

# APPENDIX D: TRANSPORTATION SUPPORTING INFORMATION

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**APPENDIX D-1**  
EXISTING STREET CLASSIFICATIONS



### STREET NETWORK DESCRIPTION AND FUNCTIONAL CLASSIFICATION

Street	No. of Mixed-Flow Lanes	Direction of Travel	No. of Transit-Only Lane	SF GENERAL PLAN CLASSIFICATION			Bicycle Facility Class
				Transit	Vehicle	Pedestrian	
Market St, Octavia to 12 <sup>th</sup>	6	EB /WB	0 to 2	Transit Oriented	Major Arterial	Neighborhood Commercial/Citywide	II and III
Market St, 12 <sup>th</sup> to 8 <sup>th</sup>	2	EB /WB	2	Transit Oriented	Major Arterial	Neighborhood Commercial/Citywide	II
Market St, 8 <sup>th</sup> to 5 <sup>th</sup>	2	EB /WB	2	Transit Oriented	Transit Conflict	Neighborhood Commercial/Citywide	III
Mission St, Van Ness to 10 <sup>th</sup>	4	EB/WB	0	Transit Oriented	Transit Conflict	Neighborhood Commercial/Citywide	--
Mission St, 10 <sup>th</sup> to Embarcadero	2-4	EB/WB	0 to 2	Transit Oriented	Transit Conflict	Neighborhood Commercial/Citywide	--
Hyde Street	3	SB	0	--	Secondary Arterial	--	--
Larkin Street	3	NB/SB	0	--	Secondary Arterial	--	III
Hayes Street	3	EB	0	--	--	--	--
Polk Street	2	SB	0	--	--	--	IV
Fell Street	3-2	EB	0	--	--	--	--
Van Ness Avenue	4	NB/SB	0	Transit Important	Major Arterial	Citywide	--
Oak Street	1-3	EB/WB	0	--	Major Arterial	Neighborhood Commercial	--
Franklin Street	3	NB	0	--	Major Arterial	Neighborhood Commercial	--
Page Street	2	EB/WB	0	Secondary Transit	--	--	III
Gough Street	3	SB	0	--	Major Arterial	Neighborhood Commercial	--
Haight Street	2	WB	1	Secondary Transit	--	Neighborhood Commercial/Citywide	--
Octavia Boulevard	5	NB/SB	0	--	Major Arterial	Neighborhood Commercial	III
Seventh Street	2	NB	0	--	Major Arterial	Neighborhood Commercial	IV
Eighth Street	3	SB	0	--	Major Arterial	Neighborhood Commercial	IV
Ninth Street	4	NB	0	--	Major Arterial	Neighborhood Commercial	--
10th Street	4	SB	0	--	Major Arterial	Neighborhood Connection	III
11th Street	2	NB/SB	0	Secondary Transit	--	Neighborhood Connection	II
So. Van Ness Avenue	6	NB/SB	0	--	--	Citywide	--
12th Street	2	NB/SB	0	--	--	--	--
Gough Street	3	NB/SB	0	--	--	--	--
Valencia Street	3	NB/SB	0	--	Secondary Arterial	Neighborhood Commercial	II
McCoppin Street	2	EB/WB	0	--	--	--	II
Otis Street	4	WB	0	Transit Oriented	--	Neighborhood Commercial	II

NOTES:

<sup>a</sup> San Francisco General Plan, Transportation Element

<sup>b</sup> CMP = Congestion Management Plan, MTS = Metropolitan Transportation System.

<sup>c</sup> Class II = bicycle lane, Class III = shared lane bicycle route, Class IV = separated bicycle facility

SOURCE: SF General Plan

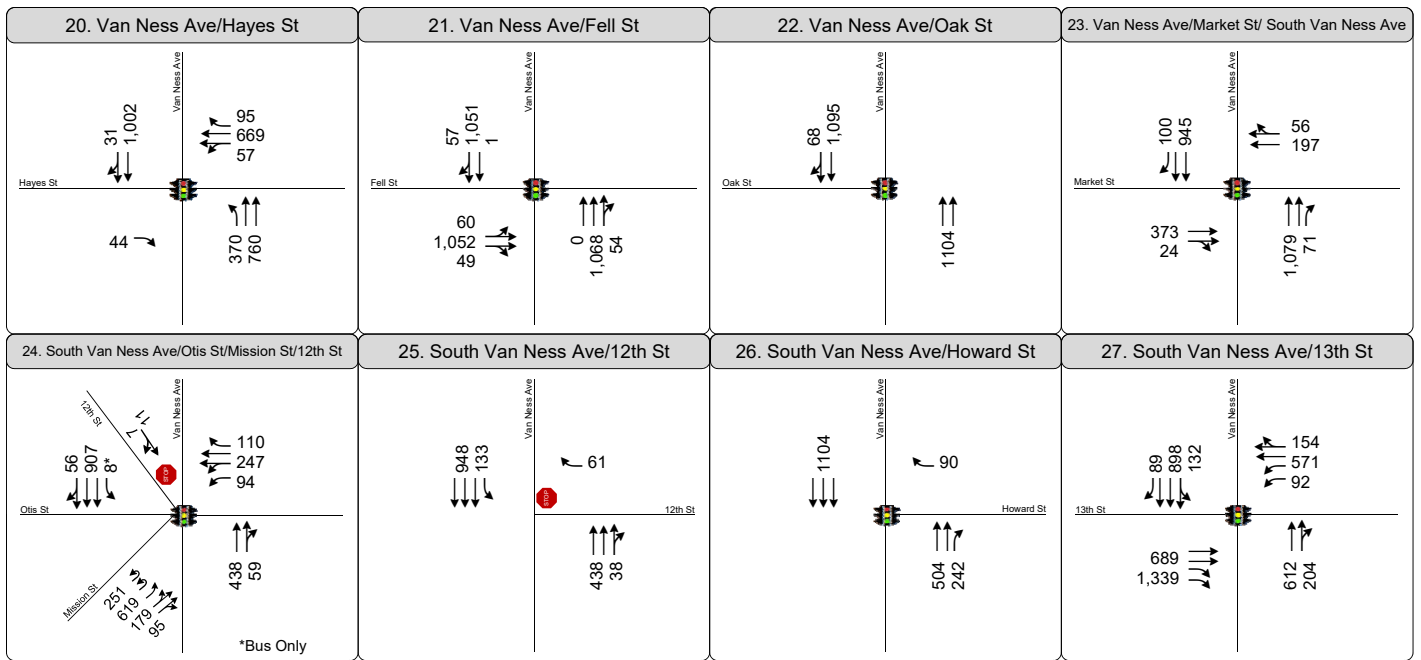


## **APPENDIX D-2**

### **EXISTING VEHICLE, BICYCLE, AND PEDESTRIAN COUNT DATA**

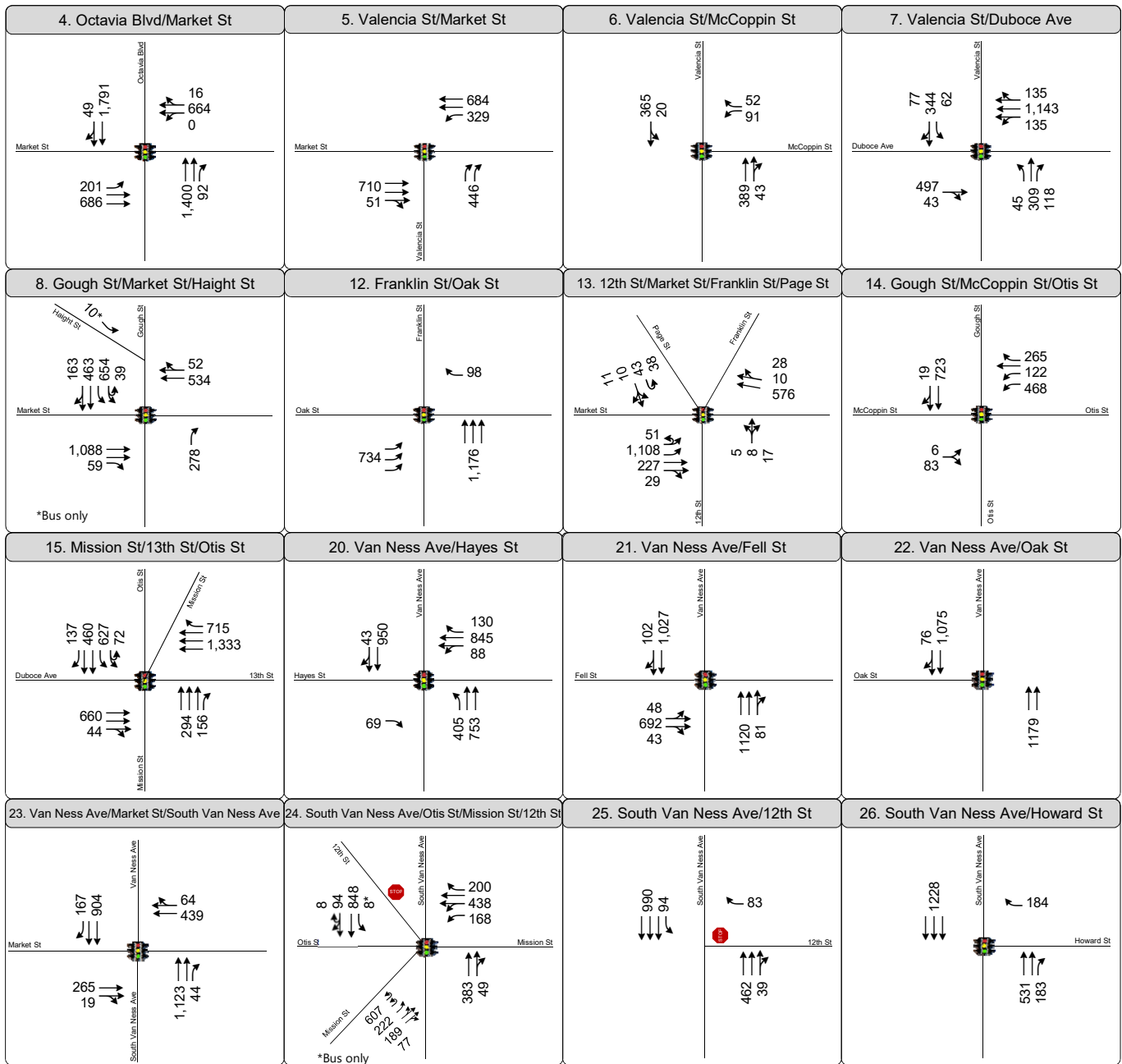






**LEGEND**

- Study Intersection
- Lane Configuration
- Stop Sign
- Signalized

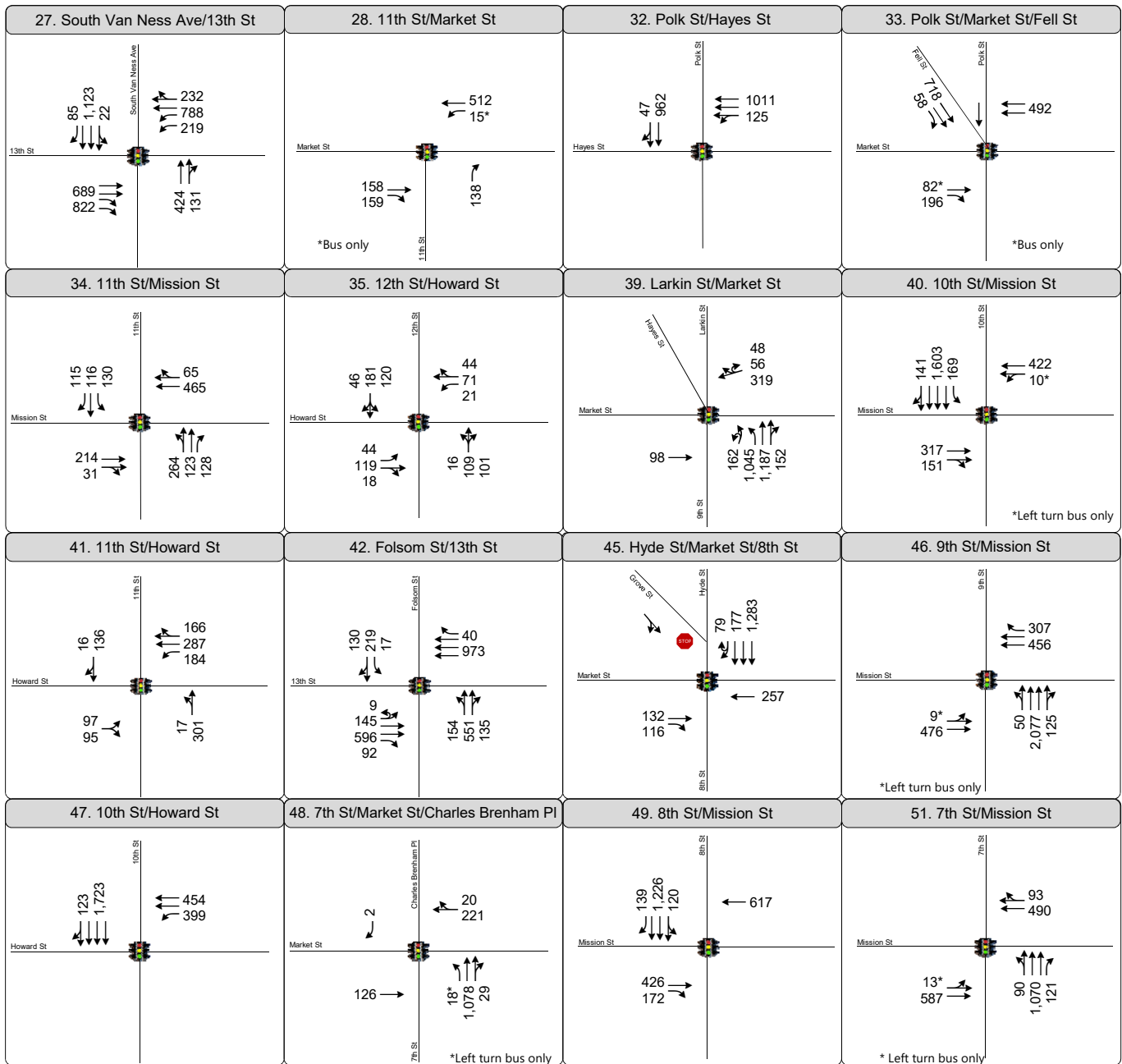


**LEGEND**

- Study Intersection
- Lane Configuration
- Stop Sign
- Signalized

The Hub Plan, 30 Van Ness Avenue Project, 98 Franklin Street Project, and Hub Housing Sustainability District (HSD)  
 Case Nos. 2015-000940ENV, 2017-008051ENV, 2016-014802ENV

Existing P.M. Peak Hour Traffic Volumes  
 and Lane Configurations



**LEGEND**

- # Study Intersection
- ↑ Lane Configuration
- STOP Stop Sign
- 🚦 Signalized

The Hub Plan, 30 Van Ness Avenue Project, 98 Franklin Street Project, and Hub Housing Sustainability District (HSD)  
 Case Nos. 2015-000940ENV, 2017-008051ENV, 2016-014802ENV

Existing P.M. Peak Hour Traffic Volumes and Lane Configurations

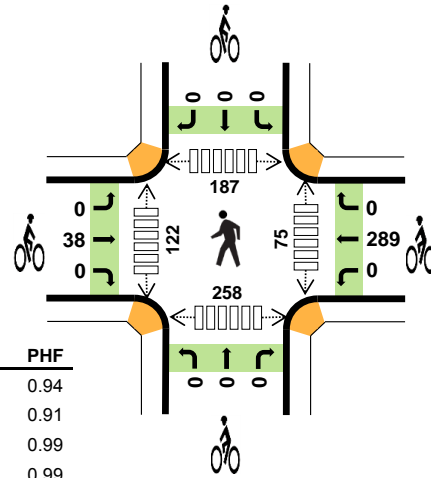
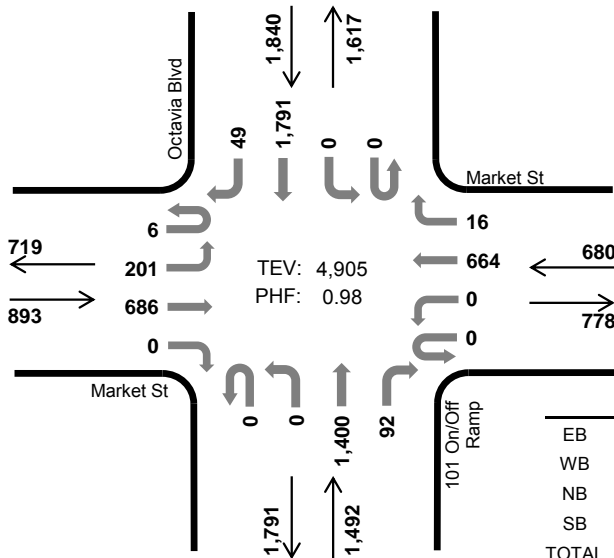
Int. 4

### Octavia Blvd Market St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	1.0%	0.94
WB	1.0%	0.91
NB	1.3%	0.99
SB	2.4%	0.99
TOTAL	1.6%	0.98

#### Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				101 On/Off Ramp Northbound				Octavia Blvd Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	35	152	0	0	0	138	4	0	0	347	28	0	0	436	11	1,151	0	
4:15 PM	0	47	162	0	0	0	125	3	0	0	374	35	0	0	444	19	1,209	0	
4:30 PM	1	46	156	1	0	0	162	2	0	0	353	26	0	0	463	8	1,218	0	
4:45 PM	1	42	172	0	0	0	151	5	0	0	347	31	0	0	447	12	1,208	4,786	
5:00 PM	3	57	167	0	0	0	153	4	0	0	351	21	0	0	449	9	1,214	4,849	
5:15 PM	1	47	165	0	0	0	182	5	0	0	355	15	0	0	454	9	1,233	4,873	
5:30 PM	1	55	182	0	0	0	178	2	0	0	347	25	0	0	441	19	1,250	4,905	
5:45 PM	1	54	167	0	0	0	154	5	0	0	343	27	0	0	421	16	1,188	4,885	
Count Total	8	383	1,323	1	0	0	1,243	30	0	0	2,817	208	0	0	3,555	103	9,671	0	
Peak Hour	All	6	201	686	0	0	0	664	16	0	0	1,400	92	0	0	1,791	49	4,905	0
	HV	0	0	9	0	0	0	6	1	0	0	12	7	0	0	42	2	79	0
	HV%	0%	0%	1%	-	-	-	1%	6%	-	-	1%	8%	-	-	2%	4%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	2	16	24	8	12	0	0	20	12	13	33	33	91
4:15 PM	2	2	6	15	25	14	15	0	0	29	21	19	49	48	137
4:30 PM	1	2	4	7	14	6	40	0	0	46	12	16	37	45	110
4:45 PM	1	2	3	15	21	10	47	0	0	57	16	23	35	52	126
5:00 PM	4	1	6	12	23	9	61	0	0	70	17	22	37	43	119
5:15 PM	2	4	2	10	18	9	89	0	0	98	14	36	62	73	185
5:30 PM	2	0	8	7	17	10	92	0	0	102	28	41	53	90	212
5:45 PM	2	3	5	18	28	9	104	0	0	113	20	40	37	68	165
Count Total	17	17	36	100	170	75	460	0	0	535	140	210	343	452	1,145
Peak Hour	9	7	19	44	79	38	289	0	0	327	75	122	187	258	642

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Market St				Market St				101 On/Off Ramp				Octavia Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	2	1	0	0	2	0	0	0	16	0	24	0
4:15 PM	0	0	2	0	0	0	2	0	0	0	5	1	0	0	14	1	25	0
4:30 PM	0	0	1	0	0	0	2	0	0	0	4	0	0	0	7	0	14	0
4:45 PM	0	0	1	0	0	0	2	0	0	0	3	0	0	0	15	0	21	84
5:00 PM	0	0	4	0	0	0	1	0	0	0	4	2	0	0	12	0	23	83
5:15 PM	0	0	2	0	0	0	3	1	0	0	0	2	0	0	9	1	18	76
5:30 PM	0	0	2	0	0	0	0	0	0	0	5	3	0	0	6	1	17	79
5:45 PM	0	0	2	0	0	0	3	0	0	0	4	1	0	0	18	0	28	86
Count Total	0	0	17	0	0	0	15	2	0	0	27	9	0	0	97	3	170	0
Peak Hour	0	0	9	0	0	0	6	1	0	0	12	7	0	0	42	2	79	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Market St			Market St			101 On/Off Ramp			Octavia Blvd			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	8	0	0	12	0	0	0	0	0	0	0	20	0			
4:15 PM	0	14	0	0	15	0	0	0	0	0	0	0	29	0			
4:30 PM	0	6	0	0	40	0	0	0	0	0	0	0	46	0			
4:45 PM	0	10	0	0	47	0	0	0	0	0	0	0	57	152			
5:00 PM	0	9	0	0	61	0	0	0	0	0	0	0	70	202			
5:15 PM	0	9	0	0	89	0	0	0	0	0	0	0	98	271			
5:30 PM	0	10	0	0	92	0	0	0	0	0	0	0	102	327			
5:45 PM	0	9	0	0	104	0	0	0	0	0	0	0	113	383			
Count Total	0	75	0	0	460	0	0	0	0	0	0	0	535	0			
Peak Hour	0	38	0	0	289	0	0	0	0	0	0	0	327	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

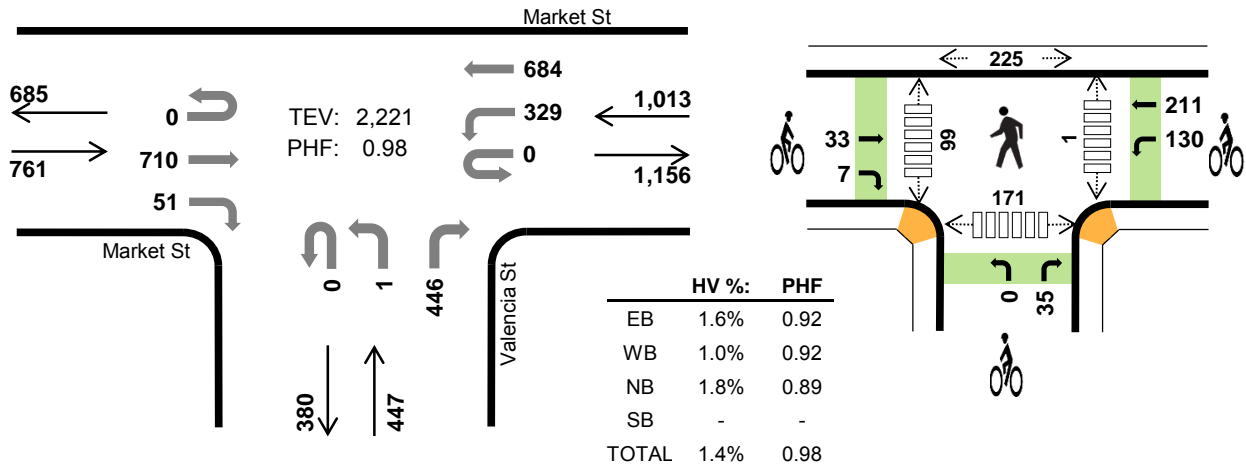
Int. 5

# Valencia St Market St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:30 PM to 5:30 PM



## Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				Valencia St Northbound				0 Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	164	16	0	71	145	0	0	0	0	104	0	0	0	0	500	0	
4:15 PM	0	0	182	12	0	89	132	0	0	0	0	90	0	0	0	0	505	0	
4:30 PM	0	0	169	14	0	92	166	0	0	0	0	111	0	0	0	0	552	0	
4:45 PM	0	0	196	10	0	79	156	0	0	0	0	125	0	0	0	0	566	2,123	
5:00 PM	0	0	171	20	0	75	169	0	0	1	0	98	0	0	0	0	534	2,157	
5:15 PM	0	0	174	7	0	83	193	0	0	0	0	112	0	0	0	0	569	2,221	
5:30 PM	0	0	189	16	0	75	163	0	0	0	0	90	0	0	0	0	533	2,202	
5:45 PM	0	0	169	22	0	79	171	0	0	0	0	97	0	0	0	0	538	2,174	
Count Total	0	0	1,414	117	0	643	1,295	0	0	1	0	827	0	0	0	0	4,297	0	
Peak Hour	All	0	0	710	51	0	329	684	0	0	1	0	446	0	0	0	0	2,221	0
	HV	0	0	12	0	0	1	9	0	0	0	0	8	0	0	0	0	30	0
	HV%	-	-	2%	0%	-	0%	1%	-	-	0%	-	2%	-	-	-	-	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	2	0	8	9	50	9	0	68	0	17	37	39	93
4:15 PM	3	2	1	0	6	13	39	8	0	60	0	17	53	42	112
4:30 PM	1	3	3	0	7	7	67	13	0	87	0	21	53	32	106
4:45 PM	1	2	2	0	5	9	67	10	0	86	0	24	59	48	131
5:00 PM	6	2	2	0	10	10	96	9	0	115	0	32	55	40	127
5:15 PM	4	3	1	0	8	14	111	3	0	128	1	22	58	51	132
5:30 PM	5	0	2	0	7	11	165	10	0	186	0	22	80	71	173
5:45 PM	3	3	3	0	9	10	163	11	0	184	0	27	86	67	180
Count Total	26	18	16	0	60	83	758	73	0	914	1	182	481	390	1,054
Peak Hr	12	10	8	0	30	40	341	35	0	416	1	99	225	171	496

### Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Market St				Market St				Valencia St				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	1	2	0	0	0	0	2	0	0	0	0	8	0
4:15 PM	0	0	3	0	0	0	2	0	0	0	0	1	0	0	0	0	6	0
4:30 PM	0	0	1	0	0	1	2	0	0	0	0	3	0	0	0	0	7	0
4:45 PM	0	0	1	0	0	0	2	0	0	0	0	2	0	0	0	0	5	26
5:00 PM	0	0	6	0	0	0	2	0	0	0	0	2	0	0	0	0	10	28
5:15 PM	0	0	4	0	0	0	3	0	0	0	0	1	0	0	0	0	8	30
5:30 PM	0	0	5	0	0	0	0	0	0	0	0	2	0	0	0	0	7	30
5:45 PM	0	0	3	0	0	0	3	0	0	0	0	3	0	0	0	0	9	34
Count Total	0	0	26	0	0	2	16	0	0	0	0	16	0	0	0	0	60	0
Peak Hour	0	0	12	0	0	1	9	0	0	0	0	8	0	0	0	0	30	0

### Two-Hour Count Summaries - Bikes

Interval Start	Market St			Market St			Valencia St			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	8	1	24	26	0	0	0	9	0	0	0	68	0
4:15 PM	0	12	1	19	20	0	0	0	8	0	0	0	60	0
4:30 PM	0	5	2	29	38	0	0	0	13	0	0	0	87	0
4:45 PM	0	7	2	29	38	0	0	0	10	0	0	0	86	301
5:00 PM	0	8	2	35	61	0	0	0	9	0	0	0	115	348
5:15 PM	0	13	1	37	74	0	0	0	3	0	0	0	128	416
5:30 PM	0	9	2	56	109	0	0	0	10	0	0	0	186	515
5:45 PM	0	8	2	52	111	0	0	0	11	0	0	0	184	613
Count Total	0	70	13	281	477	0	0	0	73	0	0	0	914	0
Peak Hour	0	33	7	130	211	0	0	0	35	0	0	0	416	0

