385	913	506	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	0.18	0.28	0.18	0.12	0.49	0.27	0.26

Intersection Summary