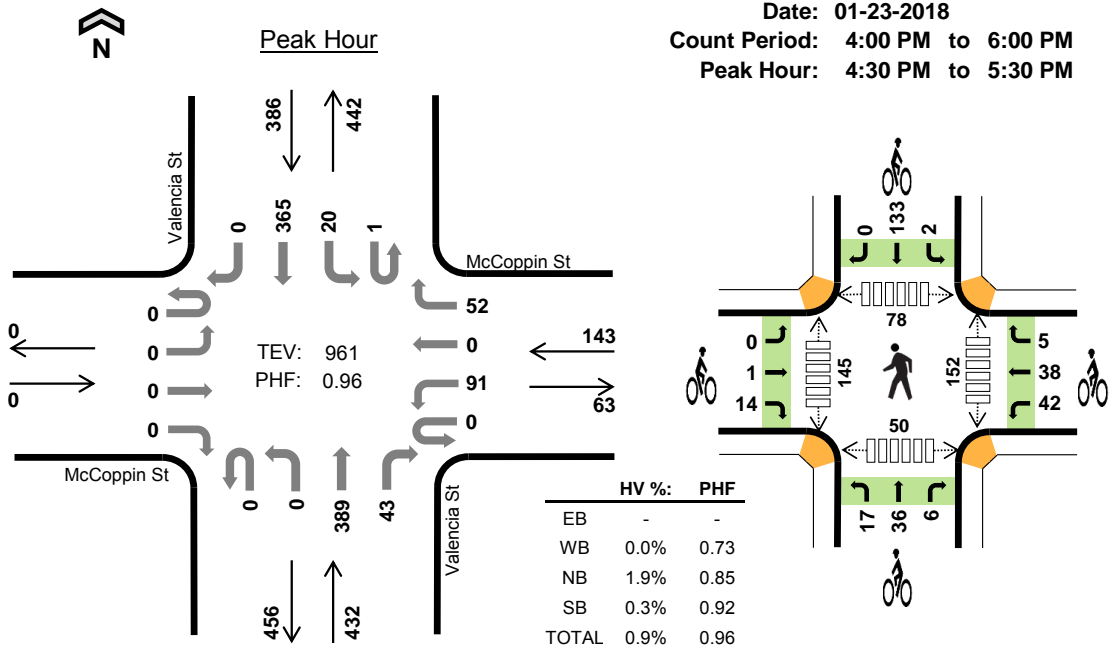
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 6

### Valencia St McCoppin St



Date: 01-23-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

Interval Start	McCoppin St Eastbound				McCoppin St Westbound				Valencia St Northbound				Valencia St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	0	13	0	10	0	0	88	12	0	3	84	0	210	0	
4:15 PM	0	0	0	0	0	23	0	6	0	0	88	11	0	4	100	0	232	0	
<b>4:30 PM</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>95</b>	<b>12</b>	<b>0</b>	<b>5</b>	<b>100</b>	<b>0</b>	<b>251</b>	<b>0</b>	
4:45 PM	0	0	0	0	0	13	0	10	0	0	114	13	0	4	84	0	238	931	
5:00 PM	0	0	0	0	0	20	0	12	0	0	90	9	0	6	92	0	229	950	
5:15 PM	0	0	0	0	0	28	0	21	0	0	90	9	1	5	89	0	243	961	
5:30 PM	0	0	0	0	0	25	0	8	0	0	85	10	0	1	91	0	220	930	
5:45 PM	0	0	0	0	0	29	0	12	0	0	92	7	0	8	90	0	238	930	
Count Total	0	0	0	0	0	181	0	88	0	0	742	83	1	36	730	0	1,861	0	
Peak Hour	All	0	0	0	0	0	91	0	52	0	0	389	43	1	20	365	0	961	0
	HV	0	0	0	0	0	0	0	0	0	0	8	0	0	0	1	0	9	0
	HV%	-	-	-	-	-	0%	-	0%	-	-	2%	0%	0%	0%	0%	-	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	2	1	3	1	6	12	26	45	33	26	18	7	84
4:15 PM	0	1	1	0	2	3	7	11	23	44	33	36	21	16	106
<b>4:30 PM</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>13</b>	<b>14</b>	<b>29</b>	<b>58</b>	<b>38</b>	<b>31</b>	<b>20</b>	<b>12</b>	<b>101</b>
4:45 PM	0	0	2	0	2	7	15	16	35	73	43	35	16	12	106
5:00 PM	0	0	2	0	2	3	18	19	34	74	30	40	17	6	93
5:15 PM	0	0	1	0	1	3	39	10	37	89	41	39	25	20	125
5:30 PM	0	0	3	0	3	3	32	14	57	106	36	35	19	10	100
5:45 PM	0	1	3	0	4	3	41	14	56	114	35	38	20	7	100
Count Total	0	2	17	2	21	25	171	110	297	603	289	280	156	90	815
Peak Hour	0	0	8	1	9	15	85	59	135	294	152	145	78	50	425



<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	McCoppin St				McCoppin St				Valencia St				Valencia St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0
<b>4:30 PM</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>0</b>
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	11
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	10
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	9
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	8
5:45 PM	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	4	10
Count Total	0	0	0	0	0	2	0	0	0	0	16	1	0	0	2	0	21	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	8	0	0	0	1	0	9	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	McCoppin St			McCoppin St			Valencia St			Valencia St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	1	0	2	3	1	2	9	1	0	25	1	45	0			
4:15 PM	0	0	3	1	6	0	4	6	1	1	22	0	44	0			
<b>4:30 PM</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>3</b>	<b>11</b>	<b>0</b>	<b>2</b>	<b>27</b>	<b>0</b>	<b>58</b>	<b>0</b>			
4:45 PM	0	1	6	10	4	1	5	11	0	0	35	0	73	220			
5:00 PM	0	0	3	13	4	1	7	9	3	0	34	0	74	249			
5:15 PM	0	0	3	14	24	1	2	5	3	0	37	0	89	294			
5:30 PM	0	0	3	14	18	0	7	7	0	0	57	0	106	342			
5:45 PM	0	0	3	17	24	0	1	12	1	0	56	0	114	383			
Count Total	0	2	23	76	89	6	31	70	9	3	293	1	603	0			
Peak Hour	0	1	14	42	38	5	17	36	6	2	133	0	294	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

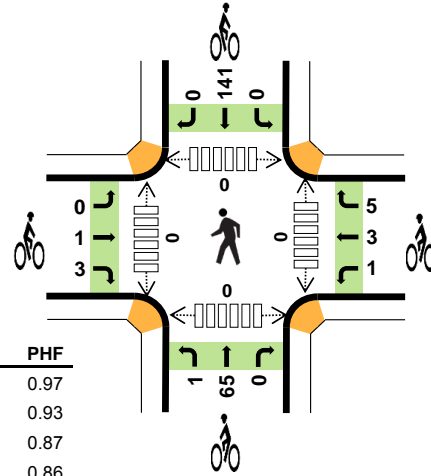
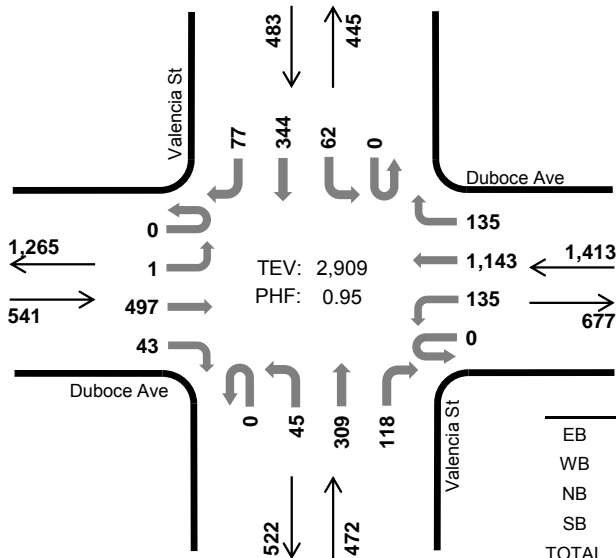
Int. 7

### Valencia St Duboce Ave



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:15 PM to 5:15 PM



	HV %:	PHF
EB	1.7%	0.97
WB	0.8%	0.93
NB	1.3%	0.87
SB	0.6%	0.86
TOTAL	1.0%	0.95

#### Two-Hour Count Summaries

Interval Start	Duboce Ave Eastbound				Duboce Ave Westbound				Valencia St Northbound				Valencia St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	131	17	0	33	262	29	0	16	74	39	0	11	73	15	700	0	
4:15 PM	0	0	122	15	0	35	274	29	0	11	71	35	0	17	83	25	717	0	
4:30 PM	0	0	121	9	0	40	268	26	0	7	86	30	0	19	102	20	728	0	
4:45 PM	0	1	130	9	0	33	300	48	0	15	87	34	0	15	76	14	762	2,907	
5:00 PM	0	0	124	10	0	27	301	32	0	12	65	19	0	11	83	18	702	2,909	
5:15 PM	0	0	113	12	0	33	256	25	0	9	77	30	0	16	91	21	683	2,875	
5:30 PM	0	1	115	11	0	36	291	33	0	7	59	31	0	15	82	19	700	2,847	
5:45 PM	0	0	107	14	0	34	291	39	0	6	65	21	0	9	84	23	693	2,778	
Count Total	0	2	963	97	0	271	2,243	261	0	83	584	239	0	113	674	155	5,685	0	
Peak Hour	All	0	1	497	43	0	135	1,143	135	0	45	309	118	0	62	344	77	2,909	0
	HV	0	0	8	1	0	0	8	4	0	0	4	2	0	1	2	0	30	0
	HV%	-	0%	2%	2%	-	0%	1%	3%	-	0%	1%	2%	-	2%	1%	0%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	3	2	0	10	1	3	13	24	41	0	0	0	0	0
4:15 PM	2	1	2	2	7	1	1	18	23	43	0	0	0	0	0
4:30 PM	3	3	2	1	9	1	1	15	31	48	0	0	0	0	0
4:45 PM	2	2	2	0	6	0	2	18	45	65	0	0	0	0	0
5:00 PM	2	6	0	0	8	2	5	15	42	64	0	0	0	0	0
5:15 PM	7	2	2	0	11	0	5	14	57	76	0	0	0	0	0
5:30 PM	6	3	4	0	13	3	4	16	71	94	0	0	0	0	0
5:45 PM	5	3	3	1	12	0	4	15	75	94	0	0	0	0	0
Count Total	32	23	17	4	76	8	25	124	368	525	0	0	0	0	0
Peak Hour	9	12	6	3	30	4	9	66	141	220	0	0	0	0	0

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Duboce Ave				Duboce Ave				Valencia St				Valencia St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	0	2	1	0	0	1	1	0	0	0	0	10	0
4:15 PM	0	0	2	0	0	0	1	0	0	0	1	1	0	0	2	0	7	0
4:30 PM	0	0	2	1	0	0	2	1	0	0	2	0	0	1	0	0	9	0
4:45 PM	0	0	2	0	0	0	1	1	0	0	1	1	0	0	0	0	6	32
5:00 PM	0	0	2	0	0	0	4	2	0	0	0	0	0	0	0	0	8	30
5:15 PM	0	0	7	0	0	0	2	0	0	0	1	1	0	0	0	0	11	34
5:30 PM	0	0	6	0	0	0	3	0	0	0	3	1	0	0	0	0	13	38
5:45 PM	0	0	5	0	0	1	2	0	0	0	3	0	0	0	0	1	12	44
Count Total	0	0	31	1	0	1	17	5	0	0	12	5	0	1	2	1	76	0
Peak Hour	0	0	8	1	0	0	8	4	0	0	4	2	0	1	2	0	30	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Duboce Ave			Duboce Ave			Valencia St			Valencia St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	1	1	2	0	0	12	1	0	24	0	41	0			
4:15 PM	0	0	1	0	1	0	1	17	0	0	23	0	43	0			
4:30 PM	0	1	0	0	0	1	0	15	0	0	31	0	48	0			
4:45 PM	0	0	0	0	0	2	0	18	0	0	45	0	65	197			
5:00 PM	0	0	2	1	2	2	0	15	0	0	42	0	64	220			
5:15 PM	0	0	0	0	5	0	0	14	0	0	57	0	76	253			
5:30 PM	0	0	3	1	1	2	0	16	0	0	71	0	94	299			
5:45 PM	0	0	0	0	4	0	0	15	0	0	75	0	94	328			
Count Total	0	1	7	3	15	7	1	122	1	0	368	0	525	0			
Peak Hour	0	1	3	1	3	5	1	65	0	0	141	0	220	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



Int. 8

Date: 01-23-2018

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	1.8%	0.93
WB	3.1%	0.85
NB	0.4%	0.79
SB	1.2%	0.95
SEB	100.0%	0.63
TOTAL	2.0%	0.96



Two-Hour Count Summaries

Interval Start	Market St Eastbound					Market St Westbound					Gough St Northbound					Gough St Southbound					Haight St Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
	4:00 PM	0	0	0	261	17	0	0	96	9	0	0	0	0	0	34	0	4	187	122	40	0	0	2	0		
4:15 PM	0	0	0	259	12	0	0	80	8	0	0	0	0	0	52	0	6	178	138	48	0	0	3	0	0	784	0
4:30 PM	0	0	0	256	12	0	0	103	11	0	0	1	0	0	52	0	4	163	144	30	0	0	4	0	0	780	0
4:45 PM	0	0	0	285	25	1	0	127	13	0	0	0	0	0	49	0	12	138	115	35	0	0	2	0	0	802	3,138
5:00 PM	0	0	0	266	11	0	0	126	7	0	0	0	0	0	69	0	15	160	118	46	0	0	4	0	0	822	3,188
5:15 PM	0	0	0	263	10	1	0	154	18	0	0	0	0	0	88	0	6	165	124	39	0	0	1	0	0	869	3,273
5:30 PM	0	0	0	274	13	0	0	127	14	0	0	0	0	0	72	0	6	191	106	43	0	0	3	0	0	849	3,342
5:45 PM	0	0	0	236	19	0	0	126	24	0	0	0	0	0	71	0	5	164	119	22	0	0	3	0	0	789	3,329
Count Total	0	0	0	2,100	119	2	0	939	104	0	0	1	0	0	487	0	58	1,346	986	303	0	0	22	0	0	6,467	0
Peak Hour	All	0	0	0	1,088	59	2	0	534	52	0	0	0	0	278	0	39	654	463	163	0	0	10	0	0	3,342	0
	HV	0	0	0	19	2	0	0	6	12	0	0	0	0	1	0	2	11	0	3	0	0	10	0	0	66	0
	HV%	-	-	-	2%	3%	0%	-	1%	23%	-	-	-	-	0%	-	5%	2%	0%	2%	-	-	100%	-	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	5	4	0	4	2	15	18	43	1	4	0	66	24	23	23	81	23	174
4:15 PM	4	5	0	1	3	13	16	44	0	5	0	65	19	31	21	63	30	164
4:30 PM	4	6	1	3	4	18	17	61	2	0	0	80	18	22	17	66	30	153
4:45 PM	3	6	0	3	2	14	14	63	0	4	0	81	26	19	14	85	32	176
5:00 PM	7	3	0	4	4	18	15	93	1	4	0	113	16	27	31	69	37	180
5:15 PM	5	7	0	4	1	17	13	125	0	7	0	145	13	28	16	79	31	167
5:30 PM	6	2	1	5	3	17	18	153	0	1	0	172	20	29	31	108	29	217
5:45 PM	5	6	0	4	3	18	17	140	2	8	0	167	20	22	26	91	28	187
Count Total	39	39	2	28	22	130	128	722	6	33	0	889	156	201	179	642	240	1,418
Peak Hr	21	18	1	16	10	66	60	434	1	16	0	511	75	103	92	341	129	740

**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Market St Eastbound					Market St Westbound					Gough St Northbound					Gough St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	5	0	0	0	1	3	0	0	0	0	0	0	0	0	2	2	0	0	0	2	0	0	15	0
4:15 PM	0	0	0	4	0	0	0	2	3	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	13	0
4:30 PM	0	0	0	4	0	0	0	2	4	0	0	0	0	0	1	0	0	2	1	0	0	0	4	0	0	18	0
4:45 PM	0	0	0	3	0	0	0	2	4	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	14	60
5:00 PM	0	0	0	6	1	0	0	1	2	0	0	0	0	0	0	0	1	1	0	2	0	0	4	0	0	18	63
5:15 PM	0	0	0	4	1	0	0	3	4	0	0	0	0	0	0	0	1	2	0	1	0	0	1	0	0	17	67
5:30 PM	0	0	0	6	0	0	0	0	2	0	0	0	0	0	1	0	0	5	0	0	0	0	3	0	0	17	66
5:45 PM	0	0	0	5	0	0	0	3	3	0	0	0	0	0	0	0	0	4	0	0	0	0	3	0	0	18	70
Count Total	0	0	0	37	2	0	0	14	25	0	0	0	0	0	2	0	3	19	3	3	0	0	22	0	0	130	0
Peak Hour	0	0	0	19	2	0	0	6	12	0	0	0	0	0	1	0	2	11	0	3	0	0	10	0	0	66	0

**Two-Hour Count Summaries - Bikes**

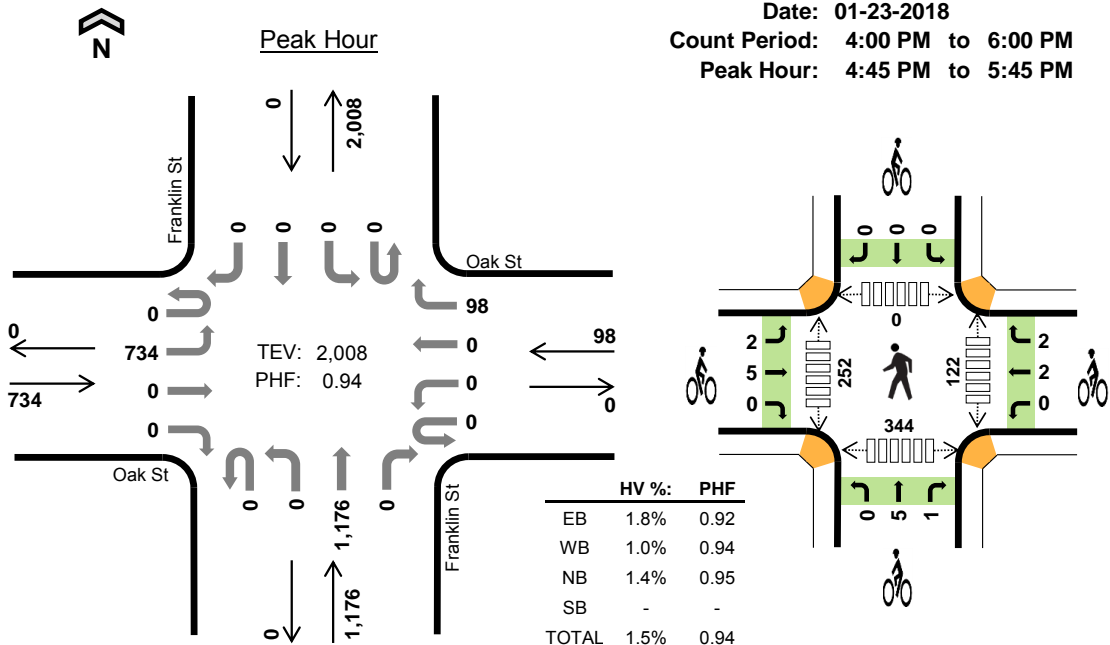
Interval Start	Market St Eastbound					Market St Westbound					Gough St Northbound					Gough St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	18	0	0	1	41	1	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	66	0
4:15 PM	0	0	0	16	0	0	1	43	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	65	0
4:30 PM	0	0	0	17	0	0	0	61	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	80	0
4:45 PM	0	0	0	13	1	0	0	62	1	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	81	292
5:00 PM	0	0	0	15	0	0	0	93	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	113	339
5:15 PM	0	0	0	13	0	0	0	124	1	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	145	419
5:30 PM	0	0	0	18	0	0	1	152	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	172	511
5:45 PM	0	0	0	17	0	0	0	139	1	0	0	0	0	0	2	0	0	2	6	0	0	0	0	0	0	167	597
Count Total	0	0	0	127	1	0	3	715	4	0	0	0	0	0	6	0	1	7	25	0	0	0	0	0	0	889	0
Peak Hour	0	0	0	59	1	0	1	431	2	0	0	0	0	0	1	0	1	3	12	0	0	0	0	0	0	511	0

Int. 12

### Franklin St Oak St



Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



**Two-Hour Count Summaries**

Interval Start	Oak St Eastbound				Oak St Westbound				Franklin St Northbound				Franklin St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	191	0	0	0	0	0	19	0	0	247	0	0	0	0	0	457	0	
4:15 PM	0	179	0	0	0	0	0	20	0	0	262	0	0	0	0	0	461	0	
4:30 PM	0	183	0	0	0	0	0	28	0	0	276	0	0	0	0	0	487	0	
<b>4:45 PM</b>	<b>0</b>	<b>191</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>26</b>	<b>0</b>	<b>0</b>	<b>265</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>482</b>	<b>1,887</b>	
5:00 PM	0	193	0	0	0	0	0	26	0	0	294	0	0	0	0	0	513	1,943	
5:15 PM	0	150	0	0	0	0	0	21	0	0	309	0	0	0	0	0	480	1,962	
<b>5:30 PM</b>	<b>0</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>308</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>533</b>	<b>2,008</b>	
5:45 PM	0	171	0	0	0	0	0	21	0	0	260	0	0	0	0	0	452	1,978	
Count Total	0	1,458	0	0	0	0	0	186	0	0	2,221	0	0	0	0	0	3,865	0	
Peak Hour	All	0	734	0	0	0	0	0	98	0	0	1,176	0	0	0	0	0	2,008	0
	HV	0	13	0	0	0	0	0	1	0	0	16	0	0	0	0	0	30	0
	HV%	-	2%	-	-	-	-	-	1%	-	-	1%	-	-	-	-	-	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	1	2	0	6	1	0	2	0	3	16	37	0	61	114
4:15 PM	1	0	1	0	2	2	0	2	0	4	15	35	0	55	105
4:30 PM	3	0	3	0	6	2	1	0	0	3	21	46	0	37	104
<b>4:45 PM</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>32</b>	<b>69</b>	<b>0</b>	<b>76</b>	<b>177</b>
5:00 PM	4	0	5	0	9	1	2	4	0	7	28	67	0	101	196
5:15 PM	3	1	4	0	8	2	1	1	0	4	24	56	0	87	167
<b>5:30 PM</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>10</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>38</b>	<b>60</b>	<b>0</b>	<b>80</b>	<b>178</b>
5:45 PM	3	0	5	0	8	0	0	3	0	3	29	65	0	76	170
Count Total	23	2	27	0	52	12	5	13	0	30	203	435	0	573	1,211
Peak Hour	13	1	16	0	30	7	4	6	0	17	122	252	0	344	718

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Oak St				Oak St				Franklin St				Franklin St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	3	0	0	0	0	0	1	0	0	2	0	0	0	0	0	6	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0
4:30 PM	0	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	6	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	17
5:00 PM	0	4	0	0	0	0	0	0	0	0	5	0	0	0	0	0	9	20
5:15 PM	0	3	0	0	0	0	0	1	0	0	4	0	0	0	0	0	8	26
5:30 PM	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	10	30
5:45 PM	0	3	0	0	0	0	0	0	0	0	5	0	0	0	0	0	8	35
Count Total	0	23	0	0	0	0	0	2	0	0	27	0	0	0	0	0	52	0
Peak Hour	0	13	0	0	0	0	0	1	0	0	16	0	0	0	0	0	30	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Oak St			Oak St			Franklin St			Franklin St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0		
4:15 PM	1	1	0	0	0	0	0	2	0	0	0	0	0	0	4	0		
4:30 PM	2	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0		
4:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	12		
5:00 PM	1	0	0	0	0	0	2	0	4	0	0	0	0	0	7	16		
5:15 PM	0	2	0	0	0	1	0	0	0	1	0	0	0	0	4	16		
5:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	4	17		
5:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	18		
Count Total	6	6	0	0	0	2	3	0	12	1	0	0	0	0	30	0		
Peak Hour	2	5	0	0	0	2	2	0	5	1	0	0	0	0	17	0		
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		



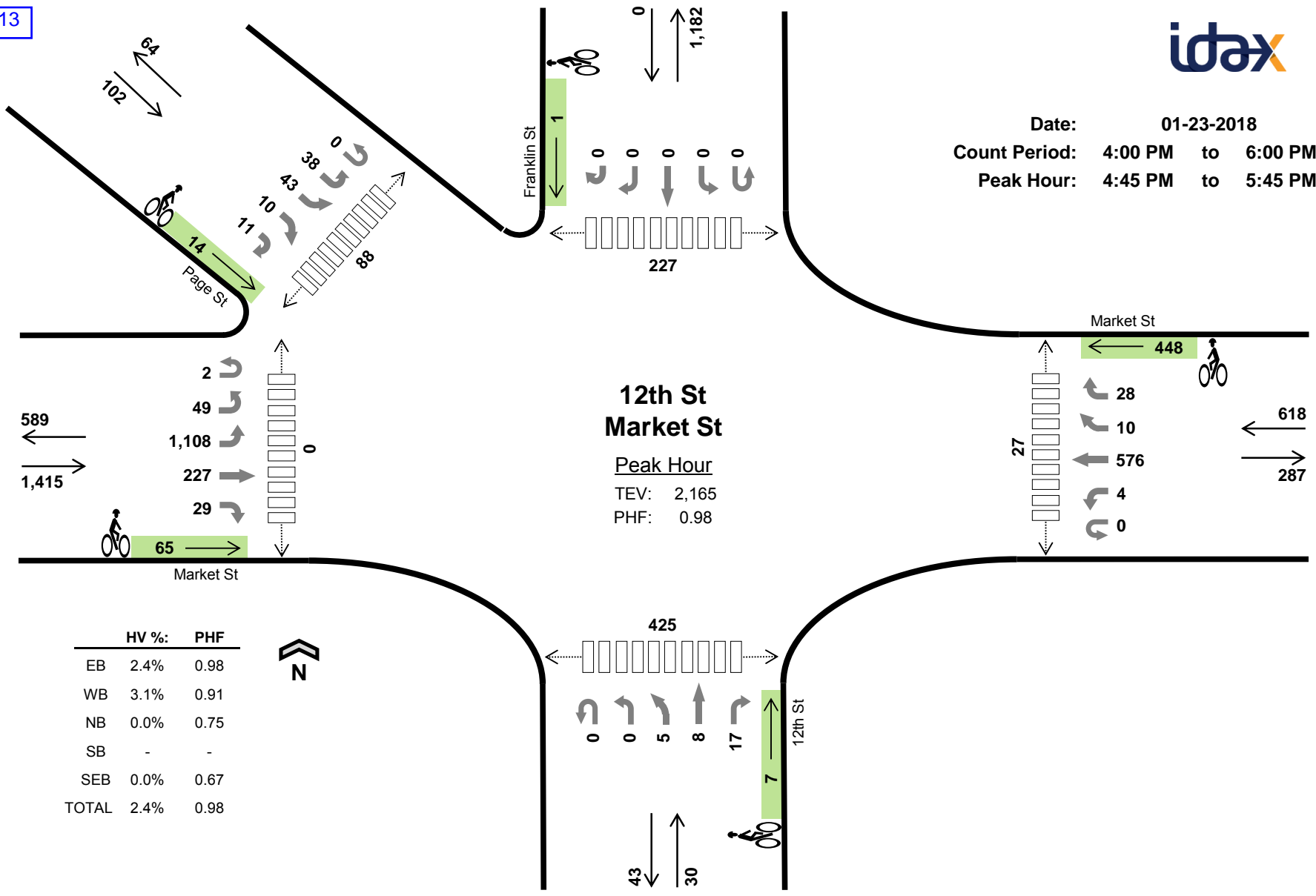


Date: 01-23-2018

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:45 PM to 5:45 PM

Int. 13



	HV %:	PHF
EB	2.4%	0.98
WB	3.1%	0.91
NB	0.0%	0.75
SB	-	-
SEB	0.0%	0.67
TOTAL	2.4%	0.98



Two-Hour Count Summaries

Interval Start	Market St Eastbound					Market St Westbound					12th St Northbound					Franklin St Southbound					Page St Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	21	239	43	13	0	0	102	3	9	0	0	0	1	2	0	0	0	0	0	0	10	6	0	2	451	0
4:15 PM	0	6	246	68	9	0	0	90	5	6	0	0	0	0	4	0	0	0	0	0	0	6	9	1	2	452	0
4:30 PM	0	3	256	51	8	0	0	123	1	8	0	0	1	2	0	0	0	0	0	0	0	5	17	2	3	480	0
4:45 PM	0	12	258	70	6	0	2	140	4	6	0	0	2	1	3	0	0	0	0	0	0	6	13	1	3	527	1,910
5:00 PM	0	14	279	45	11	0	1	143	0	8	0	0	2	3	5	0	0	0	0	0	0	11	11	2	1	536	1,995
5:15 PM	0	11	291	53	5	0	1	158	3	7	0	0	1	1	5	0	0	0	0	0	0	6	8	2	0	552	2,095
5:30 PM	2	12	280	59	7	0	0	135	3	7	0	0	0	3	4	0	0	0	0	0	0	15	11	5	7	550	2,165
5:45 PM	5	22	230	53	4	0	0	135	5	13	0	0	0	1	4	0	0	0	0	0	0	9	15	0	9	505	2,143
Count Total	7	101	2,079	442	63	0	4	1,026	24	64	0	0	6	12	27	0	0	0	0	0	0	68	90	13	27	4,053	0
Peak Hour	All HV	2	49	1,108	227	29	0	4	576	10	28	0	0	5	8	17	0	0	0	0	0	38	43	10	11	2,165	0
	HV%	0%	0%	1%	8%	0%	-	0%	3%	0%	7%	-	-	0%	0%	0%	-	-	-	-	-	0%	0%	0%	0%	53	0
		0%	0%	1%	8%	0%	-	0%	3%	0%	7%	-	-	0%	0%	0%	-	-	-	-	-	0%	0%	0%	0%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	8	5	0	0	0	13	19	51	0	0	5	75	10	0	50	115	17	192
4:15 PM	8	5	0	0	1	14	15	50	0	0	4	69	8	0	38	66	11	123
4:30 PM	8	5	0	0	0	13	19	69	0	0	3	91	6	0	45	78	14	143
4:45 PM	6	6	0	0	0	12	16	72	0	0	2	90	4	0	45	96	18	163
5:00 PM	9	6	0	0	0	15	15	102	5	0	4	126	11	0	44	101	28	184
5:15 PM	9	6	0	0	0	15	16	125	2	0	3	146	7	0	63	100	15	185
5:30 PM	10	1	0	0	0	11	18	149	0	1	5	173	5	0	75	128	27	235
5:45 PM	8	6	0	0	1	15	15	155	1	0	10	181	13	0	70	114	25	222
Count Total	66	40	0	0	2	108	133	773	8	1	36	951	64	0	430	798	155	1,447
Peak Hr	34	19	0	0	0	53	65	448	7	1	14	535	27	0	227	425	88	767

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Market St Eastbound					Market St Westbound					12th St Northbound					Franklin St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	2	5	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	
4:15 PM	0	0	1	6	1	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	14	0	
4:30 PM	0	0	3	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	
4:45 PM	0	0	2	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	52	
5:00 PM	0	0	4	5	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	54	
5:15 PM	0	0	3	6	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	55	
5:30 PM	0	0	6	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	53	
5:45 PM	0	0	3	5	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	15	56	
Count Total	0	0	24	39	3	0	0	37	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	108	0
Peak Hour	0	0	15	19	0	0	0	17	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0	

Two-Hour Count Summaries - Bikes

Interval Start	Market St Eastbound					Market St Westbound					12th St Northbound					Franklin St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	2	17	0	0	0	44	5	2	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	75	0
4:15 PM	0	0	0	15	0	0	0	44	6	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	69	0
4:30 PM	0	0	0	19	0	0	0	62	7	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	91	0
4:45 PM	0	0	0	16	0	0	0	64	8	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	90	325
5:00 PM	0	0	0	15	0	0	0	95	6	1	0	0	1	0	4	0	0	0	0	0	0	1	3	0	0	126	376
5:15 PM	0	0	0	16	0	0	0	107	17	1	0	0	0	0	2	0	0	0	0	0	0	1	2	0	0	146	453
5:30 PM	0	0	0	18	0	0	0	129	20	0	0	0	0	0	0	0	0	0	0	1	0	0	5	0	0	173	535
5:45 PM	0	0	0	15	0	0	0	141	13	1	0	0	0	0	1	0	0	0	0	0	0	0	10	0	0	181	626
Count Total	0	0	2	131	0	0	0	686	82	5	0	0	1	0	7	0	0	0	0	1	0	4	32	0	0	951	0
Peak Hour	0	0	0	65	0	0	0	395	51	2	0	0	1	0	6	0	0	0	0	1	0	2	12	0	0	535	0

Pedestrians

Extra Movement 1			Extra Movement 2			Extra Movement 3		
Peds CW	Peds CCW	Peds Combin	Peds CW	Peds CCW	Peds Combin	Peds CW	Peds CCW	Peds Combined
34	29	63	5	6	11	32	28	60
38	23	61	8	4	12	31	23	54
35	21	56	10	0	10	37	15	52
36	27	63	16	5	21	42	19	61
44	21	65	10	7	17	49	21	70
47	20	67	7	3	10	50	23	73
67	36	103	14	4	18	73	35	108
60	34	94	8	4	12	74	32	106

Bikes on Crosswalk

Extra Movement 1			Extra Movement 2			Extra Movement 3		
Peds CW	Peds CCW	Peds Combin	Peds CW	Peds CCW	Peds Combin	Peds CW	Peds CCW	Peds Combined
0	0	0	0	1	1	0	1	1
1	4	5	2	2	4	1	0	1
3	0	3	1	1	2	2	0	2
2	3	5	3	2	5	1	0	1
0	3	3	4	2	6	1	1	2
2	0	2	0	2	2	1	0	1
2	0	2	0	1	1	1	0	1
2	2	4	1	2	3	0	1	1

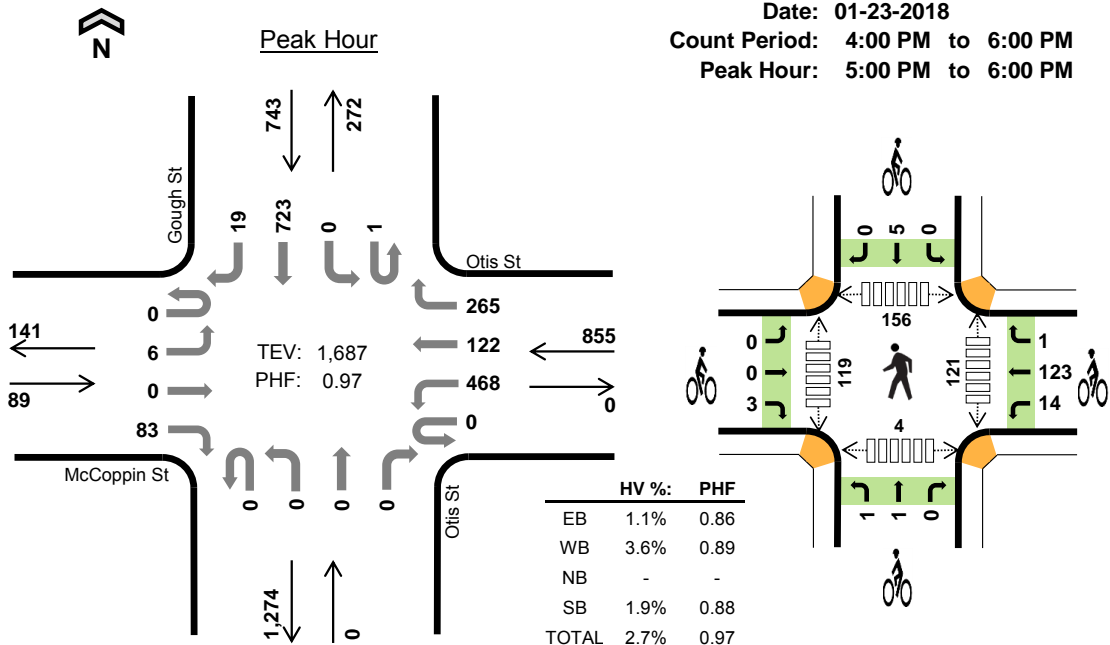


Int. 14

### Gough St McCoppin St



Date: 01-23-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 5:00 PM to 6:00 PM



#### Two-Hour Count Summaries

Interval Start	McCoppin St				Otis St				Otis St				Gough St				15-min Total	Rolling One Hour	
	Eastbound		Westbound		Westbound		Northbound		Northbound		Southbound		Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	1	0	21	0	116	15	36	0	0	0	0	0	0	198	6	393	0	
4:15 PM	1	0	0	19	0	117	17	49	0	0	0	0	0	0	184	2	389	0	
4:30 PM	0	2	0	19	0	128	31	46	0	0	0	0	0	0	177	4	407	0	
4:45 PM	0	0	0	16	0	129	19	44	0	0	0	0	1	0	153	1	363	1,552	
5:00 PM	0	1	0	25	0	113	22	58	0	0	0	0	0	0	172	6	397	1,556	
5:15 PM	0	3	0	14	0	136	33	71	0	0	0	0	0	0	168	3	428	1,595	
5:30 PM	0	1	0	19	0	105	29	59	0	0	0	0	1	0	206	5	425	1,613	
5:45 PM	0	1	0	25	0	114	38	77	0	0	0	0	0	0	177	5	437	1,687	
Count Total	1	9	0	158	0	958	204	440	0	0	0	0	2	0	1,435	32	3,239	0	
Peak Hour	All	0	6	0	83	0	468	122	265	0	0	0	0	1	0	723	19	1,687	0
	HV	0	0	0	1	0	29	1	1	0	0	0	0	0	0	14	0	46	0
	HV%	-	0%	-	1%	-	6%	1%	0%	-	-	-	-	0%	-	2%	0%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	7	0	3	10	0	7	0	0	7	23	33	37	1	94
4:15 PM	0	8	0	0	8	1	7	0	2	10	31	32	31	0	94
4:30 PM	0	9	0	2	11	0	8	1	0	9	40	38	35	0	113
4:45 PM	0	6	0	3	9	1	15	0	0	16	25	38	36	0	99
5:00 PM	0	8	0	2	10	3	18	0	1	22	62	32	57	1	152
5:15 PM	0	7	0	3	10	0	44	1	0	45	25	36	44	0	105
5:30 PM	1	10	0	5	16	0	36	0	2	38	22	19	25	3	69
5:45 PM	0	6	0	4	10	0	40	1	2	43	12	32	30	0	74
Count Total	1	61	0	22	84	5	175	3	7	190	240	260	295	5	800
Peak Hour	1	31	0	14	46	3	138	2	5	148	121	119	156	4	400

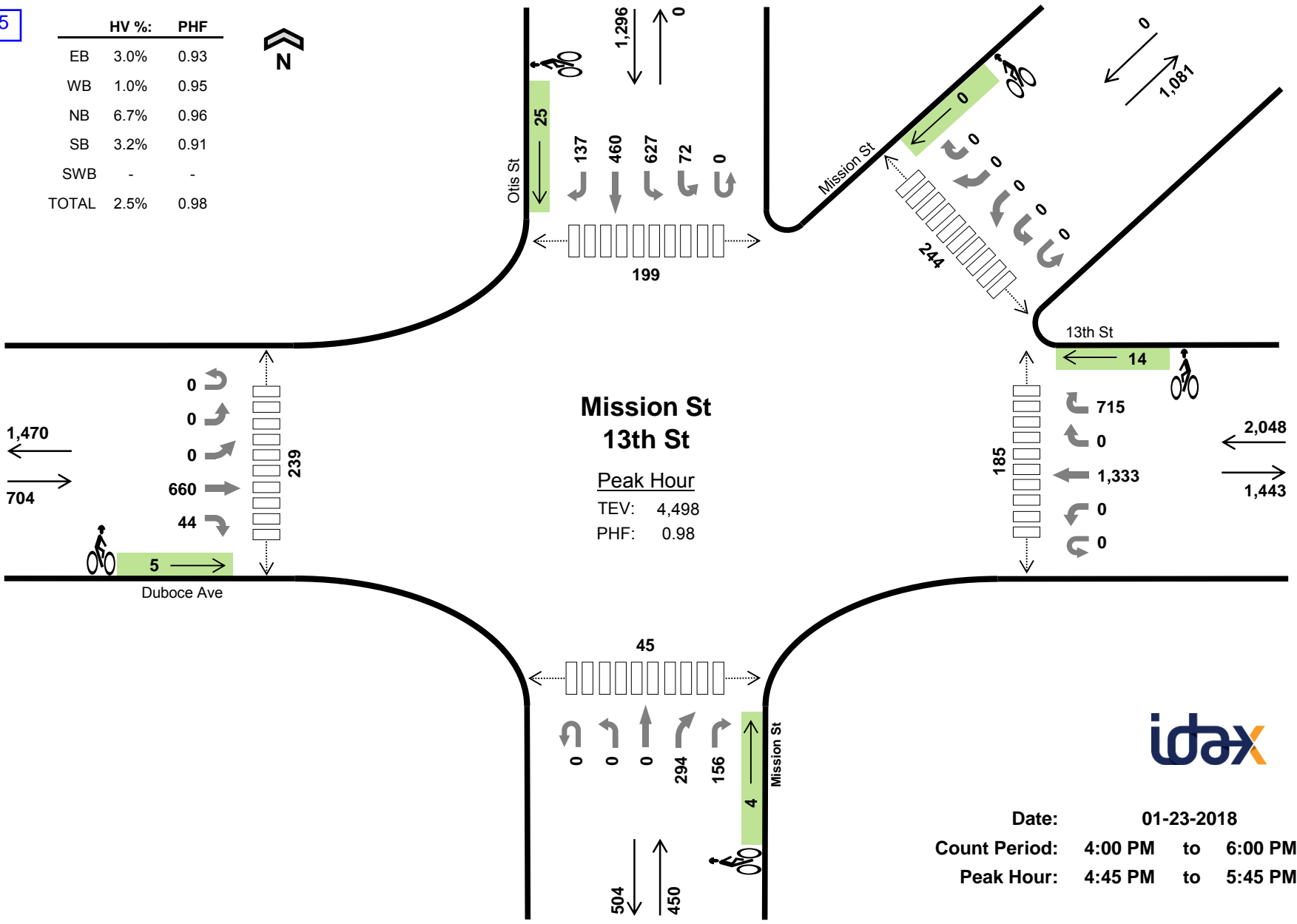
<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	McCoppin St				Otis St				Otis St				Gough St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	5	1	1	0	0	0	0	0	0	3	0	10	0
4:15 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	8	0
4:30 PM	0	0	0	0	0	8	0	1	0	0	0	0	0	0	2	0	11	0
4:45 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	0	3	0	9	38
5:00 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	0	2	0	10	38
5:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	3	0	10	40
5:30 PM	0	0	0	1	0	9	0	1	0	0	0	0	0	0	5	0	16	45
5:45 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	0	4	0	10	46
Count Total	0	0	0	1	0	56	2	3	0	0	0	0	0	0	22	0	84	0
Peak Hour	0	0	0	1	0	29	1	1	0	0	0	0	0	0	14	0	46	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	McCoppin St			Otis St			Otis St			Gough St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	2	5	0	0	0	0	0	0	0	7	0			
4:15 PM	0	0	1	1	6	0	0	0	0	0	2	0	10	0			
4:30 PM	0	0	0	2	6	0	0	1	0	0	0	0	9	0			
4:45 PM	0	0	1	3	12	0	0	0	0	0	0	0	16	42			
5:00 PM	0	0	3	2	16	0	0	0	0	0	1	0	22	57			
5:15 PM	0	0	0	5	39	0	1	0	0	0	0	0	45	92			
5:30 PM	0	0	0	3	32	1	0	0	0	0	2	0	38	121			
5:45 PM	0	0	0	4	36	0	0	1	0	0	2	0	43	148			
Count Total	0	0	5	22	152	1	1	2	0	0	7	0	190	0			
Peak Hour	0	0	3	14	123	1	1	1	0	0	5	0	148	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 15

	HV %:	PHF
EB	3.0%	0.93
WB	1.0%	0.95
NB	6.7%	0.96
SB	3.2%	0.91
SWB	-	-
TOTAL	2.5%	0.98



**Mission St  
13th St**  
Peak Hour  
TEV: 4,498  
PHF: 0.98



Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM

Two-Hour Count Summaries

Interval Start	Duboce Ave					13th St					Mission St					Otis St					Mission St					15-min Total	Rolling One Hour	
	Eastbound					Westbound					Northbound					Southbound					Southwestbound							
	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	HL	BL	BR	HR			
4:00 PM	0	0	0	180	8	0	0	295	0	158	0	0	0	66	53	0	16	146	126	24	0	0	0	0	0	1,072	0	
4:15 PM	0	0	0	171	13	0	0	330	0	122	1	0	0	62	44	0	22	161	109	35	0	0	0	0	0	1,070	0	
4:30 PM	0	0	0	172	12	0	1	324	0	137	0	0	0	61	47	0	25	170	108	30	0	0	0	0	0	1,087	0	
4:45 PM	0	0	0	177	12	0	0	341	0	179	0	0	0	78	29	0	20	150	97	37	0	0	0	0	0	1,120	4,349	
5:00 PM	0	0	0	161	14	0	0	355	0	185	0	0	0	67	50	0	21	148	120	32	0	0	0	0	0	1,153	4,430	
5:15 PM	0	0	0	155	12	0	0	296	0	180	0	0	0	80	37	0	18	150	113	34	0	0	0	0	0	1,075	4,435	
5:30 PM	0	0	0	167	6	0	0	341	0	171	0	0	0	69	40	0	13	179	130	34	0	0	0	0	0	1,150	4,498	
5:45 PM	0	0	0	133	8	0	0	332	0	184	0	0	0	60	38	0	19	149	112	34	0	0	0	0	0	1,069	4,447	
Count Total	0	0	0	1,316	85	0	1	2,614	0	1,316	1	0	0	543	338	0	154	1,253	915	260	0	0	0	0	0	8,796	0	
Peak Hour	All	0	0	0	660	44	0	0	1,333	0	715	0	0	0	294	156	0	72	627	460	137	0	0	0	0	0	4,498	0
	HV	0	0	0	20	1	0	0	12	0	8	0	0	0	25	5	0	2	13	24	2	0	0	0	0	0	112	0
	HV%	-	-	-	3%	2%	-	-	1%	-	1%	-	-	-	9%	3%	-	3%	2%	5%	1%	-	-	-	-	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SWB	Total	EB	WB	NB	SB	SWB	Total	East	West	North	South	Northeast	Total
4:00 PM	6	2	5	9	0	22	0	1	1	3	0	5	52	51	53	12	63	231
4:15 PM	3	1	6	7	0	17	1	1	0	7	0	9	40	61	38	17	37	193
4:30 PM	3	3	9	11	0	26	0	2	1	4	0	7	59	68	49	8	51	235
4:45 PM	4	5	8	7	0	24	1	1	1	5	0	8	50	58	49	16	60	233
5:00 PM	2	9	8	11	0	30	2	3	1	10	0	16	51	83	66	13	92	305
5:15 PM	7	2	8	10	0	27	0	5	0	5	0	10	34	42	43	7	54	180
5:30 PM	8	4	6	13	0	31	2	5	2	5	0	14	50	56	41	9	38	194
5:45 PM	5	6	5	10	0	26	0	5	2	5	0	12	41	42	43	22	41	189
Count Total	38	32	55	78	0	203	6	23	8	44	0	81	377	461	382	104	436	1,760
Peak Hr	21	20	30	41	0	112	5	14	4	25	0	48	185	239	199	45	244	912



**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Duboce Ave					13th St					Mission St					Otis St					Mission St					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southwestbound						
	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	6	0	0	0	2	0	0	0	0	0	4	1	0	0	4	5	0	0	0	0	0	22	0	
4:15 PM	0	0	0	3	0	0	0	1	0	0	0	0	0	6	0	0	1	1	5	0	0	0	0	0	17	0	
4:30 PM	0	0	0	2	1	0	0	2	0	1	0	0	0	7	2	0	0	0	11	0	0	0	0	0	26	0	
4:45 PM	0	0	0	3	1	0	0	3	0	2	0	0	0	8	0	0	1	2	4	0	0	0	0	0	24	89	
5:00 PM	0	0	0	2	0	0	0	6	0	3	0	0	0	6	2	0	0	4	6	1	0	0	0	0	30	97	
5:15 PM	0	0	0	7	0	0	0	0	0	2	0	0	0	6	2	0	0	3	6	1	0	0	0	0	27	107	
5:30 PM	0	0	0	8	0	0	0	3	0	1	0	0	0	5	1	0	1	4	8	0	0	0	0	0	31	112	
5:45 PM	0	0	0	5	0	0	0	3	0	3	0	0	0	4	1	0	0	5	5	0	0	0	0	0	26	114	
Count Total	0	0	0	36	2	0	0	20	0	12	0	0	0	46	9	0	3	23	50	2	0	0	0	0	203	0	
Peak Hour	0	0	0	20	1	0	0	12	0	8	0	0	0	25	5	0	2	13	24	2	0	0	0	0	112	0	

**Two-Hour Count Summaries - Bikes**

Interval Start	Duboce Ave					13th St					Mission St					Otis St					Mission St					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Southwestbound						
	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	LT	TH	BR	RT	UT	HL	LT	TH	RT	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	5	0	
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	9	0	
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0	0	7	0	
4:45 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	5	0	0	0	0	0	8	29	
5:00 PM	0	0	1	0	1	0	0	3	0	0	0	0	0	1	0	0	0	0	9	1	0	0	0	0	16	40	
5:15 PM	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	10	41	
5:30 PM	0	0	0	2	0	0	0	3	0	2	0	0	0	2	0	0	0	0	5	0	0	0	0	0	14	48	
5:45 PM	0	0	0	0	0	0	0	5	0	0	0	0	0	2	0	0	0	1	4	0	0	0	0	0	12	52	
Count Total	0	0	2	2	2	0	0	21	0	2	0	0	0	8	0	0	1	1	40	2	0	0	0	0	81	0	
Peak Hour	0	0	2	2	1	0	0	12	0	2	0	0	0	4	0	0	1	0	23	1	0	0	0	0	48	0	

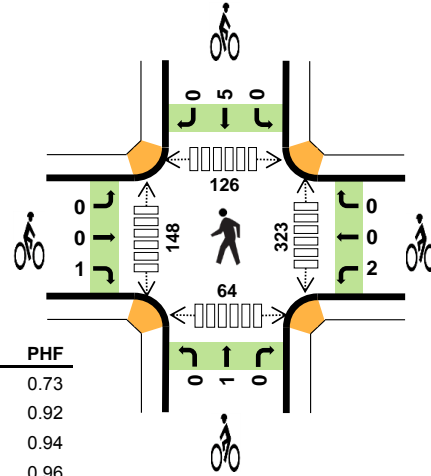
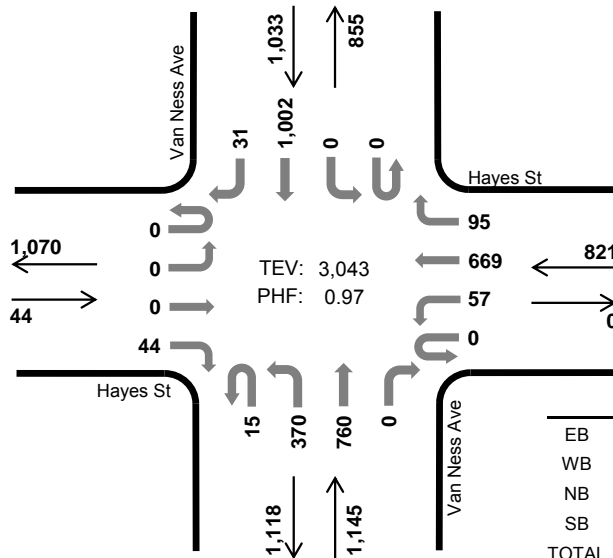
Int. 20

### Van Ness Ave Hayes St



Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	0.0%	0.73
WB	5.0%	0.92
NB	6.5%	0.94
SB	5.5%	0.96
TOTAL	5.7%	0.97

#### Two-Hour Count Summaries

Interval Start	Hayes St Eastbound				Hayes St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	3	0	16	162	14	1	78	111	0	0	0	240	2	627	0	
7:15 AM	0	0	0	8	0	8	143	24	5	111	157	0	0	0	222	8	686	0	
7:30 AM	0	0	0	11	0	13	158	20	4	97	202	0	0	0	250	5	760	0	
7:45 AM	0	0	0	15	0	14	181	29	6	94	175	0	0	0	261	8	783	2,856	
8:00 AM	0	0	0	4	0	15	175	22	3	96	193	0	0	0	248	11	767	2,996	
8:15 AM	0	0	0	14	0	15	155	24	2	83	190	0	0	0	243	7	733	3,043	
8:30 AM	0	0	0	11	0	14	101	19	5	79	212	0	0	0	220	7	668	2,951	
8:45 AM	0	0	0	16	0	12	151	31	1	85	178	0	0	0	241	2	717	2,885	
Count Total	0	0	0	82	0	107	1,226	183	27	723	1,418	0	0	0	1,925	50	5,741	0	
Peak Hour	All	0	0	0	44	0	57	669	95	15	370	760	0	0	0	1,002	31	3,043	0
	HV	0	0	0	0	0	2	32	7	0	11	63	0	0	0	55	2	172	0
	HV%	-	-	-	0%	-	4%	5%	7%	0%	3%	8%	-	-	-	5%	6%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	9	19	6	34	0	0	0	0	0	36	20	17	11	84
7:15 AM	0	18	21	10	49	0	0	0	1	1	26	19	10	10	65
7:30 AM	0	13	19	18	50	1	0	1	2	4	67	32	23	12	134
7:45 AM	0	12	23	9	44	0	0	0	1	1	71	36	30	22	159
8:00 AM	0	9	15	15	39	0	2	0	1	3	88	36	30	14	168
8:15 AM	0	7	17	15	39	0	0	0	1	1	97	44	43	16	200
8:30 AM	0	6	19	14	39	0	0	0	0	0	93	47	39	14	193
8:45 AM	0	7	11	19	37	0	1	0	2	3	99	64	47	20	230
Count Total	0	81	144	106	331	1	3	1	8	13	577	298	239	119	1,233
Peak Hour	0	41	74	57	172	1	2	1	5	9	323	148	126	64	661

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Hayes St				Hayes St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	7	1	0	3	16	0	0	0	6	0	34	0
7:15 AM	0	0	0	0	0	1	16	1	0	3	18	0	0	0	8	2	49	0
7:30 AM	0	0	0	0	0	0	10	3	0	4	15	0	0	0	17	1	50	0
7:45 AM	0	0	0	0	0	1	10	1	0	0	23	0	0	0	9	0	44	177
8:00 AM	0	0	0	0	0	0	7	2	0	4	11	0	0	0	14	1	39	182
8:15 AM	0	0	0	0	0	1	5	1	0	3	14	0	0	0	15	0	39	172
8:30 AM	0	0	0	0	0	0	4	2	0	2	17	0	0	0	14	0	39	161
8:45 AM	0	0	0	0	0	1	5	1	0	1	10	0	0	0	19	0	37	154
Count Total	0	0	0	0	0	5	64	12	0	20	124	0	0	0	102	4	331	0
Peak Hour	0	0	0	0	0	2	32	7	0	11	63	0	0	0	55	2	172	0

<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Hayes St			Hayes St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
7:30 AM	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0	4	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	6	6
8:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	3	9	9
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	9	9
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	3	7	7
Count Total	0	0	1	3	0	0	0	0	1	0	0	0	7	1	1	13	0	0
Peak Hour	0	0	1	2	0	0	0	0	1	0	0	0	5	0	0	9	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

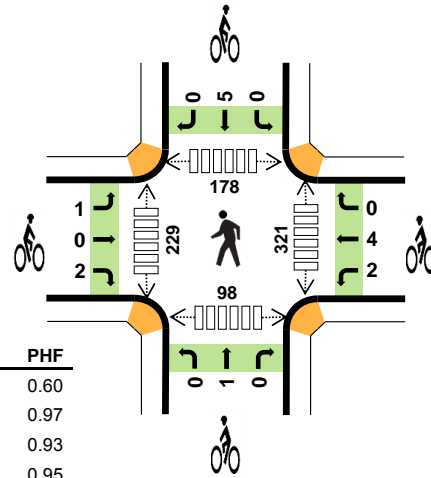
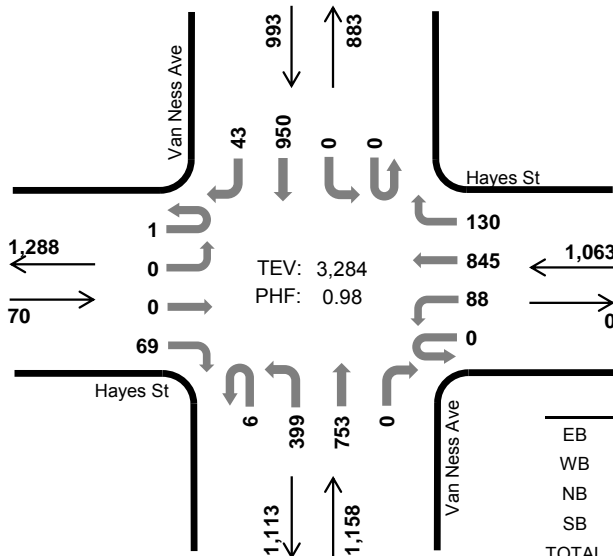
Int. 20

### Van Ness Ave Hayes St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	0.0%	0.60
WB	1.1%	0.97
NB	1.9%	0.93
SB	4.4%	0.95
TOTAL	2.4%	0.98

#### Two-Hour Count Summaries

Interval Start	Hayes St Eastbound				Hayes St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	1	0	0	20	0	15	188	41	4	86	192	0	0	0	219	6	772	0	
4:15 PM	0	0	0	14	0	19	223	40	1	106	180	0	0	0	231	7	821	0	
4:30 PM	0	0	0	11	0	15	226	34	2	80	180	0	0	0	236	14	798	0	
4:45 PM	0	0	0	12	0	24	210	33	2	101	197	0	0	0	223	10	812	3,203	
5:00 PM	1	0	0	28	0	21	198	30	1	120	190	0	0	0	235	13	837	3,268	
5:15 PM	0	0	0	18	0	28	211	33	1	98	186	0	0	0	256	6	837	3,284	
5:30 PM	0	0	0	15	0	26	197	39	2	85	165	0	0	0	247	8	784	3,270	
5:45 PM	0	0	0	17	0	33	209	33	2	79	186	0	0	0	241	13	813	3,271	
Count Total	2	0	0	135	0	181	1,662	283	15	755	1,476	0	0	0	1,888	77	6,474	0	
Peak Hour	All	1	0	0	69	0	88	845	130	6	399	753	0	0	0	950	43	3,284	0
	HV	0	0	0	0	0	2	10	0	0	0	22	0	0	0	44	0	78	0
	HV%	0%	-	-	0%	-	2%	1%	0%	0%	0%	3%	-	-	-	5%	0%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	4	4	9	17	1	2	0	0	3	68	62	25	23	178
4:15 PM	0	4	6	13	23	0	3	0	1	4	76	59	25	24	184
4:30 PM	0	5	7	12	24	1	2	0	0	3	71	59	38	18	186
4:45 PM	0	2	5	13	20	1	3	0	0	4	72	40	33	29	174
5:00 PM	0	2	6	10	18	0	0	0	3	3	96	61	51	25	233
5:15 PM	0	3	4	9	16	1	1	1	2	5	82	69	56	26	233
5:30 PM	0	3	7	13	23	0	3	1	1	5	75	71	62	40	248
5:45 PM	0	4	7	16	27	0	4	1	2	7	69	85	65	21	240
Count Total	0	27	46	95	168	4	18	3	9	34	609	506	355	206	1,676
Peak Hour	0	12	22	44	78	3	6	1	5	15	321	229	178	98	826

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Hayes St				Hayes St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	3	1	0	1	3	0	0	0	9	0	17	0
4:15 PM	0	0	0	0	0	0	2	2	0	1	5	0	0	0	13	0	23	0
4:30 PM	0	0	0	0	0	0	5	0	0	0	7	0	0	0	12	0	24	0
4:45 PM	0	0	0	0	0	0	2	0	0	0	5	0	0	0	13	0	20	84
5:00 PM	0	0	0	0	0	1	1	0	0	0	6	0	0	0	10	0	18	85
5:15 PM	0	0	0	0	0	1	2	0	0	0	4	0	0	0	9	0	16	78
5:30 PM	0	0	0	0	0	0	3	0	0	0	7	0	0	0	13	0	23	77
5:45 PM	0	0	0	0	0	1	3	0	0	0	7	0	0	0	16	0	27	84
Count Total	0	0	0	0	0	3	21	3	0	2	44	0	0	0	95	0	168	0
Peak Hour	0	0	0	0	0	2	10	0	0	0	22	0	0	0	44	0	78	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Hayes St			Hayes St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	
4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	1	0	4	0	0	
4:30 PM	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	
4:45 PM	0	0	1	2	1	0	0	0	0	0	0	0	0	0	4	14	14	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	14	14	
5:15 PM	0	0	1	0	1	0	0	1	0	0	2	0	0	2	5	15	15	
5:30 PM	0	0	0	2	1	0	0	1	0	0	1	0	0	1	5	17	17	
5:45 PM	0	0	0	0	4	0	0	1	0	0	2	0	0	2	7	20	20	
Count Total	2	0	2	4	14	0	0	3	0	0	9	0	0	9	34	0	0	
Peak Hour	1	0	2	2	4	0	0	1	0	0	5	0	0	5	15	0	0	
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		

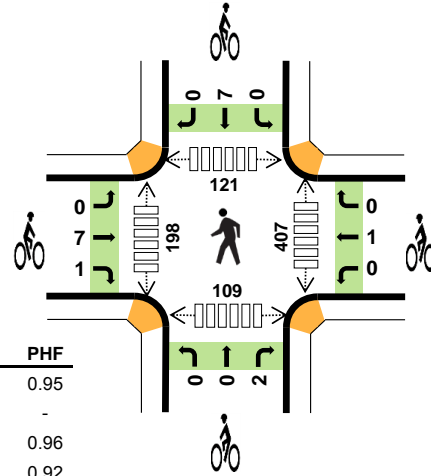
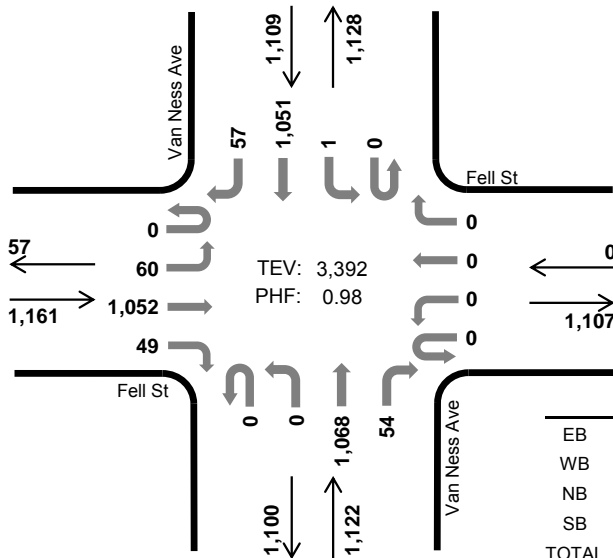
Int. 21

### Van Ness Ave Fell St



Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	1.8%	0.95
WB	-	-
NB	6.4%	0.96
SB	5.2%	0.92
TOTAL	4.5%	0.98

Two-Hour Count Summaries

Interval Start	Fell St Eastbound				Fell St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	4	242	3	0	0	0	0	0	0	181	5	0	1	255	7	698	0	
7:15 AM	0	8	263	15	0	0	0	0	0	0	265	5	0	0	233	8	797	0	
7:30 AM	0	14	258	12	0	0	0	0	0	0	282	10	0	0	263	13	852	0	
7:45 AM	0	14	278	14	0	0	0	0	0	0	253	9	0	0	286	14	868	3,215	
8:00 AM	0	15	275	13	0	0	0	0	0	0	275	14	0	0	245	12	849	3,366	
8:15 AM	0	17	241	10	0	0	0	0	0	0	258	21	0	1	257	18	823	3,392	
8:30 AM	0	9	274	11	0	0	0	0	0	0	281	13	0	0	237	10	835	3,375	
8:45 AM	0	6	288	5	0	0	0	0	0	0	254	26	1	0	266	13	859	3,366	
Count Total	0	87	2,119	83	0	0	0	0	0	0	2,049	103	1	2	2,042	95	6,581	0	
Peak Hour	All	0	60	1,052	49	0	0	0	0	0	0	1,068	54	0	1	1,051	57	3,392	0
	HV	0	2	12	7	0	0	0	0	0	0	71	1	0	1	57	0	151	0
	HV%	-	3%	1%	14%	-	-	-	-	-	-	7%	2%	-	100%	5%	0%	4%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	0	19	8	31	0	0	1	0	1	46	20	12	11	89
7:15 AM	7	0	22	8	37	0	0	0	0	0	44	33	23	19	119
7:30 AM	7	0	16	18	41	0	0	0	2	2	76	37	20	8	141
7:45 AM	6	0	22	11	39	3	0	0	1	4	92	47	21	27	187
8:00 AM	5	0	16	13	34	2	0	2	2	6	115	53	31	31	230
8:15 AM	3	0	18	16	37	3	1	0	2	6	124	61	49	43	277
8:30 AM	6	0	19	15	40	2	0	1	0	3	125	68	48	43	284
8:45 AM	6	0	13	19	38	1	0	0	3	4	129	87	52	43	311
Count Total	44	0	145	108	297	11	1	4	10	26	751	406	256	225	1,638
Peak Hour	21	0	72	58	151	8	1	2	7	18	407	198	121	109	835

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Fell St				Fell St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	2	0	0	0	0	0	0	19	0	0	0	8	0	31	0
7:15 AM	0	1	4	2	0	0	0	0	0	0	21	1	0	0	7	1	37	0
7:30 AM	0	2	2	3	0	0	0	0	0	0	16	0	0	0	18	0	41	0
7:45 AM	0	0	5	1	0	0	0	0	0	0	21	1	0	0	11	0	39	148
8:00 AM	0	0	3	2	0	0	0	0	0	0	16	0	0	0	13	0	34	151
8:15 AM	0	0	2	1	0	0	0	0	0	0	18	0	0	1	15	0	37	151
8:30 AM	0	0	3	3	0	0	0	0	0	0	18	1	0	0	15	0	40	150
8:45 AM	0	0	4	2	0	0	0	0	0	0	11	2	0	0	19	0	38	149
Count Total	0	3	25	16	0	0	0	0	0	0	140	5	0	1	106	1	297	0
Peak Hour	0	2	12	7	0	0	0	0	0	0	71	1	0	1	57	0	151	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Fell St			Fell St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
7:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0
7:45 AM	0	2	1	0	0	0	0	0	0	0	0	0	1	0	0	4	7
8:00 AM	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	6	12
8:15 AM	0	3	0	0	1	0	0	0	0	0	0	2	0	0	0	6	18
8:30 AM	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3	19
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	4	19
Count Total	0	10	1	0	1	0	0	2	2	2	0	10	0	0	0	26	0
Peak Hour	0	7	1	0	1	0	0	0	2	2	0	7	0	0	0	18	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

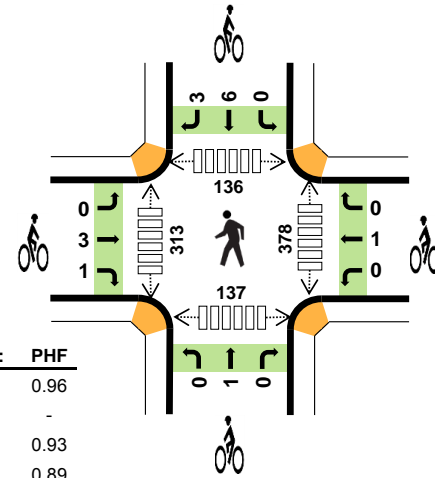
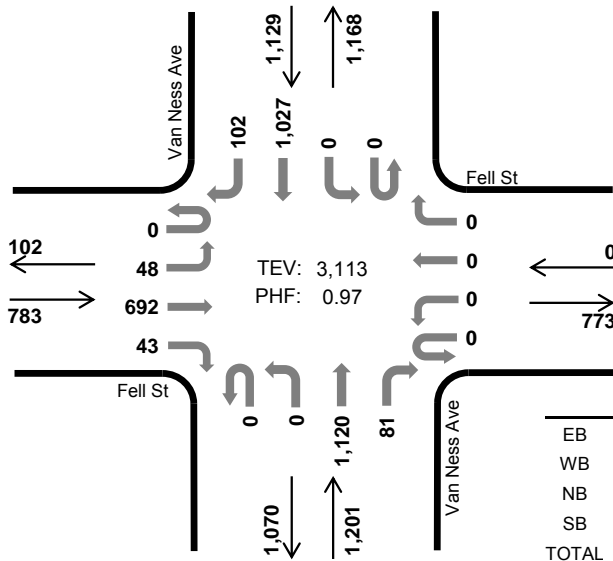
Int. 21

### Van Ness Ave Fell St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	2.2%	0.96
WB	-	-
NB	1.8%	0.93
SB	3.9%	0.89
TOTAL	2.7%	0.97

#### Two-Hour Count Summaries

Interval Start	Fell St Eastbound				Fell St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	11	178	9	0	0	0	0	0	0	270	22	0	1	236	20	747	0	
4:15 PM	0	5	187	10	0	0	0	0	1	0	289	15	0	2	251	12	772	0	
4:30 PM	0	13	183	8	0	0	0	0	0	0	254	23	0	0	252	17	750	0	
4:45 PM	0	8	168	14	0	0	0	0	0	0	290	16	0	0	246	22	764	3,033	
5:00 PM	0	8	180	11	0	0	0	0	0	0	303	19	0	0	255	21	797	3,083	
5:15 PM	0	19	161	10	0	0	0	0	0	0	273	23	0	0	274	42	802	3,113	
5:30 PM	0	24	157	12	0	0	0	0	0	0	234	25	0	1	263	26	742	3,105	
5:45 PM	0	19	172	8	0	0	0	0	0	0	255	16	0	0	266	34	770	3,111	
Count Total	0	107	1,386	82	0	0	0	0	1	0	2,168	159	0	4	2,043	194	6,144	0	
Peak Hour	All	0	48	692	43	0	0	0	0	0	0	1,120	81	0	0	1,027	102	3,113	0
	HV	0	0	17	0	0	0	0	0	0	0	22	0	0	0	40	4	83	0
	HV%	-	0%	2%	0%	-	-	-	-	-	-	2%	0%	-	-	4%	4%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	5	9	17	0	0	0	0	0	77	96	40	32	245
4:15 PM	2	0	6	14	22	2	0	2	1	5	73	74	31	19	197
4:30 PM	1	0	7	12	20	1	0	0	0	1	79	70	26	30	205
4:45 PM	1	0	5	13	19	1	1	0	3	5	84	68	27	24	203
5:00 PM	7	0	6	10	23	1	0	0	3	4	106	87	35	37	265
5:15 PM	8	0	4	9	21	1	0	1	3	5	109	88	48	46	291
5:30 PM	8	0	7	13	28	0	0	1	1	2	102	86	55	33	276
5:45 PM	5	0	7	18	30	2	0	1	4	7	78	101	55	40	274
Count Total	35	0	47	98	180	8	1	5	15	29	708	670	317	261	1,956
Peak Hour	17	0	22	44	83	4	1	1	9	15	378	313	136	137	964



<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Fell St				Fell St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	0	0	0	0	0	0	0	4	1	0	0	9	0	17	0
4:15 PM	0	0	2	0	0	0	0	0	0	0	6	0	0	1	12	1	22	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	7	0	0	0	11	1	20	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	5	0	0	0	13	0	19	78
5:00 PM	0	0	7	0	0	0	0	0	0	0	6	0	0	0	8	2	23	84
5:15 PM	0	0	8	0	0	0	0	0	0	0	4	0	0	0	8	1	21	83
5:30 PM	0	0	8	0	0	0	0	0	0	0	7	0	0	0	12	1	28	91
5:45 PM	0	0	5	0	0	0	0	0	0	0	7	0	0	0	17	1	30	102
Count Total	0	0	35	0	0	0	0	0	0	0	46	1	0	1	90	7	180	0
Peak Hour	0	0	17	0	0	0	0	0	0	0	22	0	0	0	40	4	83	0

<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Fell St			Fell St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	1	1	0	0	1	0	0	1	0	5	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2	1	0	0	5	11
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	15
5:15 PM	0	1	0	0	0	0	0	0	1	0	0	1	2	0	0	0	5	15
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2	16
5:45 PM	0	2	0	0	0	0	0	0	0	1	0	4	0	0	0	0	7	18
Count Total	0	7	1	0	1	0	0	1	3	1	0	11	4	0	0	0	29	0
Peak Hour	0	3	1	0	1	0	0	0	1	0	0	6	3	0	0	0	15	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

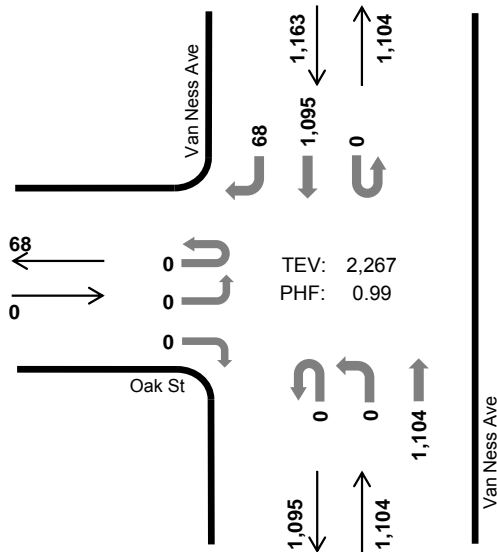
Int. 22

### Van Ness Ave Oak St

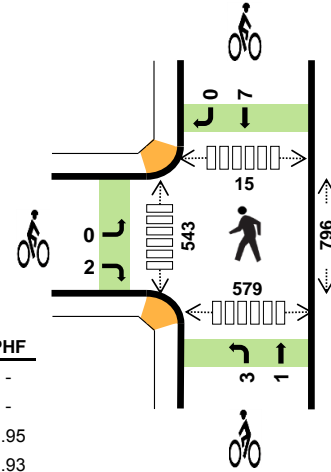


Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 7:30 AM to 8:30 AM



TEV: 2,267  
PHF: 0.99



	HV %:	PHF
EB	-	-
WB	-	-
NB	6.3%	0.95
SB	5.7%	0.93
TOTAL	6.0%	0.99

#### Two-Hour Count Summaries

Interval Start	Oak St			0			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour					
	Eastbound			Westbound			Northbound			Southbound									
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	0	0	0	0	0	0	0	185	0	0	0	264	14	463	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	263	0	0	0	233	16	512	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	284	0	0	0	273	6	563	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	261	0	0	0	287	27	575	2,113	
8:00 AM	0	0	0	0	0	0	0	0	0	0	290	0	0	0	269	14	573	2,223	
8:15 AM	0	0	0	0	0	0	0	0	0	0	269	0	0	0	266	21	556	2,267	
8:30 AM	0	0	0	0	0	0	0	0	0	0	273	0	0	0	247	16	536	2,240	
8:45 AM	0	0	0	0	0	0	0	0	0	0	286	0	0	0	262	19	567	2,232	
Count Total	0	0	0	0	0	0	0	0	0	0	2,111	0	0	0	2,101	133	4,345	0	
Peak Hour	All	0	0	0	0	0	0	0	0	0	0	1,104	0	0	0	1,095	68	2,267	0
	HV	0	0	0	0	0	0	0	0	0	0	69	0	0	0	63	3	135	0
	HV%	-	-	-	-	-	-	-	-	-	-	6%	-	-	-	6%	4%	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	18	10	28	0	0	1	0	1	81	40	1	70	192
7:15 AM	0	0	21	10	31	0	0	0	0	0	163	85	6	109	363
7:30 AM	0	0	16	19	35	0	0	0	2	2	151	101	4	99	355
7:45 AM	0	0	22	15	37	0	0	1	2	3	212	156	2	161	531
8:00 AM	0	0	15	13	28	0	0	2	2	4	215	122	5	158	500
8:15 AM	0	0	16	19	35	2	0	1	1	4	218	164	4	161	547
8:30 AM	0	0	16	20	36	3	0	0	0	3	272	181	12	202	667
8:45 AM	0	0	13	21	34	2	0	3	3	8	294	242	14	193	743
Count Total	0	0	137	127	264	7	0	8	10	25	1,606	1,091	48	1,153	3,898
Peak Hr	0	0	69	66	135	2	0	4	7	13	796	543	15	579	1,933

Two-Hour Count Summaries - Heavy Vehicles														15-min Total	Rolling One Hour			
Interval Start	Oak St				0				Van Ness Ave				Van Ness Ave					
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	18	0	0	0	9	1	28	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	21	0	0	0	10	0	31	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	18	1	35	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	22	0	0	0	14	1	37	131
8:00 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	13	0	28	131
8:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	18	1	35	135
8:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	20	0	36	136
8:45 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	21	0	34	133
Count Total	0	0	0	0	0	0	0	0	0	0	137	0	0	0	123	4	264	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	69	0	0	0	63	3	135	0

Two-Hour Count Summaries - Bikes														15-min Total	Rolling One Hour
Interval Start	Oak St			0			Van Ness Ave			Van Ness Ave					
	Eastbound			Westbound			Northbound			Southbound					
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0	
7:45 AM	0	0	0	0	0	0	1	0	0	0	2	0	3	6	
8:00 AM	0	0	0	0	0	0	1	1	0	0	2	0	4	9	
8:15 AM	0	0	2	0	0	0	1	0	0	0	1	0	4	13	
8:30 AM	0	0	3	0	0	0	0	0	0	0	0	0	3	14	
8:45 AM	0	0	2	0	0	0	1	2	0	0	2	1	8	19	
Count Total	0	0	7	0	0	0	4	4	0	0	9	1	25	0	
Peak Hour	0	0	2	0	0	0	3	1	0	0	7	0	13	0	

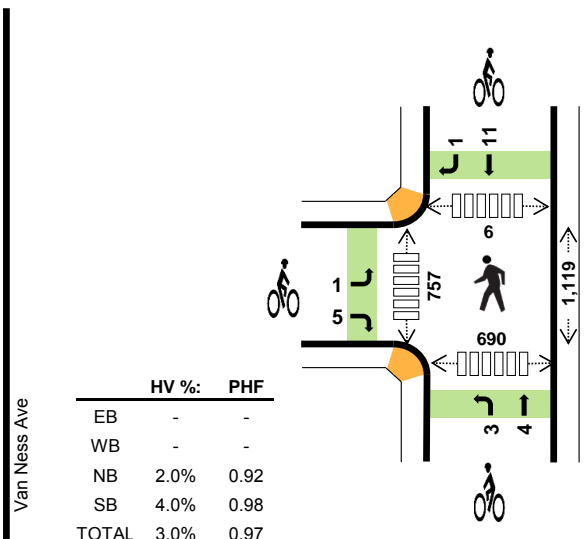
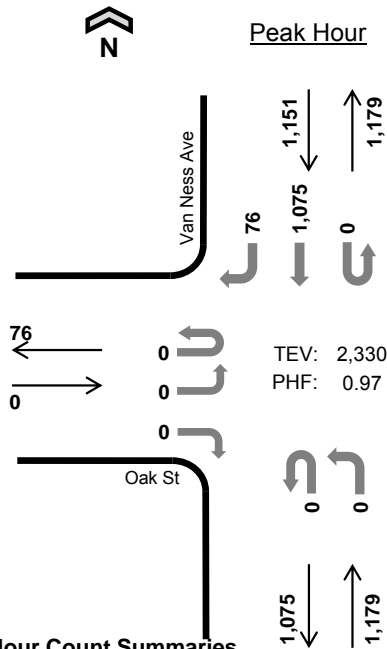
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 22

### Van Ness Ave Oak St



Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	-	-
NB	2.0%	0.92
SB	4.0%	0.98
TOTAL	3.0%	0.97

Two-Hour Count Summaries

Interval Start	Oak St				0				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour	
	Eastbound		Westbound		Northbound		Southbound		UT		TH		RT						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	0	0	0	0	0	0	293	0	0	0	239	18	550	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	298	0	0	0	254	18	570	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	264	0	0	0	248	19	531	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	311	0	0	0	271	14	596	2,247	
5:00 PM	0	0	0	0	0	0	0	0	0	0	321	0	0	0	265	14	600	2,297	
5:15 PM	0	0	0	0	0	0	0	0	0	0	300	0	0	0	272	22	594	2,321	
5:30 PM	0	0	0	0	0	0	0	0	0	0	247	0	0	0	267	26	540	2,330	
5:45 PM	0	0	0	0	0	0	0	0	0	0	275	0	0	0	268	20	563	2,297	
Count Total	0	0	0	0	0	0	0	0	0	0	2,309	0	0	0	2,084	151	4,544	0	
Peak Hour	All	0	0	0	0	0	0	0	0	0	0	1,179	0	0	0	1,075	76	2,330	0
	HV	0	0	0	0	0	0	0	0	0	0	23	0	0	0	44	2	69	0
	HV%	-	-	-	-	-	-	-	-	-	-	2%	-	-	-	4%	3%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	5	10	15	0	0	0	3	3	286	195	1	155	637
4:15 PM	0	0	8	11	19	0	0	1	1	2	253	165	3	161	582
4:30 PM	0	0	5	9	14	0	0	1	2	3	212	185	0	131	528
4:45 PM	0	0	6	15	21	1	0	0	1	2	230	158	0	154	542
5:00 PM	0	0	5	10	15	1	0	2	6	9	275	215	3	169	662
5:15 PM	0	0	6	9	15	2	0	4	4	10	277	165	0	166	608
5:30 PM	0	0	6	12	18	2	0	1	1	4	337	219	3	201	760
5:45 PM	0	0	7	16	23	0	0	1	3	4	231	142	1	160	534
Count Total	0	0	48	92	140	6	0	10	21	37	2,101	1,444	11	1,297	4,853
Peak Hr	0	0	23	46	69	6	0	7	12	25	1,119	757	6	690	2,572

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Oak St				0				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	10	0	15	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	11	0	19	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	9	0	14	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	15	0	21	69
5:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	10	0	15	69
5:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	7	2	15	65
5:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	12	0	18	69
5:45 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	16	0	23	71
Count Total	0	0	0	0	0	0	0	0	0	0	48	0	0	0	90	2	140	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	23	0	0	0	44	2	69	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Oak St			0			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0		
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0		
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	2	0	3	0		
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	10		
5:00 PM	0	0	1	0	0	0	0	2	0	0	0	0	6	0	9	16		
5:15 PM	0	0	2	0	0	0	0	1	3	0	0	0	4	0	10	24		
5:30 PM	1	0	1	0	0	0	0	0	1	0	0	0	0	1	4	25		
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	3	0	4	27		
Count Total	1	0	5	0	0	0	0	5	5	0	0	0	20	1	37	0		
Peak Hour	1	0	5	0	0	0	0	3	4	0	0	0	11	1	25	0		
Note: U-Turn volumes for bikes are included in Left-Turn, if any.																		

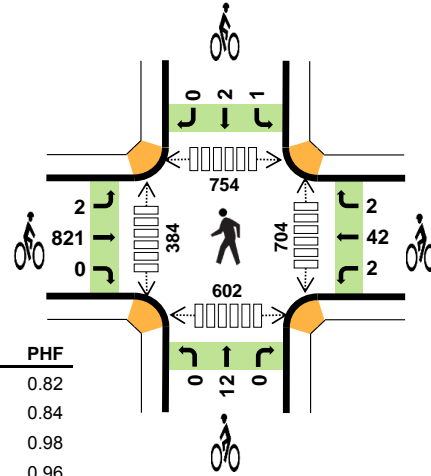
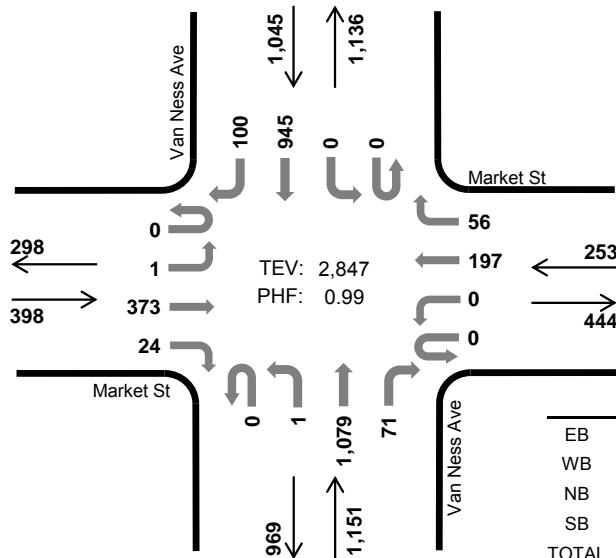
Int. 23

### Van Ness Ave Market St



Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	6.8%	0.82
WB	9.5%	0.84
NB	7.0%	0.98
SB	6.5%	0.96
TOTAL	7.0%	0.99

#### Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	26	2	0	0	26	4	0	0	181	22	0	0	243	16	520	0	
7:15 AM	0	0	41	4	0	0	30	3	0	0	269	18	0	0	222	16	603	0	
7:30 AM	0	0	48	7	0	1	40	12	0	0	279	12	0	0	241	24	664	0	
7:45 AM	0	0	60	3	0	0	50	5	0	0	259	19	0	0	259	29	684	2,471	
8:00 AM	0	0	74	7	0	0	47	9	0	1	277	15	0	0	241	30	701	2,652	
8:15 AM	0	0	82	6	0	0	57	18	0	0	263	15	0	0	239	32	712	2,761	
8:30 AM	0	0	115	6	0	0	51	11	0	0	273	19	0	0	225	20	720	2,817	
8:45 AM	0	1	102	5	0	0	42	18	0	0	266	22	0	0	240	18	714	2,847	
Count Total	0	1	548	40	0	1	343	80	0	1	2,067	142	0	0	1,910	185	5,318	0	
Peak Hour	All	0	1	373	24	0	0	197	56	0	1	1,079	71	0	0	945	100	2,847	0
	HV	0	0	27	0	0	0	23	1	0	0	64	16	0	0	66	2	199	0
	HV%	-	0%	7%	0%	-	-	12%	2%	-	0%	6%	23%	-	-	7%	2%	7%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	7	24	11	48	34	7	1	0	42	60	37	66	48	211
7:15 AM	4	5	26	7	42	64	5	0	0	69	94	53	108	66	321
7:30 AM	5	7	19	18	49	116	9	0	1	126	112	75	89	82	358
7:45 AM	5	6	25	17	53	118	5	1	1	125	127	103	166	117	513
8:00 AM	6	4	19	13	42	157	13	2	0	172	163	85	164	113	525
8:15 AM	7	9	22	17	55	193	11	3	1	208	152	88	175	136	551
8:30 AM	8	5	20	19	52	228	11	2	1	242	176	102	206	162	646
8:45 AM	6	6	19	19	50	245	11	5	1	262	213	109	209	191	722
Count Total	47	49	174	121	391	1,155	72	14	5	1,246	1,097	652	1,183	915	3,847
Peak Hour	27	24	80	68	199	823	46	12	3	884	704	384	754	602	2,444

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Market St				Market St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	6	0	0	0	7	0	0	0	18	6	0	0	10	1	48	0
7:15 AM	0	0	4	0	0	0	4	1	0	0	21	5	0	0	7	0	42	0
7:30 AM	0	0	5	0	0	0	7	0	0	0	16	3	0	0	16	2	49	0
7:45 AM	0	0	5	0	0	0	6	0	0	0	22	3	0	0	16	1	53	192
8:00 AM	0	0	6	0	0	0	4	0	0	0	15	4	0	0	13	0	42	186
8:15 AM	0	0	7	0	0	0	9	0	0	0	18	4	0	0	16	1	55	199
8:30 AM	0	0	8	0	0	0	5	0	0	0	17	3	0	0	18	1	52	202
8:45 AM	0	0	6	0	0	0	5	1	0	0	14	5	0	0	19	0	50	199
Count Total	0	0	47	0	0	0	47	2	0	0	141	33	0	0	115	6	391	0
Peak Hour	0	0	27	0	0	0	23	1	0	0	64	16	0	0	66	2	199	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Market St			Market St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	34	0	0	7	0	0	1	0	0	0	0	42	0				
7:15 AM	0	64	0	0	5	0	0	0	0	0	0	0	69	0				
7:30 AM	0	116	0	0	9	0	0	0	0	0	1	0	126	0				
7:45 AM	0	118	0	0	5	0	0	1	0	0	1	0	125	362				
8:00 AM	1	156	0	1	11	1	0	2	0	0	0	0	172	492				
8:15 AM	1	192	0	1	10	0	0	3	0	0	1	0	208	631				
8:30 AM	0	228	0	0	11	0	0	2	0	1	0	0	242	747				
8:45 AM	0	245	0	0	10	1	0	5	0	0	1	0	262	884				
Count Total	2	1153	0	2	68	2	0	14	0	1	4	0	1,246	0				
Peak Hour	2	821	0	2	42	2	0	12	0	1	2	0	884	0				
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		

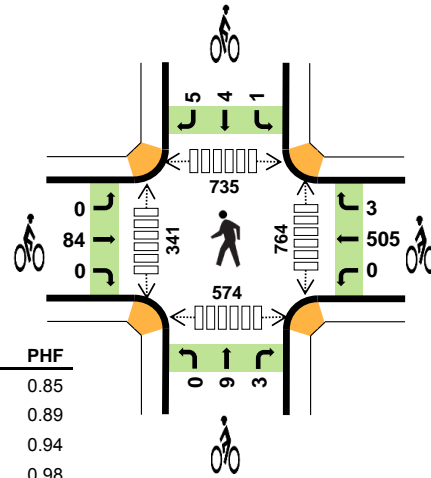
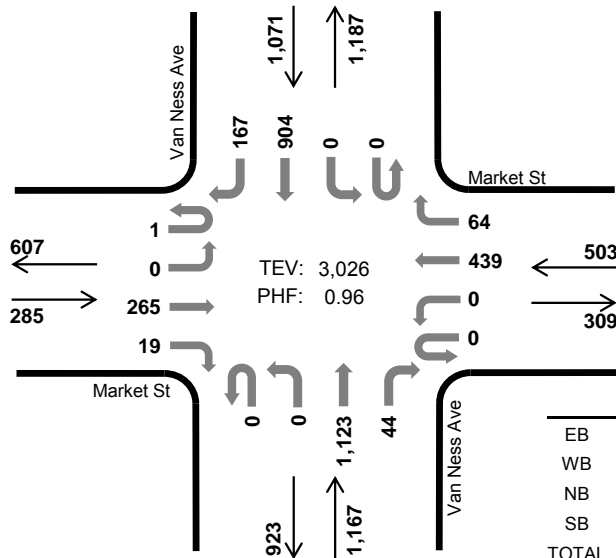
Int. 23

### Van Ness Ave Market St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	7.0%	0.85
WB	3.6%	0.89
NB	1.9%	0.94
SB	4.0%	0.98
TOTAL	3.4%	0.96

#### Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				Van Ness Ave Northbound				Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	50	3	0	0	88	14	0	0	277	18	0	0	210	26	686	0	
4:15 PM	0	1	69	14	0	1	85	12	0	0	285	11	0	0	229	22	729	0	
4:30 PM	0	0	63	11	0	0	93	15	0	0	253	24	0	0	211	36	706	0	
<b>4:45 PM</b>	<b>1</b>	<b>0</b>	<b>76</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>105</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>298</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>226</b>	<b>42</b>	<b>784</b>	2,905	
5:00 PM	0	0	57	6	0	0	105	14	0	0	304	8	0	0	224	42	760	2,979	
5:15 PM	0	0	60	2	0	0	124	18	0	0	280	10	0	0	236	36	766	3,016	
5:30 PM	0	0	72	4	0	0	105	15	0	0	241	14	0	0	218	47	716	3,026	
5:45 PM	0	0	69	2	0	0	105	17	0	0	255	6	0	0	220	42	716	2,958	
Count Total	1	1	516	49	0	1	810	122	0	0	2,193	103	0	0	1,774	293	5,863	0	
Peak Hour	All	1	0	265	19	0	0	439	64	0	0	1,123	44	0	0	904	167	3,026	0
	HV	0	0	20	0	0	0	17	1	0	0	21	1	0	0	43	0	103	0
	HV%	0%	-	8%	0%	-	-	4%	2%	-	-	2%	2%	-	-	5%	0%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	5	6	11	27	18	41	1	2	62	195	100	161	144	600
4:15 PM	7	6	6	10	29	21	50	1	1	73	177	74	168	97	516
4:30 PM	4	4	5	9	22	21	65	2	5	93	144	66	126	99	435
<b>4:45 PM</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>15</b>	<b>29</b>	<b>19</b>	<b>78</b>	<b>4</b>	<b>1</b>	<b>102</b>	<b>170</b>	<b>86</b>	<b>157</b>	<b>102</b>	<b>515</b>
5:00 PM	6	4	6	11	27	20	102	2	4	128	195	99	182	172	648
5:15 PM	6	7	4	4	21	24	150	4	4	182	187	72	182	134	575
5:30 PM	4	3	6	13	26	21	178	2	1	202	212	84	214	166	676
5:45 PM	4	4	7	17	32	24	166	5	3	198	185	70	165	135	555
Count Total	40	37	46	90	213	168	830	21	21	1,040	1,465	651	1,355	1,049	4,520
Peak Hour	20	18	22	43	103	84	508	12	10	614	764	341	735	574	2,414



<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Market St				Market St				Van Ness Ave				Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	0	5	0	0	0	6	0	0	0	11	0	27	0
4:15 PM	0	0	7	0	0	0	5	1	0	0	6	0	0	0	10	0	29	0
4:30 PM	0	0	4	0	0	0	4	0	0	0	4	1	0	0	9	0	22	0
<b>4:45 PM</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>29</b>	107
5:00 PM	0	0	6	0	0	0	4	0	0	0	6	0	0	0	11	0	27	107
5:15 PM	0	0	6	0	0	0	6	1	0	0	4	0	0	0	4	0	21	99
5:30 PM	0	0	4	0	0	0	3	0	0	0	6	0	0	0	13	0	26	103
5:45 PM	0	0	4	0	0	0	4	0	0	0	7	0	0	0	17	0	32	106
Count Total	0	0	40	0	0	0	35	2	0	0	44	2	0	0	90	0	213	0
Peak Hour	0	0	20	0	0	0	17	1	0	0	21	1	0	0	43	0	103	0

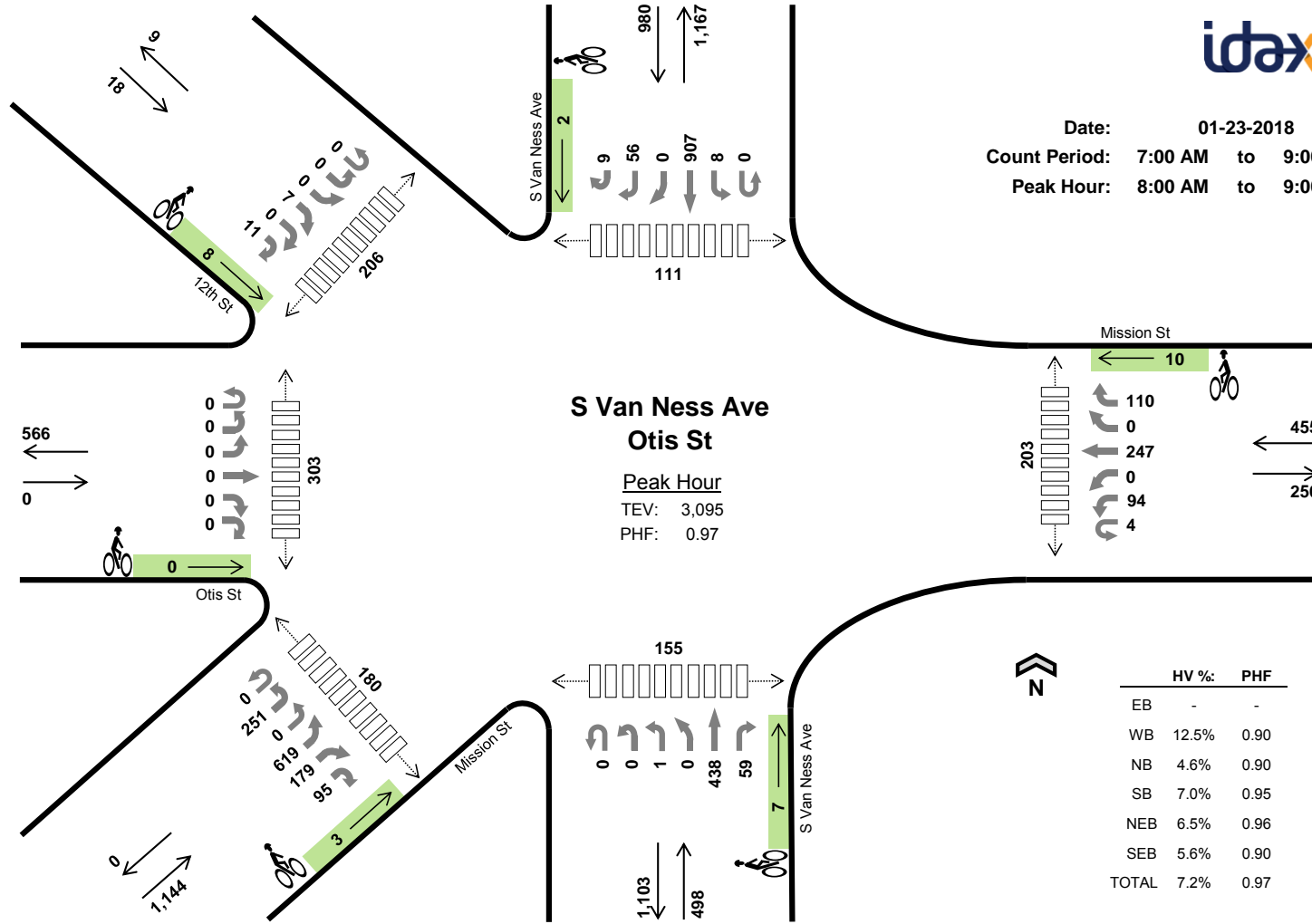
<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Market St			Market St			Van Ness Ave			Van Ness Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	18	0	0	41	0	0	0	1	0	2	0	62	0			
4:15 PM	0	21	0	0	49	1	0	1	0	0	0	1	73	0			
4:30 PM	0	21	0	0	65	0	0	1	1	0	1	4	93	0			
<b>4:45 PM</b>	<b>0</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>78</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>102</b>	330			
5:00 PM	0	20	0	0	102	0	0	2	0	0	2	2	128	396			
5:15 PM	0	24	0	0	147	3	0	4	0	1	1	2	182	505			
5:30 PM	0	21	0	0	178	0	0	0	2	0	1	0	202	614			
5:45 PM	0	24	0	0	166	0	0	3	2	0	1	2	198	710			
Count Total	0	168	0	0	826	4	0	14	7	1	8	12	1,040	0			
Peak Hour	0	84	0	0	505	3	0	9	3	1	4	5	614	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 24



Date: 01-23-2018  
 Count Period: 7:00 AM to 9:00 AM  
 Peak Hour: 8:00 AM to 9:00 AM

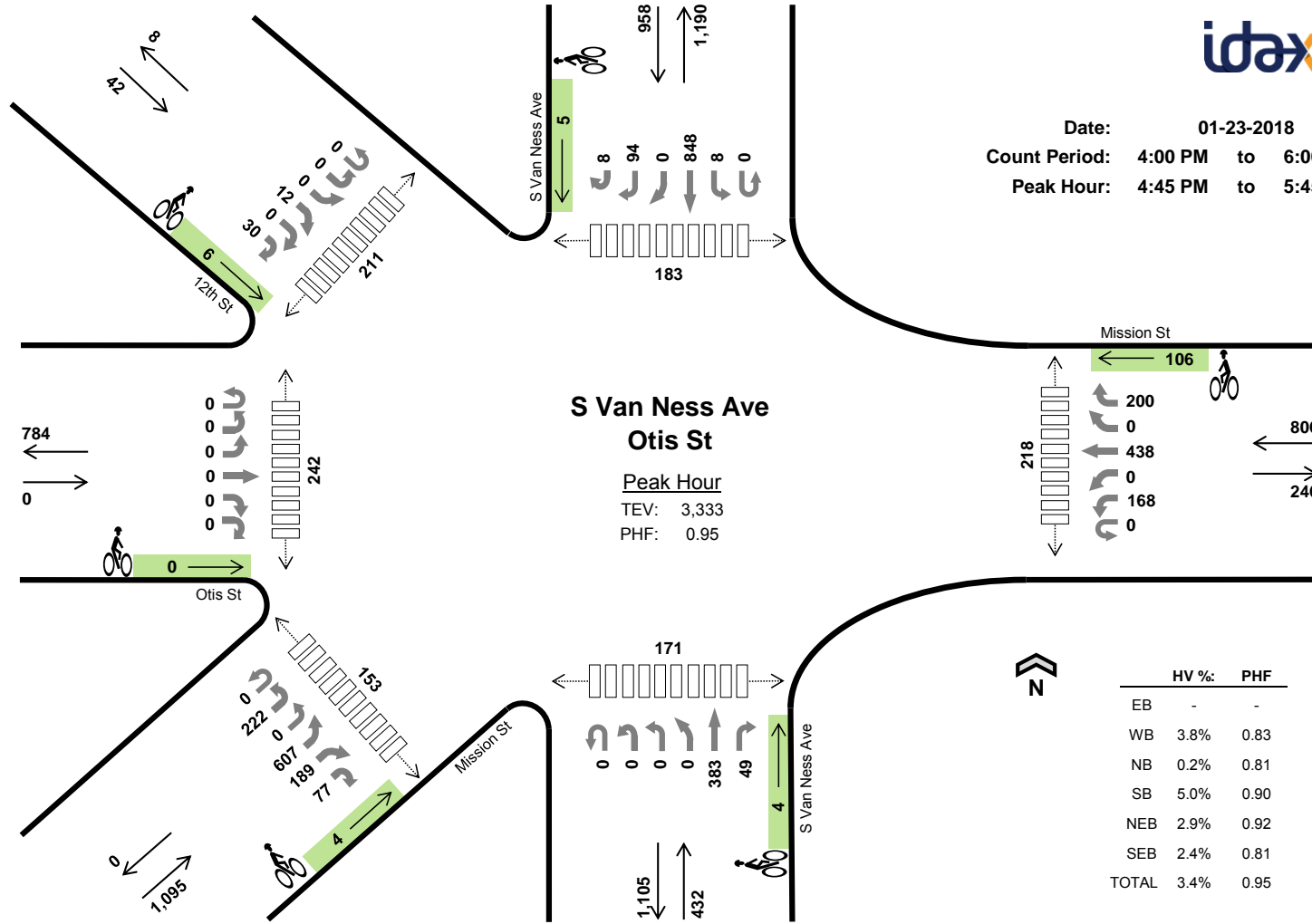




Int. 24



Date: 01-23-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	3.8%	0.83
NB	0.2%	0.81
SB	5.0%	0.90
NEB	2.9%	0.92
SEB	2.4%	0.81
TOTAL	3.4%	0.95



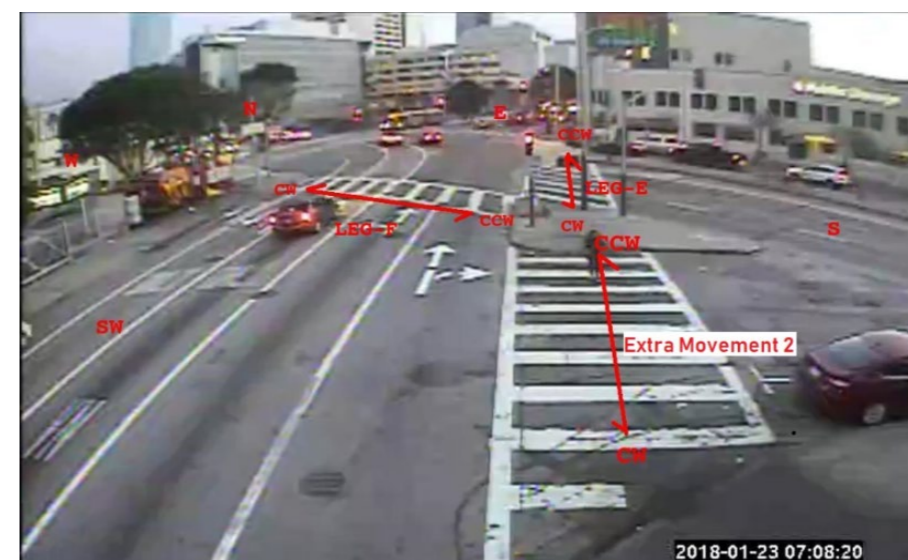
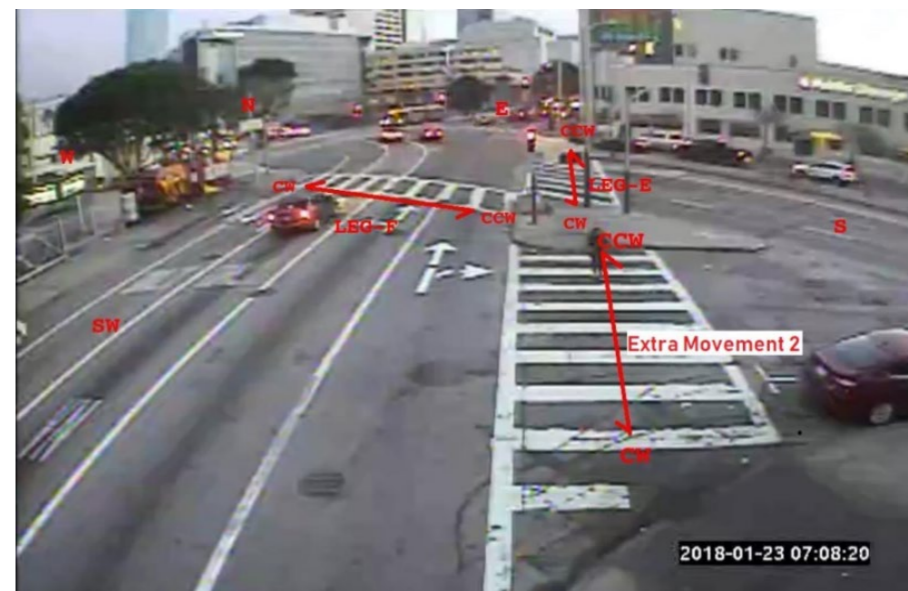
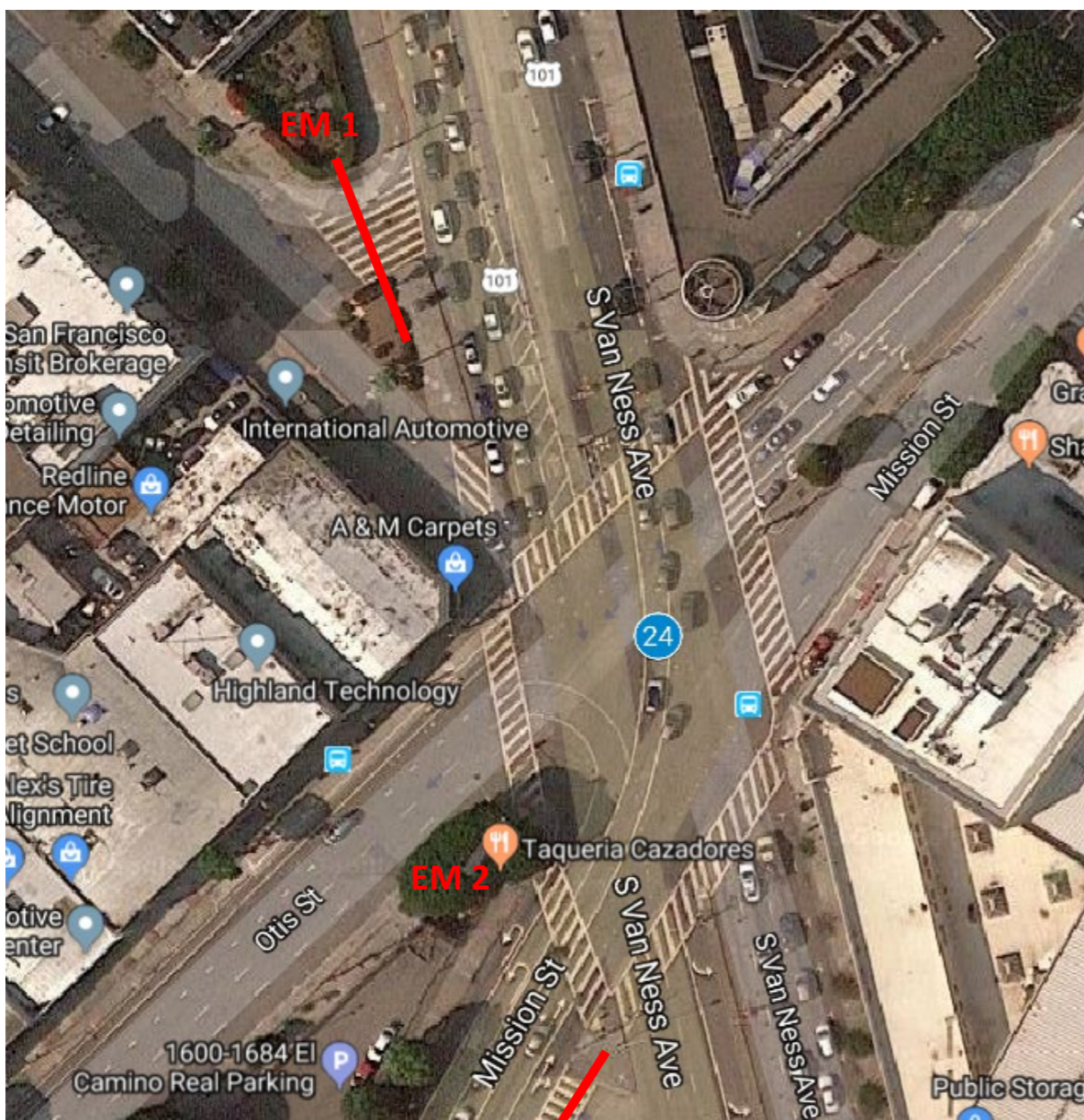
Int. 24

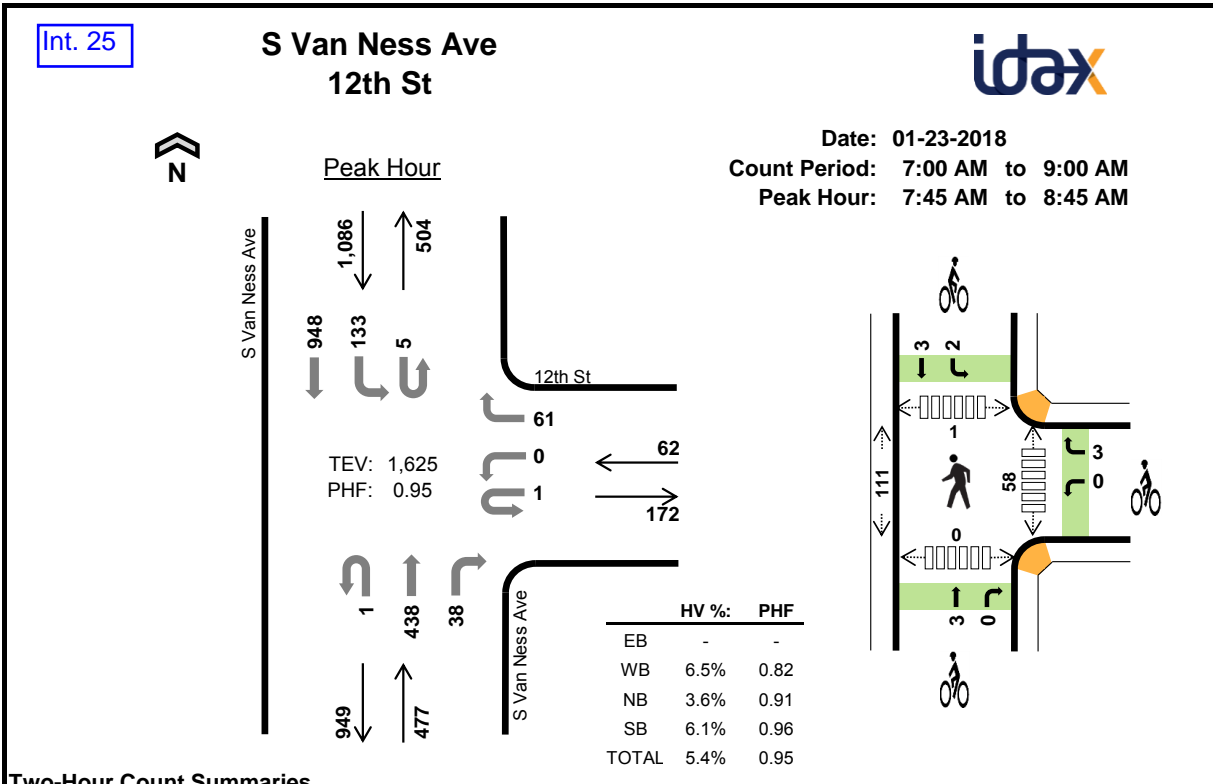
Pedestrians

	Extra Movement 1			Extra Movement 2		
	Peds CW	Peds CCW	Peds Combined	Peds CW	Peds CCW	Peds Combined
AM	2	10	12	19	4	23
AM	2	7	9	22	13	35
AM	6	13	19	33	13	46
AM	3	22	25	41	16	57
AM	6	16	22	23	13	36
AM	8	25	33	47	24	71
AM	12	49	61	26	24	50
AM	8	60	68	29	24	53
PM	15	22	37	31	23	54
PM	14	25	39	25	24	49
PM	15	25	40	27	30	57
PM	27	18	45	19	24	43
PM	29	29	58	28	30	58
PM	31	22	53	19	26	45
PM	20	16	36	26	32	58
PM	38	19	57	22	18	40

Bikes on Crosswalk

	Extra Movement 1			Extra Movement 2		
	Peds CW	Peds CCW	Peds Combined	Peds CW	Peds CCW	Peds Combined
	0	0	0	1	0	1
	0	0	0	0	0	0
	0	0	0	1	0	1
	0	0	0	0	5	5
	0	0	0	1	0	1
	0	0	0	0	1	1
	0	1	1	0	1	1
	0	0	0	2	6	8
	1	0	1	1	0	1
	0	0	0	1	0	1
	0	1	1	1	3	4
	0	3	3	0	1	1
	0	5	5	2	3	5
	1	1	2	2	3	5
	0	1	1	0	0	0
	0	0	0	0	2	2





**Two-Hour Count Summaries**

Interval Start	0				12th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	0	0	1	0	7	0	0	72	1	2	23	229	0	335	0	
7:15 AM	0	0	0	0	1	0	0	16	0	0	102	2	0	44	212	0	377	0	
7:30 AM	0	0	0	0	0	1	0	13	0	0	100	2	2	24	236	0	378	0	
7:45 AM	0	0	0	0	0	0	0	12	0	0	118	6	3	23	243	0	405	1,495	
8:00 AM	0	0	0	0	1	0	0	17	0	0	116	11	0	41	241	0	427	1,587	
8:15 AM	0	0	0	0	0	0	0	19	0	0	84	11	0	28	242	0	384	1,594	
8:30 AM	0	0	0	0	0	0	0	13	1	0	120	10	2	41	222	0	409	1,625	
8:45 AM	0	0	0	0	0	0	0	20	0	0	102	9	2	34	235	0	402	1,622	
Count Total	0	0	0	0	2	2	0	117	1	0	814	52	11	258	1,860	0	3,117	0	
Peak Hour	All	0	0	0	0	1	0	0	61	1	0	438	38	5	133	948	0	1,625	0
	HV	0	0	0	0	0	0	4	0	0	17	0	0	1	65	0	87	0	0
	HV%	-	-	-	-	0%	-	-	7%	0%	-	4%	0%	0%	1%	7%	-	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	3	12	16	0	0	0	1	1	10	20	0	1	31
7:15 AM	0	3	3	13	19	0	0	0	0	0	6	16	1	1	24
7:30 AM	0	1	2	16	19	0	0	2	3	5	9	35	0	0	44
7:45 AM	0	2	5	15	22	0	1	1	0	2	12	23	0	0	35
8:00 AM	0	0	4	18	22	0	0	0	1	1	16	16	1	0	33
8:15 AM	0	1	4	18	23	0	1	1	2	4	14	51	0	0	65
8:30 AM	0	1	4	15	20	0	1	1	2	4	16	21	0	0	37
8:45 AM	0	3	3	17	23	0	1	1	1	3	16	23	1	0	40
Count Total	0	12	28	124	164	0	4	6	10	20	99	205	3	2	309
Peak Hr	0	4	17	66	87	0	3	3	5	11	58	111	1	0	170

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	0				12th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	3	0	0	0	12	0	16	0
7:15 AM	0	0	0	0	0	0	0	3	0	0	2	1	0	1	12	0	19	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	16	0	19	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	5	0	0	0	15	0	22	76
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	1	17	0	22	82
8:15 AM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	18	0	23	86
8:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	15	0	20	87
8:45 AM	0	0	0	0	0	0	0	3	0	0	3	0	0	1	16	0	23	88
Count Total	0	0	0	0	0	0	0	12	0	0	27	1	0	3	121	0	164	0
Peak Hour	0	0	0	0	0	0	0	4	0	0	17	0	0	1	65	0	87	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	0			12th St			S Van Ness Ave			S Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	2	1	0	5	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	8	8
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	8	8
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	4	12	12
8:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	4	11	11
8:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	3	12	12
Count Total	0	0	0	0	0	0	4	0	0	6	0	0	4	6	0	20	0	0
Peak Hour	0	0	0	0	0	0	3	0	0	3	0	0	2	3	0	11	0	0
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		



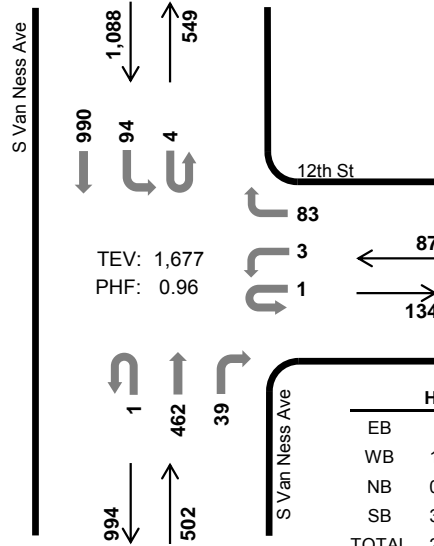
Int. 25

### S Van Ness Ave 12th St

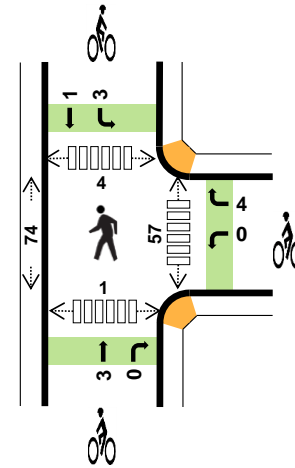


Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:15 PM to 5:15 PM



TEV: 1,677  
PHF: 0.96



	HV %:	PHF
EB	-	-
WB	1.1%	0.84
NB	0.4%	0.93
SB	3.1%	0.93
TOTAL	2.2%	0.96

#### Two-Hour Count Summaries

Interval Start	0				12th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	1	2	0	28	1	0	95	10	1	28	223	0	389	0	
4:15 PM	0	0	0	0	1	0	0	25	0	0	126	9	0	27	240	0	428	0	
4:30 PM	0	0	0	0	0	0	0	17	0	0	124	9	2	23	238	0	413	0	
4:45 PM	0	0	0	0	0	0	0	21	1	0	116	9	2	22	268	0	439	1,669	
5:00 PM	0	0	0	0	0	3	0	20	0	0	96	12	0	22	244	0	397	1,677	
5:15 PM	0	0	0	0	0	1	0	27	1	0	70	14	0	20	230	0	363	1,612	
5:30 PM	0	0	0	0	0	0	0	20	7	0	56	24	0	23	258	0	388	1,587	
5:45 PM	0	0	0	0	1	0	0	18	1	0	61	12	1	15	233	0	342	1,490	
Count Total	0	0	0	0	3	6	0	176	11	0	744	99	6	180	1,934	0	3,159	0	
Peak Hour	All	0	0	0	0	1	3	0	83	1	0	462	39	4	94	990	0	1,677	0
	HV	0	0	0	0	0	1	0	0	0	0	2	0	0	2	32	0	37	0
	HV%	-	-	-	-	0%	33%	-	0%	0%	-	0%	0%	0%	2%	3%	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	3	5	8	0	0	0	1	1	14	15	2	0	31
4:15 PM	0	0	1	9	10	0	1	1	1	3	8	23	1	0	32
4:30 PM	0	0	1	6	7	0	1	2	0	3	14	13	0	1	28
4:45 PM	0	0	0	10	10	0	1	0	0	1	10	14	0	0	24
5:00 PM	0	1	0	9	10	0	1	0	3	4	25	24	3	0	52
5:15 PM	0	0	0	2	2	0	2	4	4	10	23	13	0	0	36
5:30 PM	0	0	2	11	13	0	0	0	2	2	16	16	0	0	32
5:45 PM	0	0	0	11	11	0	0	0	1	1	19	6	2	0	27
Count Total	0	1	7	63	71	0	6	7	12	25	129	124	8	1	262
Peak Hr	0	1	2	34	37	0	4	3	4	11	57	74	4	1	136

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	0				12th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	8	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8	0	10	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	5	0	7	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	10	35
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	9	0	10	37
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	29
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	11	0	13	35
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	36
Count Total	0	0	0	0	0	1	0	0	0	0	6	1	0	2	61	0	71	0
Peak Hour	0	0	0	0	0	1	0	0	0	0	2	0	0	2	32	0	37	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	0			12th St			S Van Ness Ave			S Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0		
4:15 PM	0	0	0	0	0	1	0	1	0	1	0	0	1	0	3	0		
4:30 PM	0	0	0	0	0	1	0	2	0	0	0	0	0	0	3	0		
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	8		
5:00 PM	0	0	0	0	0	1	0	0	0	2	1	0	4	1	4	11		
5:15 PM	0	0	0	2	0	0	0	4	0	1	3	0	10	3	10	18		
5:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	2	1	2	17		
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	17		
Count Total	0	0	0	2	0	4	0	7	0	5	7	0	25	7	25	0		
Peak Hour	0	0	0	0	0	4	0	3	0	3	1	0	11	3	11	0		
Note: U-Turn volumes for bikes are included in Left-Turn, if any.																		

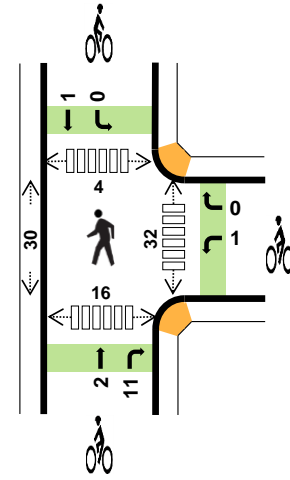
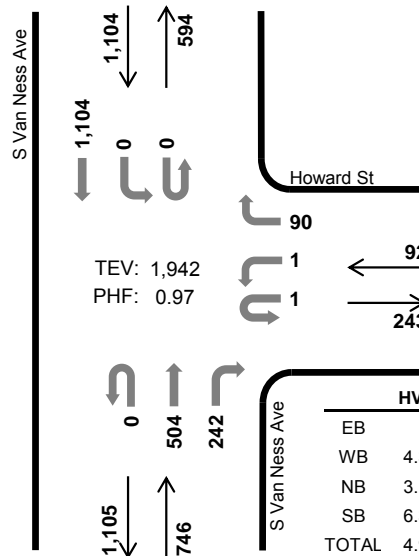
Int. 26

### S Van Ness Ave Howard St



Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	-	-
WB	4.3%	0.72
NB	3.1%	0.95
SB	6.3%	0.95
TOTAL	4.9%	0.97

Two-Hour Count Summaries

Interval Start	0			Howard St			S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound				Southbound								
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	0	0	0	1	0	10	1	0	77	10	0	0	220	0	319	0	
7:15 AM	0	0	0	0	0	1	0	8	0	0	114	27	0	0	248	0	398	0	
7:30 AM	0	0	0	0	0	0	0	15	0	0	118	36	0	0	268	0	437	0	
7:45 AM	0	0	0	0	1	0	0	9	0	0	151	23	0	0	272	0	456	1,610	
8:00 AM	0	0	0	0	0	0	0	32	0	0	120	53	0	0	272	0	477	1,768	
8:15 AM	0	0	0	0	1	1	0	14	0	0	145	52	0	0	290	0	503	1,873	
8:30 AM	0	0	0	0	0	0	0	21	0	0	122	69	0	0	262	0	474	1,910	
8:45 AM	0	0	0	0	0	0	0	23	0	0	117	68	0	0	280	0	488	1,942	
Count Total	0	0	0	0	2	3	0	132	1	0	964	338	0	0	2,112	0	3,552	0	
Peak Hour	All	0	0	0	0	1	1	0	90	0	0	504	242	0	0	1,104	0	1,942	0
	HV	0	0	0	0	0	1	0	3	0	0	15	8	0	0	69	0	96	0
	HV%	-	-	-	-	0%	100%	-	3%	-	-	3%	3%	-	-	6%	-	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	3	9	12	0	0	0	0	0	2	13	1	5	21
7:15 AM	0	1	1	11	13	0	0	0	0	0	1	12	3	1	17
7:30 AM	0	0	5	14	19	0	2	0	1	3	6	8	3	5	22
7:45 AM	0	0	6	19	25	0	0	2	0	2	7	9	2	2	20
8:00 AM	0	1	4	19	24	0	1	1	1	3	7	3	0	6	16
8:15 AM	0	1	5	15	21	0	0	7	0	7	6	11	1	1	19
8:30 AM	0	0	10	17	27	0	0	2	0	2	9	7	2	2	20
8:45 AM	0	2	4	18	24	0	0	3	0	3	10	9	1	7	27
Count Total	0	5	38	122	165	0	3	15	2	20	48	72	13	29	162
Peak Hr	0	4	23	69	96	0	1	13	1	15	32	30	4	16	82

Two-Hour Count Summaries - Heavy Vehicles														15-min Total	Rolling One Hour			
Interval Start	0				Howard St				S Van Ness Ave				S Van Ness Ave					
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	9	0		
7:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	11	0		
7:30 AM	0	0	0	0	0	0	0	0	0	0	4	1	0	0	14	0		
7:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	19	0		
8:00 AM	0	0	0	0	0	0	0	1	0	0	3	1	0	0	19	0		
8:15 AM	0	0	0	0	0	1	0	0	0	0	5	0	0	0	15	0		
8:30 AM	0	0	0	0	0	0	0	0	0	0	5	5	0	0	17	0		
8:45 AM	0	0	0	0	0	0	0	2	0	0	2	2	0	0	18	0		
Count Total	0	0	0	0	0	2	0	3	0	0	28	10	0	0	122	0		
Peak Hour	0	0	0	0	0	1	0	3	0	0	15	8	0	0	69	0		

Two-Hour Count Summaries - Bikes														15-min Total	Rolling One Hour
Interval Start	0			Howard St			S Van Ness Ave			S Van Ness Ave					
	Eastbound			Westbound			Northbound			Southbound					
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0			
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0			
7:30 AM	0	0	0	0	0	2	0	0	0	0	1	0			
7:45 AM	0	0	0	0	0	0	0	1	1	0	0	0			
8:00 AM	0	0	0	1	0	0	0	0	1	0	1	0			
8:15 AM	0	0	0	0	0	0	0	0	7	0	0	0			
8:30 AM	0	0	0	0	0	0	0	0	2	0	0	0			
8:45 AM	0	0	0	0	0	0	0	2	1	0	0	0			
Count Total	0	0	0	1	0	2	0	3	12	0	2	0			
Peak Hour	0	0	0	1	0	0	0	2	11	0	1	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 26

### S Van Ness Ave Howard St

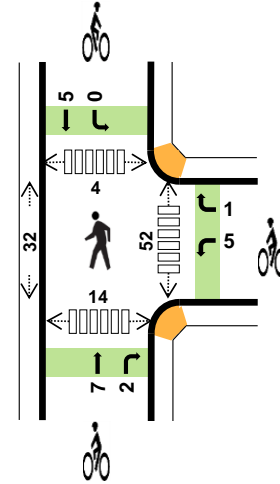
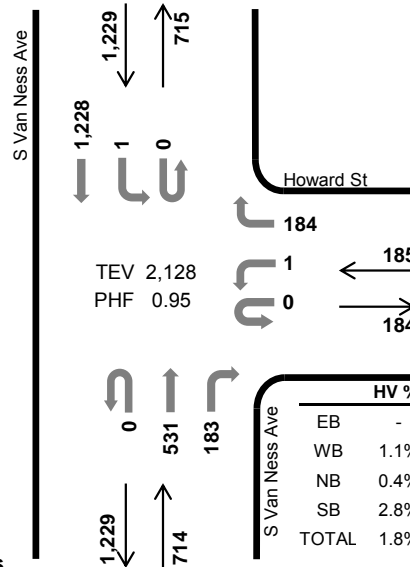


Peak Hour

Date: 01-23-2018

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	-	-
WB	1.1%	0.83
NB	0.4%	0.88
SB	2.8%	0.96
TOTAL	1.8%	0.95

#### Two-Hour Count Summaries

Interval Start	0				Howard St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	1	0	0	37	0	0	98	44	0	0	258	0	438	0	
4:15 PM	0	0	0	0	0	0	0	28	0	0	128	40	0	0	266	0	462	0	
4:30 PM	0	0	0	0	0	0	0	40	0	0	143	41	0	0	285	0	509	0	
4:45 PM	0	0	0	0	0	0	0	45	0	0	158	45	0	0	310	0	558	1,967	
5:00 PM	0	0	0	0	0	0	0	44	0	0	119	52	0	1	312	0	528	2,057	
5:15 PM	0	0	0	0	0	1	0	55	0	0	111	45	0	0	321	0	533	2,128	
5:30 PM	0	0	0	0	2	1	0	51	0	0	110	42	0	0	289	0	495	2,114	
5:45 PM	0	0	0	0	1	1	0	47	0	0	100	50	0	0	320	0	519	2,075	
Count Total	0	0	0	0	4	3	0	347	0	0	967	359	0	1	2,361	0	4,042	0	
Peak Hour	All	0	0	0	0	0	1	0	184	0	0	531	183	0	1	1,228	0	2,128	0
	HV	0	0	0	0	0	1	0	1	0	0	1	2	0	0	34	0	39	0
	HV%	-	-	-	-	-	100%	-	1%	-	-	0%	1%	-	0%	3%	-	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	2	5	8	0	2	1	0	3	13	7	2	3	25
4:15 PM	0	0	2	4	6	0	1	0	0	1	12	9	1	1	23
4:30 PM	0	1	1	9	11	0	0	3	1	4	8	3	3	7	21
4:45 PM	0	0	0	11	11	0	1	0	0	1	10	5	0	2	17
5:00 PM	0	0	1	11	12	0	1	1	2	4	9	15	0	2	26
5:15 PM	0	1	1	3	5	0	4	5	2	11	25	9	1	3	38
5:30 PM	0	1	1	8	10	0	2	2	1	5	13	4	0	5	22
5:45 PM	0	0	0	12	12	0	1	0	1	2	7	3	0	8	18
Count Total	0	4	8	63	75	0	12	12	7	31	97	55	7	31	190
Peak Hr	0	2	3	34	39	0	6	9	5	20	52	32	4	14	102

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	0				Howard St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	5	0	8	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	4	0	6	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	9	0	11	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	11	36
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	11	0	12	40
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	3	0	5	39
5:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	8	0	10	38
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	39
Count Total	0	0	0	0	0	1	0	3	0	0	5	3	0	0	63	0	75	0
Peak Hour	0	0	0	0	0	1	0	1	0	0	1	2	0	0	34	0	39	0

<b>Two-Hour Count Summaries - Bikes</b>																
Interval Start	0			Howard St			S Van Ness Ave			S Van Ness Ave			15-min Total	Rolling One Hour		
	Eastbound			Westbound			Northbound			Southbound						
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT				
4:00 PM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	2	1	0	1	0	0	4	0
4:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	9
5:00 PM	0	0	0	1	0	0	0	0	0	1	0	2	0	0	4	10
5:15 PM	0	0	0	3	0	1	0	0	5	0	0	2	0	0	11	20
5:30 PM	0	0	0	2	0	0	0	0	1	1	0	1	0	0	5	21
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	22
Count Total	0	0	0	11	0	1	0	0	9	3	0	7	0	0	31	0
Peak Hour	0	0	0	5	0	1	0	0	7	2	0	5	0	0	20	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

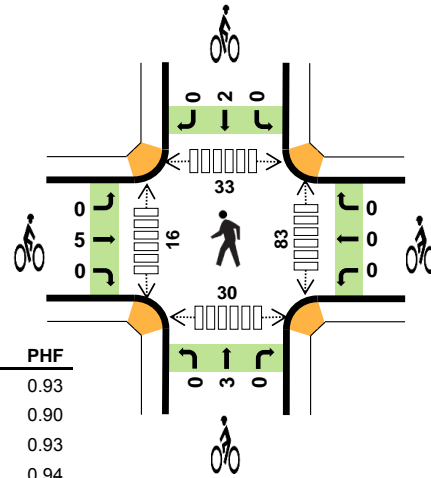
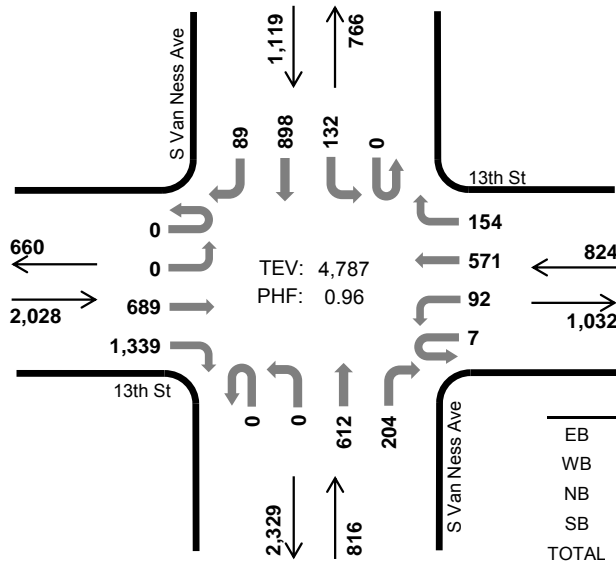
Int. 27

### S Van Ness Ave 13th St



Peak Hour

Date: 01-23-2018  
Count Period: 7:00 AM to 9:00 AM  
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	1.9%	0.93
WB	3.9%	0.90
NB	1.8%	0.93
SB	6.4%	0.94
TOTAL	3.3%	0.96

Two-Hour Count Summaries

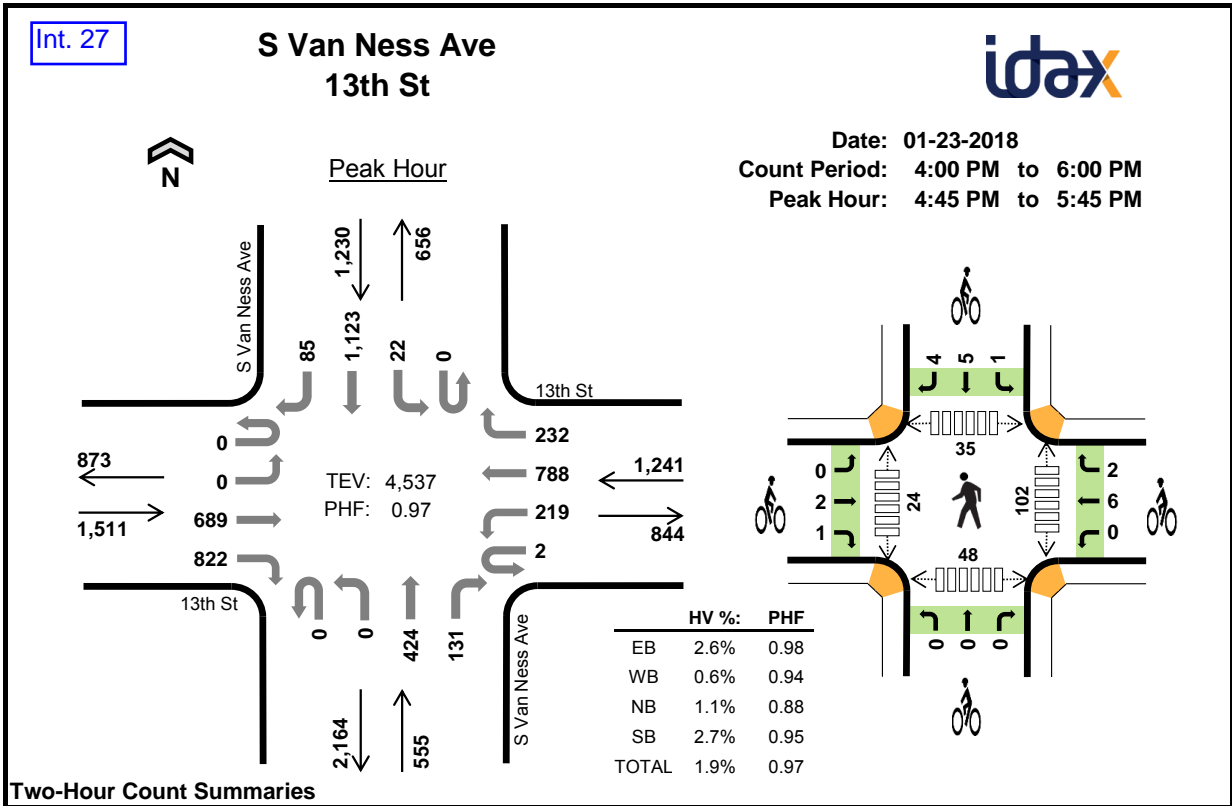
Interval Start	13th St Eastbound				13th St Westbound				S Van Ness Ave Northbound				S Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
7:00 AM	0	0	86	277	1	14	80	18	0	0	72	21	0	36	209	9	823	0	
7:15 AM	0	0	113	318	1	25	62	42	0	0	103	20	0	19	209	13	925	0	
7:30 AM	2	0	140	321	0	23	121	29	0	0	126	31	0	34	230	19	1,076	0	
7:45 AM	0	0	165	324	0	17	107	36	0	0	135	35	0	26	219	30	1,094	3,918	
8:00 AM	0	0	147	338	2	17	170	39	0	0	150	32	0	26	228	25	1,174	4,269	
8:15 AM	0	0	169	318	2	22	145	38	0	0	147	61	0	41	228	28	1,199	4,543	
8:30 AM	0	0	166	343	2	20	120	39	0	0	159	60	0	27	207	19	1,162	4,629	
8:45 AM	0	0	207	340	1	33	136	38	0	0	156	51	0	38	235	17	1,252	4,787	
Count Total	2	0	1,193	2,579	9	171	941	279	0	0	1,048	311	0	247	1,765	160	8,705	0	
Peak Hour	All	0	0	689	1,339	7	92	571	154	0	0	612	204	0	132	898	89	4,787	0
	HV	0	0	9	29	0	7	19	6	0	0	15	0	0	5	65	2	157	0
	HV%	-	-	1%	2%	0%	8%	3%	4%	-	-	2%	0%	-	4%	7%	2%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	9	11	4	12	36	0	1	1	0	2	11	4	9	6	30
7:15 AM	7	8	4	13	32	3	3	0	0	6	9	3	7	6	25
7:30 AM	9	6	3	15	33	5	0	0	1	6	20	4	13	3	40
7:45 AM	7	8	3	15	33	1	0	0	0	1	24	2	7	5	38
8:00 AM	15	8	3	20	46	1	0	0	2	3	12	1	5	3	21
8:15 AM	7	6	2	18	33	2	0	0	0	2	18	4	10	8	40
8:30 AM	7	10	5	18	40	0	0	3	0	3	26	5	6	8	45
8:45 AM	9	8	5	16	38	2	0	0	0	2	27	6	12	11	56
Count Total	70	65	29	127	291	14	4	4	3	25	147	29	69	50	295
Peak Hour	38	32	15	72	157	5	0	3	2	10	83	16	33	30	162

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	13th St				13th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	7	0	2	7	2	0	0	2	2	0	2	10	0	36	0
7:15 AM	0	0	2	5	0	4	2	2	0	0	2	2	0	0	12	1	32	0
7:30 AM	1	0	2	6	0	1	5	0	0	0	3	0	0	1	14	0	33	0
7:45 AM	0	0	2	5	0	3	3	2	0	0	3	0	0	0	14	1	33	134
8:00 AM	0	0	3	12	0	3	5	0	0	0	3	0	0	1	18	1	46	144
8:15 AM	0	0	2	5	0	2	4	0	0	0	2	0	0	1	16	1	33	145
8:30 AM	0	0	2	5	0	1	6	3	0	0	5	0	0	2	16	0	40	152
8:45 AM	0	0	2	7	0	1	4	3	0	0	5	0	0	1	15	0	38	157
Count Total	1	0	17	52	0	17	36	12	0	0	25	4	0	8	115	4	291	0
Peak Hour	0	0	9	29	0	7	19	6	0	0	15	0	0	5	65	2	157	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	13th St			13th St			S Van Ness Ave			S Van Ness Ave			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
7:00 AM	0	0	0	0	1	0	0	0	1	0	0	0	2	0				
7:15 AM	0	3	0	0	2	1	0	0	0	0	0	0	6	0				
7:30 AM	1	4	0	0	0	0	0	0	0	0	1	0	6	0				
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	15				
8:00 AM	0	1	0	0	0	0	0	0	0	0	2	0	3	16				
8:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	12				
8:30 AM	0	0	0	0	0	0	0	3	0	0	0	0	3	9				
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	10				
Count Total	1	13	0	0	3	1	0	3	1	0	3	0	25	0				
Peak Hour	0	5	0	0	0	0	0	3	0	0	2	0	10	0				
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		





**Two-Hour Count Summaries**

Interval Start	13th St Eastbound				13th St Westbound				S Van Ness Ave Northbound				S Van Ness Ave Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	190	213	0	46	150	44	0	0	108	36	0	7	274	19	1,087	0	
4:15 PM	0	0	159	231	0	44	153	51	0	0	122	29	0	7	233	23	1,052	0	
4:30 PM	0	0	176	223	3	40	179	50	0	0	132	31	0	5	257	18	1,114	0	
<b>4:45 PM</b>	<b>0</b>	<b>0</b>	<b>170</b>	<b>209</b>	<b>0</b>	<b>49</b>	<b>192</b>	<b>73</b>	<b>0</b>	<b>0</b>	<b>128</b>	<b>30</b>	<b>0</b>	<b>9</b>	<b>283</b>	<b>23</b>	<b>1,166</b>	<b>4,419</b>	
5:00 PM	0	0	178	208	0	55	200	39	0	0	118	32	0	6	290	17	1,143	4,475	
5:15 PM	0	0	157	207	0	60	193	49	0	0	92	32	0	3	297	22	1,112	4,535	
5:30 PM	0	0	184	198	2	55	203	71	0	0	86	37	0	4	253	23	1,116	4,537	
5:45 PM	0	0	171	171	1	54	201	44	0	0	91	24	0	14	282	22	1,075	4,446	
Count Total	0	0	1,385	1,660	6	403	1,471	421	0	0	877	251	0	55	2,169	167	8,865	0	
Peak Hour	All	0	0	689	822	2	219	788	232	0	0	424	131	0	22	1,123	85	4,537	0
	HV	0	0	8	31	0	2	4	1	0	0	2	4	0	0	32	1	85	0
	HV%	-	-	1%	4%	0%	1%	1%	0%	-	-	0%	3%	-	0%	3%	1%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	11	0	4	5	20	1	0	0	2	3	25	6	8	14	53
4:15 PM	5	2	0	4	11	0	0	0	0	0	17	6	14	14	51
4:30 PM	4	2	0	9	15	0	1	0	0	1	26	6	15	9	56
<b>4:45 PM</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>25</b>	<b>2</b>	<b>9</b>	<b>13</b>	<b>49</b>
5:00 PM	9	1	2	10	22	2	1	0	2	5	21	7	7	13	48
5:15 PM	11	1	0	5	17	1	5	0	6	12	27	7	15	7	56
5:30 PM	13	3	2	8	26	0	2	0	1	3	29	8	4	15	56
5:45 PM	10	2	0	12	24	3	8	0	5	16	21	7	5	13	46
Count Total	69	13	10	63	155	7	17	0	17	41	191	49	77	98	415
Peak Hour	39	7	6	33	85	3	8	0	10	21	102	24	35	48	209

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	13th St				13th St				S Van Ness Ave				S Van Ness Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	10	0	0	0	0	0	0	3	1	0	1	4	0	20	0
4:15 PM	0	0	2	3	0	0	1	1	0	0	0	0	0	0	4	0	11	0
4:30 PM	0	0	1	3	0	0	1	1	0	0	0	0	0	0	8	1	15	0
<b>4:45 PM</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>20</b>	66
5:00 PM	0	0	4	5	0	0	1	0	0	0	2	0	0	0	9	1	22	68
5:15 PM	0	0	2	9	0	1	0	0	0	0	0	0	0	0	5	0	17	74
5:30 PM	0	0	2	11	0	1	1	1	0	0	0	2	0	0	8	0	26	85
5:45 PM	0	0	1	9	0	0	2	0	0	0	0	0	0	0	11	1	24	89
Count Total	0	0	13	56	0	2	8	3	0	0	5	5	0	1	59	3	155	0
Peak Hour	0	0	8	31	0	2	4	1	0	0	2	4	0	0	32	1	85	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	13th St			13th St			S Van Ness Ave			S Van Ness Ave			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
<b>4:45 PM</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	5
5:00 PM	0	1	1	0	1	0	0	0	0	0	0	0	2	0	5	7	7
5:15 PM	0	1	0	0	3	2	0	0	0	0	0	1	2	3	12	19	19
5:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	1	3	21	21
5:45 PM	0	3	0	0	8	0	0	0	0	0	0	2	0	3	16	36	36
Count Total	0	6	1	0	15	2	0	0	0	0	0	3	7	7	41	0	0
Peak Hour	0	2	1	0	6	2	0	0	0	0	0	1	5	4	21	0	0

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

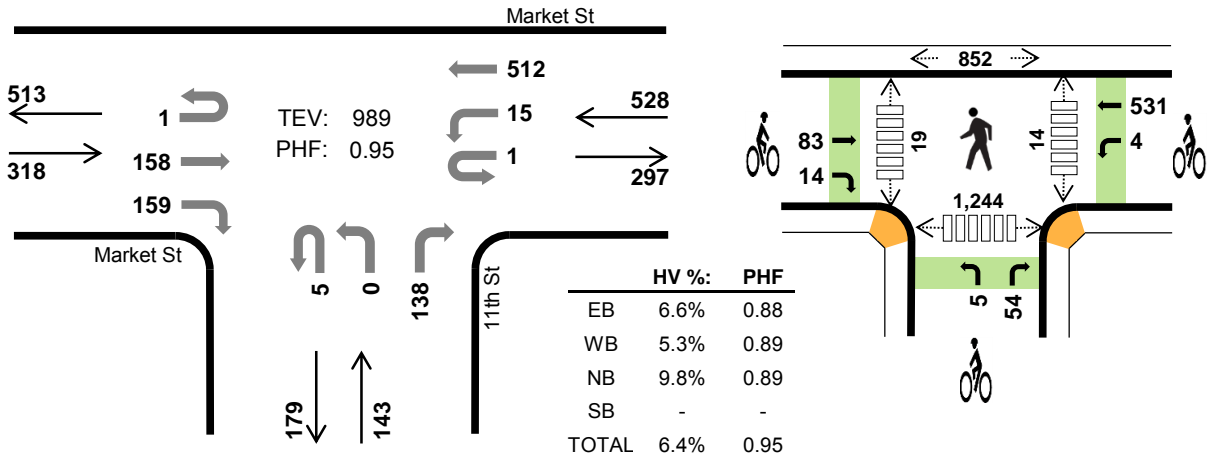
Int. 28

# 11th St Market St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



## Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				11th St Northbound				0 Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	45	21	0	7	104	0	1	0	0	29	0	0	0	0	207	0	
4:15 PM	0	0	53	30	0	1	85	0	0	0	0	34	0	0	0	0	203	0	
4:30 PM	0	0	44	42	0	5	110	0	0	2	0	36	0	0	0	0	239	0	
4:45 PM	1	0	45	44	0	6	125	0	0	0	0	32	0	0	0	0	253	902	
5:00 PM	0	0	36	30	1	4	123	0	2	0	0	31	0	0	0	0	227	922	
5:15 PM	0	0	42	31	0	3	145	0	2	0	0	36	0	0	0	0	259	978	
5:30 PM	0	0	35	54	0	2	119	0	1	0	0	39	0	0	0	0	250	989	
5:45 PM	0	0	33	43	0	6	125	0	1	0	0	31	0	0	0	0	239	975	
Count Total	1	0	333	295	1	34	936	0	7	2	0	268	0	0	0	0	1,877	0	
Peak Hour	All	1	0	158	159	1	15	512	0	5	0	0	138	0	0	0	0	989	0
	HV	0	0	20	1	1	10	17	0	0	0	0	14	0	0	0	0	63	0
	HV%	0%	-	13%	1%	100%	67%	3%	-	0%	-	-	10%	-	-	-	-	6%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	10	6	0	21	23	42	8	0	73	1	5	161	217	384
4:15 PM	7	5	2	0	14	24	60	11	0	95	4	8	146	200	358
4:30 PM	5	7	5	0	17	23	71	8	0	102	4	5	162	233	404
4:45 PM	5	8	2	0	15	22	87	10	0	119	4	4	179	249	436
5:00 PM	6	7	6	0	19	19	116	12	0	147	2	6	206	344	558
5:15 PM	6	9	3	0	18	28	152	20	0	200	6	6	218	304	534
5:30 PM	4	4	3	0	11	28	180	17	0	225	2	3	249	347	601
5:45 PM	4	10	2	0	16	20	166	12	0	198	6	3	183	320	512
Count Total	42	60	29	0	131	187	874	98	0	1,159	29	40	1,504	2,214	3,787
Peak Hr	21	28	14	0	63	97	535	59	0	691	14	19	852	1,244	2,129

**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Market St				Market St				11th St				0				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	5	0	0	4	6	0	0	0	0	6	0	0	0	0	21	0
4:15 PM	0	0	6	1	0	1	4	0	0	0	0	2	0	0	0	0	14	0
4:30 PM	0	0	5	0	0	3	4	0	0	0	0	5	0	0	0	0	17	0
4:45 PM	0	0	4	1	0	4	4	0	0	0	0	2	0	0	0	0	15	67
5:00 PM	0	0	6	0	1	2	4	0	0	0	0	6	0	0	0	0	19	65
5:15 PM	0	0	6	0	0	2	7	0	0	0	0	3	0	0	0	0	18	69
5:30 PM	0	0	4	0	0	2	2	0	0	0	0	3	0	0	0	0	11	63
5:45 PM	0	0	4	0	0	4	6	0	0	0	0	2	0	0	0	0	16	64
Count Total	0	0	40	2	1	22	37	0	0	0	0	29	0	0	0	0	131	0
Peak Hour	0	0	20	1	1	10	17	0	0	0	0	14	0	0	0	0	63	0

**Two-Hour Count Summaries - Bikes**

Interval Start	Market St			Market St			11th St			0			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	23	0	0	42	0	0	0	8	0	0	0	73	0
4:15 PM	0	21	3	0	60	0	0	0	11	0	0	0	95	0
4:30 PM	0	23	0	2	69	0	1	0	7	0	0	0	102	0
4:45 PM	0	18	4	1	86	0	1	0	9	0	0	0	119	389
5:00 PM	0	17	2	1	115	0	0	0	12	0	0	0	147	463
5:15 PM	0	25	3	0	152	0	2	0	18	0	0	0	200	568
5:30 PM	0	23	5	2	178	0	2	0	15	0	0	0	225	691
5:45 PM	0	20	0	0	166	0	5	0	7	0	0	0	198	770
Count Total	0	170	17	6	868	0	11	0	87	0	0	0	1,159	0
Peak Hour	0	83	14	4	531	0	5	0	54	0	0	0	691	0

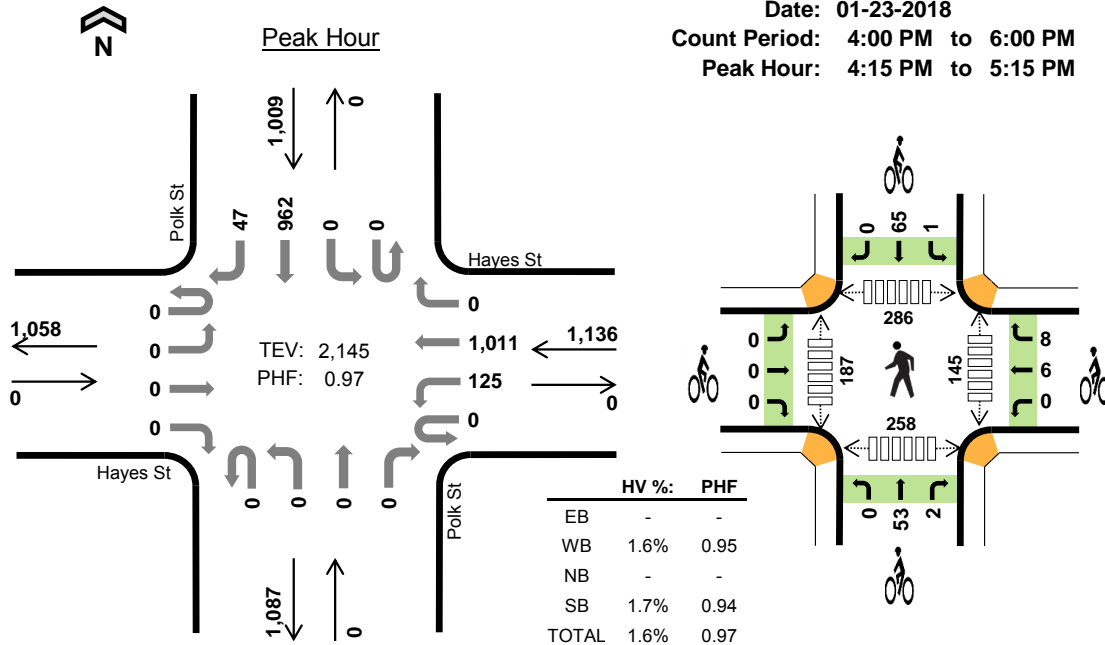
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 32

### Polk St Hayes St



Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:15 PM to 5:15 PM



#### Two-Hour Count Summaries

Interval Start	Hayes St Eastbound				Hayes St Westbound				Polk St Northbound				Polk St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	0	29	231	0	0	0	0	0	0	0	227	5	492	0	
4:15 PM	0	0	0	0	0	34	261	0	0	0	0	0	0	0	239	15	549	0	
4:30 PM	0	0	0	0	0	34	266	0	0	0	0	0	0	0	242	9	551	0	
4:45 PM	0	0	0	0	0	19	251	0	0	0	0	0	0	0	225	11	506	2,098	
5:00 PM	0	0	0	0	0	38	233	0	0	0	0	0	0	0	256	12	539	2,145	
5:15 PM	0	0	0	0	0	35	257	0	0	0	0	0	0	0	245	9	546	2,142	
5:30 PM	0	0	0	0	0	18	251	0	0	0	0	0	0	0	225	7	501	2,092	
5:45 PM	0	0	0	0	0	38	258	0	0	0	0	0	0	0	253	8	557	2,143	
Count Total	0	0	0	0	0	245	2,008	0	0	0	0	0	0	0	1,912	76	4,241	0	
Peak Hour	All	0	0	0	0	0	125	1,011	0	0	0	0	0	0	0	962	47	2,145	0
	HV	0	0	0	0	0	6	12	0	0	0	0	0	0	0	16	1	35	0
	HV%	-	-	-	-	-	5%	1%	-	-	-	-	-	-	-	2%	2%	2%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	4	0	6	10	0	2	6	8	16	24	26	65	51	166
4:15 PM	0	5	0	8	13	0	3	13	13	29	35	38	57	54	184
4:30 PM	0	5	0	2	7	0	3	11	13	27	21	51	64	63	199
4:45 PM	0	4	0	4	8	0	4	13	12	29	44	41	60	63	208
5:00 PM	0	4	0	3	7	0	4	18	28	50	45	57	105	78	285
5:15 PM	0	4	0	5	9	0	1	27	22	50	34	76	109	70	289
5:30 PM	0	3	0	4	7	0	3	15	19	37	30	70	87	57	244
5:45 PM	0	6	0	4	10	0	3	11	14	28	33	58	79	65	235
Count Total	0	35	0	36	71	0	23	114	129	266	266	417	626	501	1,810
Peak Hour	0	18	0	17	35	0	14	55	66	135	145	187	286	258	876

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Hayes St				Hayes St				Polk St				Polk St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	10	0
4:15 PM	0	0	0	0	0	1	4	0	0	0	0	0	0	0	8	0	13	0
4:30 PM	0	0	0	0	0	2	3	0	0	0	0	0	0	0	1	1	7	0
4:45 PM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4	0	8	38
5:00 PM	0	0	0	0	0	1	3	0	0	0	0	0	0	0	3	0	7	35
5:15 PM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4	1	9	31
5:30 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	4	0	7	31
5:45 PM	0	0	0	0	0	2	4	0	0	0	0	0	0	0	4	0	10	33
Count Total	0	0	0	0	0	11	24	0	0	0	0	0	0	0	34	2	71	0
Peak Hour	0	0	0	0	0	6	12	0	0	0	0	0	0	0	16	1	35	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Hayes St			Hayes St			Polk St			Polk St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	1	1	0	6	0	0	8	0	16	0			
4:15 PM	0	0	0	0	1	2	0	11	2	1	12	0	29	0			
4:30 PM	0	0	0	0	1	2	0	11	0	0	13	0	27	0			
4:45 PM	0	0	0	0	3	1	0	13	0	0	12	0	29	101			
5:00 PM	0	0	0	0	1	3	0	18	0	0	28	0	50	135			
5:15 PM	0	0	0	0	1	0	0	27	0	0	22	0	50	156			
5:30 PM	0	0	0	0	2	1	0	15	0	0	19	0	37	166			
5:45 PM	0	0	0	0	3	0	0	11	0	0	14	0	28	165			
Count Total	0	0	0	0	13	10	0	112	2	1	128	0	266	0			
Peak Hour	0	0	0	0	6	8	0	53	2	1	65	0	135	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 33

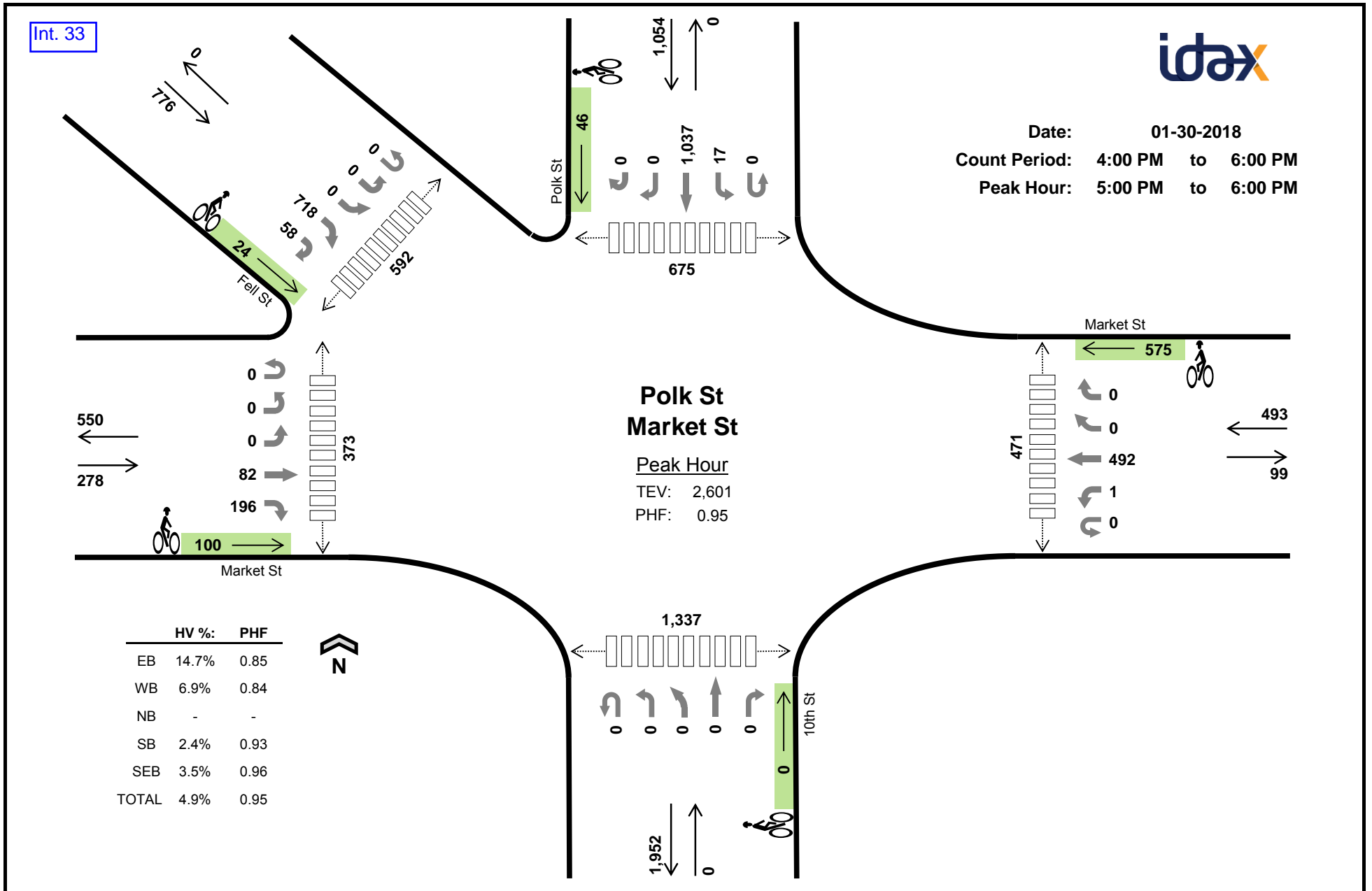


Date: 01-30-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 5:00 PM to 6:00 PM

### Polk St Market St

Peak Hour  
 TEV: 2,601  
 PHF: 0.95

	HV %:	PHF
EB	14.7%	0.85
WB	6.9%	0.84
NB	-	-
SB	2.4%	0.93
SEB	3.5%	0.96
TOTAL	4.9%	0.95



Two-Hour Count Summaries

Interval Start	Market St					Market St					10th St					Polk St					Fell St					15-min Total	Rolling One Hour	
	Eastbound					Westbound					Northbound					Southbound					Southeastbound							
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR			
4:00 PM	0	0	0	18	41	0	0	84	0	0	0	0	0	0	0	0	4	272	0	0	0	0	0	160	13	592	0	
4:15 PM	0	0	0	18	57	0	2	96	0	0	0	0	0	0	0	0	5	268	0	0	0	0	0	160	14	620	0	
4:30 PM	0	0	0	28	51	0	1	106	0	0	0	0	0	0	0	0	4	296	0	0	0	0	0	153	7	646	0	
4:45 PM	0	0	0	20	53	0	0	96	0	0	0	0	0	0	0	0	3	259	1	0	0	0	0	172	11	615	2,473	
5:00 PM	0	0	0	16	40	0	0	109	0	0	0	0	0	0	0	0	4	278	0	0	0	0	0	184	19	650	2,531	
5:15 PM	0	0	0	17	51	0	0	118	0	0	0	0	0	0	0	0	4	255	0	0	0	0	0	188	10	643	2,554	
5:30 PM	0	0	0	22	50	0	0	119	0	0	0	0	0	0	0	0	4	238	0	0	0	0	0	173	15	621	2,529	
5:45 PM	0	0	0	27	55	0	1	146	0	0	0	0	0	0	0	0	5	266	0	0	0	0	0	173	14	687	2,601	
Count Total	0	0	0	166	398	0	4	874	0	0	0	0	0	0	0	33	2,132	1	0	0	0	0	0	1,363	103	5,074	0	
Peak Hour	All	0	0	0	82	196	0	1	492	0	0	0	0	0	0	0	17	1,037	0	0	0	0	0	0	718	58	2,601	0
	HV	0	0	0	38	3	0	0	34	0	0	0	0	0	0	0	7	18	0	0	0	0	0	0	27	0	127	0
	HV%	-	-	-	46%	2%	-	0%	7%	-	-	-	-	-	-	-	41%	2%	-	-	-	-	-	-	4%	0%	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	8	7	0	11	3	29	26	45	0	4	3	78	52	77	128	210	102	569
4:15 PM	8	5	0	7	4	24	19	63	1	7	4	94	85	50	140	215	108	598
4:30 PM	11	11	0	9	1	32	26	69	0	11	4	110	69	71	144	216	123	623
4:45 PM	7	6	0	8	6	27	23	83	0	11	6	123	83	83	157	250	149	722
5:00 PM	11	9	0	4	9	33	28	97	0	9	6	140	125	89	165	338	167	884
5:15 PM	11	9	0	8	5	33	22	164	0	12	8	206	109	95	173	296	145	818
5:30 PM	10	5	0	6	4	25	23	156	0	14	3	196	128	98	167	335	147	875
5:45 PM	9	11	0	7	9	36	27	158	0	11	7	203	109	91	170	368	133	871
Count Total	75	63	0	60	41	239	194	835	1	79	41	1,150	760	654	1,244	2,228	1,074	5,960
Peak Hr	41	34	0	25	27	127	100	575	0	46	24	745	471	373	675	1,337	592	3,448



**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Market St Eastbound					Market St Westbound					10th St Northbound					Polk St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	8	0	0	0	7	0	0	0	0	0	0	0	0	2	9	0	0	0	0	0	3	0	29	0
4:15 PM	0	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	2	5	0	0	0	0	2	2	24	0	
4:30 PM	0	0	0	9	2	0	0	11	0	0	0	0	0	0	0	0	2	7	0	0	0	0	1	0	32	0	
4:45 PM	0	0	0	7	0	0	0	6	0	0	0	0	0	0	0	0	2	6	0	0	0	0	6	0	27	112	
5:00 PM	0	0	0	11	0	0	0	9	0	0	0	0	0	0	0	0	1	3	0	0	0	0	9	0	33	116	
5:15 PM	0	0	0	10	1	0	0	9	0	0	0	0	0	0	0	0	2	6	0	0	0	0	5	0	33	125	
5:30 PM	0	0	0	9	1	0	0	5	0	0	0	0	0	0	0	0	2	4	0	0	0	0	4	0	25	118	
5:45 PM	0	0	0	8	1	0	0	11	0	0	0	0	0	0	0	0	2	5	0	0	0	0	9	0	36	127	
Count Total	0	0	0	70	5	0	0	63	0	0	0	0	0	0	0	0	15	45	0	0	0	0	39	2	239	0	
Peak Hour	0	0	0	38	3	0	0	34	0	0	0	0	0	0	0	0	7	18	0	0	0	0	27	0	127	0	

**Two-Hour Count Summaries - Bikes**

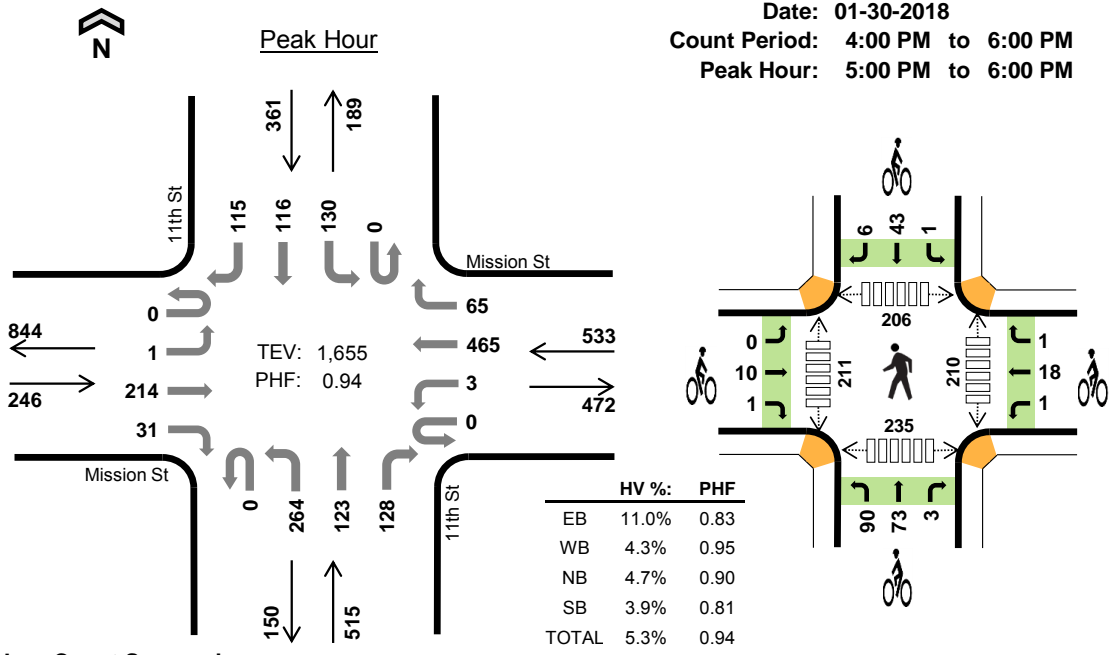
Interval Start	Market St Eastbound					Market St Westbound					10th St Northbound					Polk St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	26	0	0	0	45	0	0	0	0	0	0	0	0	0	1	3	0	0	0	2	1	78	0	
4:15 PM	0	0	0	19	0	0	1	60	1	1	0	0	0	0	0	1	0	2	5	0	0	0	3	1	94	0	
4:30 PM	0	0	0	25	1	0	2	65	1	1	0	0	0	0	0	0	1	3	7	0	0	0	4	0	110	0	
4:45 PM	0	0	0	23	0	0	0	81	1	1	0	0	0	0	0	0	0	3	8	0	0	0	5	1	123	405	
5:00 PM	0	0	0	26	2	0	3	89	2	3	0	0	0	0	0	0	0	0	9	0	0	0	5	1	140	467	
5:15 PM	0	0	0	21	1	0	0	154	5	5	0	0	0	0	0	0	0	1	11	0	0	0	8	0	206	579	
5:30 PM	0	0	0	22	1	0	0	146	5	5	0	0	0	0	0	0	0	0	14	0	0	0	2	1	196	665	
5:45 PM	0	0	0	27	0	0	0	154	2	2	0	0	0	0	0	0	0	1	10	0	0	0	5	2	203	745	
Count Total	0	0	0	189	5	0	6	794	17	18	0	0	0	0	1	0	1	11	67	0	0	0	34	7	1,150	0	
Peak Hour	0	0	0	96	4	0	3	543	14	15	0	0	0	0	0	0	0	2	44	0	0	0	20	4	745	0	

Int. 34

### 11th St Mission St



Date: 01-30-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



**Two-Hour Count Summaries**

Interval Start	Mission St Eastbound				Mission St Westbound				11th St Northbound				11th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	58	10	0	1	105	23	0	41	27	25	0	18	36	33	377	0	
4:15 PM	0	0	54	5	0	0	112	11	0	42	32	31	0	16	22	16	341	0	
4:30 PM	0	0	47	10	0	0	120	15	0	41	26	28	0	20	26	33	366	0	
4:45 PM	0	1	43	10	0	0	109	15	0	49	31	19	0	24	23	38	362	1,446	
5:00 PM	0	0	65	9	0	0	116	13	0	64	28	21	0	19	36	24	395	1,464	
5:15 PM	0	0	51	7	0	1	118	17	0	76	30	26	0	45	34	33	438	1,561	
5:30 PM	0	0	44	10	0	0	124	17	0	55	36	36	0	33	20	23	398	1,593	
5:45 PM	0	1	54	5	0	2	107	18	0	69	29	45	0	33	26	35	424	1,655	
Count Total	0	2	416	66	0	4	911	129	0	437	239	231	0	208	223	235	3,101	0	
Peak Hour	All	0	1	214	31	0	3	465	65	0	264	123	128	0	130	116	115	1,655	0
	HV	0	0	18	9	0	0	21	2	0	9	14	1	0	0	14	0	88	0
	HV%	-	0%	8%	29%	-	0%	5%	3%	-	3%	11%	1%	-	0%	12%	0%	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	12	5	11	4	32	1	2	8	7	18	45	46	48	38	177
4:15 PM	7	8	10	3	28	1	2	12	3	18	33	47	51	57	188
4:30 PM	7	6	6	3	22	4	3	22	7	36	33	65	46	61	205
4:45 PM	7	4	7	2	20	2	3	20	12	37	61	62	56	56	235
5:00 PM	6	3	6	4	19	3	7	29	12	51	53	54	53	57	217
5:15 PM	8	7	8	3	26	2	7	51	12	72	50	50	58	69	227
5:30 PM	5	5	5	3	18	2	4	41	13	60	56	60	55	61	232
5:45 PM	8	8	5	4	25	4	2	45	13	64	51	47	40	48	186
Count Total	60	46	58	26	190	19	30	228	79	356	382	431	407	447	1,667
Peak Hour	27	23	24	14	88	11	20	166	50	247	210	211	206	235	862

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Mission St				Mission St				11th St				11th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	10	2	0	0	5	0	0	6	4	1	0	0	3	1	32	0
4:15 PM	0	0	5	2	0	0	7	1	0	2	5	3	0	0	3	0	28	0
4:30 PM	0	0	4	3	0	0	6	0	0	3	2	1	0	0	3	0	22	0
4:45 PM	0	0	5	2	0	0	4	0	0	3	4	0	0	0	2	0	20	102
<b>5:00 PM</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>19</b>	<b>89</b>
<b>5:15 PM</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>26</b>	<b>87</b>
5:30 PM	0	0	2	3	0	0	5	0	0	2	3	0	0	0	3	0	18	83
5:45 PM	0	0	5	3	0	0	6	2	0	2	3	0	0	0	4	0	25	88
Count Total	0	0	42	18	0	0	43	3	0	23	29	6	0	0	25	1	190	0
Peak Hour	0	0	18	9	0	0	21	2	0	9	14	1	0	0	14	0	88	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Mission St			Mission St			11th St			11th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	1	0	0	1	1	3	4	1	0	6	1	18	0			
4:15 PM	0	1	0	0	1	1	3	9	0	0	3	0	18	0			
4:30 PM	1	3	0	0	3	0	7	15	0	0	6	1	36	0			
4:45 PM	0	2	0	0	1	2	5	14	1	2	9	1	37	109			
<b>5:00 PM</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>15</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>51</b>	<b>142</b>			
<b>5:15 PM</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>27</b>	<b>23</b>	<b>1</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>72</b>	<b>196</b>			
5:30 PM	0	2	0	0	3	1	24	16	1	0	10	3	60	220			
5:45 PM	0	4	0	0	2	0	24	21	0	0	13	0	64	247			
Count Total	1	17	1	1	24	5	108	115	5	3	67	9	356	0			
Peak Hour	0	10	1	1	18	1	90	73	3	1	43	6	247	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

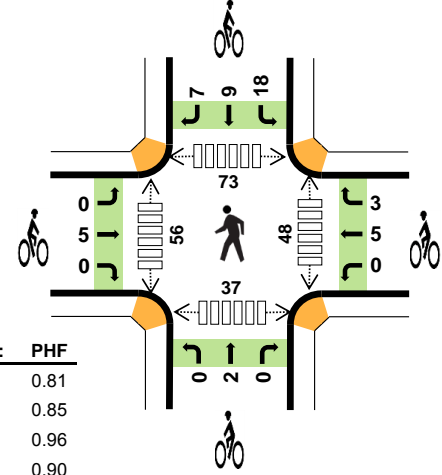
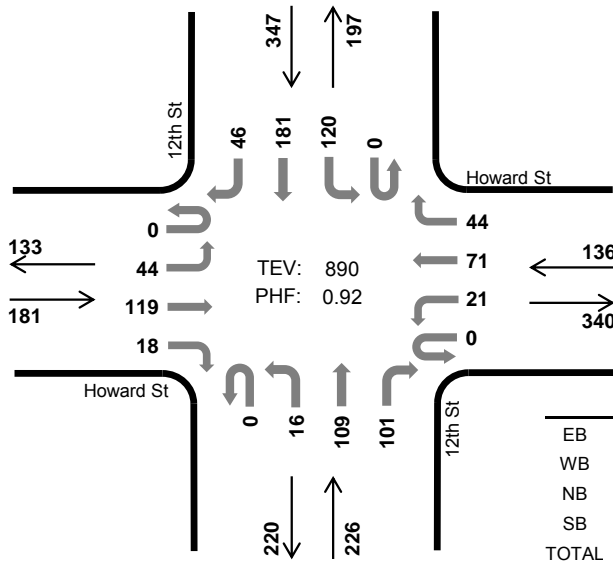
Int. 35

### 12th St Howard St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	1.1%	0.81
WB	0.7%	0.85
NB	0.4%	0.96
SB	2.0%	0.90
TOTAL	1.2%	0.92

Two-Hour Count Summaries

Interval Start	Howard St Eastbound				Howard St Westbound				12th St Northbound				12th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	9	34	5	0	8	14	8	0	3	31	20	0	31	33	19	215	0	
4:15 PM	0	12	29	1	0	5	15	11	1	2	24	19	0	18	23	12	172	0	
4:30 PM	0	3	30	7	0	4	13	10	0	3	24	18	0	30	30	5	177	0	
4:45 PM	0	11	22	1	0	7	16	12	0	4	27	21	0	25	40	7	193	757	
5:00 PM	0	5	34	5	0	4	19	17	0	3	36	19	0	30	40	6	218	760	
5:15 PM	0	9	28	4	0	4	17	11	0	3	20	28	0	17	54	16	211	799	
5:30 PM	0	21	30	5	0	3	20	9	0	3	27	29	0	40	46	10	243	865	
5:45 PM	0	9	27	4	0	10	15	7	0	7	26	25	0	33	41	14	218	890	
Count Total	0	79	234	32	0	45	129	85	1	28	215	179	0	224	307	89	1,647	0	
Peak Hour	All	0	44	119	18	0	21	71	44	0	16	109	101	0	120	181	46	890	0
	HV	0	0	2	0	0	0	0	1	0	0	0	1	0	4	2	1	11	0
	HV%	-	0%	2%	0%	-	0%	0%	2%	-	0%	0%	1%	-	3%	1%	2%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	0	1	2	0	2	0	3	5	25	11	20	9	65
4:15 PM	1	0	1	0	2	1	0	0	2	3	8	17	21	5	51
4:30 PM	1	0	0	2	3	0	2	2	3	7	20	9	22	16	67
4:45 PM	0	0	0	0	0	4	1	0	5	10	21	14	15	11	61
5:00 PM	0	0	1	3	4	0	4	1	10	15	11	13	21	16	61
5:15 PM	1	0	0	0	1	3	0	0	11	14	16	21	25	10	72
5:30 PM	1	1	0	2	4	1	1	1	5	8	12	12	18	5	47
5:45 PM	0	0	0	2	2	1	3	0	8	12	9	10	9	6	34
Count Total	4	2	2	10	18	10	13	4	47	74	122	107	151	78	458
Peak Hour	2	1	1	7	11	5	8	2	34	49	48	56	73	37	214

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Howard St				Howard St				12th St				12th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	4	9
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8
5:30 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	4	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	11
Count Total	0	1	3	0	0	0	0	2	0	0	0	2	0	5	4	1	18	0
Peak Hour	0	0	2	0	0	0	0	1	0	0	0	1	0	4	2	1	11	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Howard St			Howard St			12th St			12th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	0	2	0	0	0	1	2	0	5	0			
4:15 PM	0	1	0	0	0	0	0	0	0	0	2	0	3	0			
4:30 PM	0	0	0	0	2	0	0	1	1	1	2	0	7	0			
4:45 PM	0	3	1	0	1	0	0	0	0	2	3	0	10	25			
5:00 PM	0	0	0	0	2	2	0	1	0	6	4	0	15	35			
5:15 PM	0	3	0	0	0	0	0	0	0	4	3	4	14	46			
5:30 PM	0	1	0	0	1	0	0	1	0	3	1	1	8	47			
5:45 PM	0	1	0	0	2	1	0	0	0	5	1	2	12	49			
Count Total	0	9	1	0	8	5	0	3	1	22	18	7	74	0			
Peak Hour	0	5	0	0	5	3	0	2	0	18	9	7	49	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

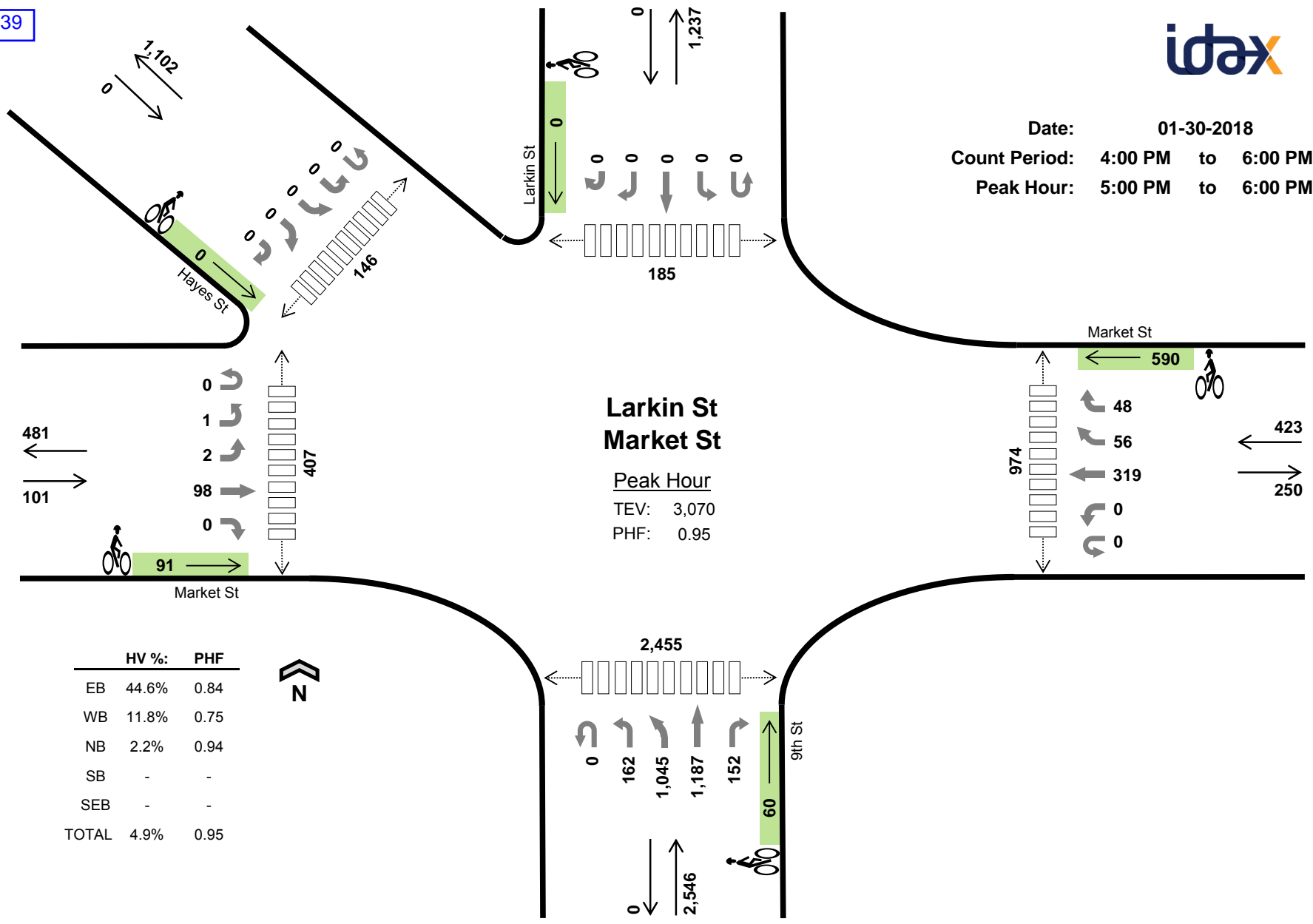


Date: 01-30-2018

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 5:00 PM to 6:00 PM

Int. 39



	HV %:	PHF
EB	44.6%	0.84
WB	11.8%	0.75
NB	2.2%	0.94
SB	-	-
SEB	-	-
TOTAL	4.9%	0.95



Two-Hour Count Summaries

Interval Start	Market St Eastbound					Market St Westbound					9th St Northbound					Larkin St Southbound					Hayes St Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
	4:00 PM	0	0	1	20	0	0	0	59	14	8	0	25	236	260	47	0	0	0	0	0	0	0	0	0		
4:15 PM	0	0	0	26	0	0	0	71	16	15	0	21	232	270	38	0	0	0	0	0	0	0	0	0	0	689	0
4:30 PM	0	0	0	32	0	0	0	81	16	9	0	26	262	282	35	0	0	0	0	0	0	0	0	0	0	743	0
4:45 PM	0	0	0	24	0	0	0	71	13	12	0	24	242	289	39	0	0	0	0	0	0	0	0	0	0	714	2,816
5:00 PM	0	1	0	20	0	0	0	67	14	7	0	38	269	268	46	0	0	0	0	0	0	0	0	0	0	730	2,876
5:15 PM	0	0	2	21	0	0	0	64	15	10	0	43	257	288	36	0	0	0	0	0	0	0	0	0	0	736	2,923
5:30 PM	0	0	0	27	0	0	0	79	12	14	0	40	259	338	43	0	0	0	0	0	0	0	0	0	0	812	2,992
5:45 PM	0	0	0	30	0	0	0	109	15	17	0	41	260	293	27	0	0	0	0	0	0	0	0	0	0	792	3,070
Count Total	0	1	3	200	0	0	0	601	115	92	0	258	2,017	2,288	311	0	0	0	0	0	0	0	0	0	0	5,886	0
Peak Hour	All	0	1	2	98	0	0	319	56	48	0	162	1,045	1,187	152	0	0	0	0	0	0	0	0	0	0	3,070	0
	HV	0	0	1	44	0	0	0	34	12	4	0	0	11	17	28	0	0	0	0	0	0	0	0	0	151	0
	HV%	-	0%	50%	45%	-	-	-	11%	21%	8%	-	0%	1%	1%	18%	-	-	-	-	-	-	-	-	-	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	9	10	18	0	0	37	27	42	9	0	1	79	167	106	18	335	37	663
4:15 PM	12	10	17	0	0	39	19	61	10	0	0	90	214	94	29	279	36	652
4:30 PM	11	14	15	0	0	40	22	64	7	0	0	93	218	105	28	336	34	721
4:45 PM	8	12	14	0	0	34	20	81	13	0	0	114	203	100	38	408	44	793
5:00 PM	13	11	14	0	0	38	25	95	20	0	0	140	261	120	54	656	43	1,134
5:15 PM	12	16	17	0	0	45	20	166	13	0	0	199	238	109	49	599	46	1,041
5:30 PM	12	8	13	0	0	33	21	167	13	0	0	201	235	95	52	639	26	1,047
5:45 PM	8	15	12	0	0	35	25	162	14	0	0	201	240	83	30	561	31	945
Count Total	85	96	120	0	0	301	179	838	99	0	1	1,117	1,776	812	298	3,813	297	6,996
Peak Hr	45	50	56	0	0	151	91	590	60	0	0	741	974	407	185	2,455	146	4,167

**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Market St Eastbound					Market St Westbound					9th St Northbound					Larkin St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	9	0	0	0	7	3	0	0	0	6	3	9	0	0	0	0	0	0	0	0	0	37	0	
4:15 PM	0	0	0	12	0	0	0	5	3	2	0	0	2	6	9	0	0	0	0	0	0	0	0	0	39	0	
4:30 PM	0	0	0	11	0	0	0	11	2	1	0	0	3	4	8	0	0	0	0	0	0	0	0	0	40	0	
4:45 PM	0	0	0	8	0	0	0	6	4	2	0	0	3	4	7	0	0	0	0	0	0	0	0	0	34	150	
5:00 PM	0	0	0	13	0	0	0	9	1	1	0	0	3	4	7	0	0	0	0	0	0	0	0	0	38	151	
5:15 PM	0	0	1	11	0	0	0	10	5	1	0	0	4	6	7	0	0	0	0	0	0	0	0	0	45	157	
5:30 PM	0	0	0	12	0	0	0	5	2	1	0	0	1	4	8	0	0	0	0	0	0	0	0	0	33	150	
5:45 PM	0	0	0	8	0	0	0	10	4	1	0	0	3	3	6	0	0	0	0	0	0	0	0	0	35	151	
Count Total	0	0	1	84	0	0	0	63	24	9	0	0	25	34	61	0	0	0	0	0	0	0	0	0	301	0	
Peak Hour	0	0	1	44	0	0	0	34	12	4	0	0	11	17	28	0	0	0	0	0	0	0	0	0	151	0	

**Two-Hour Count Summaries - Bikes**

Interval Start	Market St Eastbound					Market St Westbound					9th St Northbound					Larkin St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	27	0	0	0	42	0	0	0	0	2	1	6	0	0	0	0	0	0	0	1	0	0	79	0
4:15 PM	0	0	1	18	0	0	0	60	1	0	0	0	0	2	8	0	0	0	0	0	0	0	0	0	0	90	0
4:30 PM	0	0	1	21	0	0	0	62	2	0	0	1	2	4	0	0	0	0	0	0	0	0	0	0	93	0	
4:45 PM	0	0	0	20	0	0	0	79	2	0	0	1	0	5	7	0	0	0	0	0	0	0	0	0	114	376	
5:00 PM	0	0	0	25	0	0	0	94	1	0	0	4	6	8	2	0	0	0	0	0	0	0	0	0	140	437	
5:15 PM	0	0	0	20	0	0	0	165	1	0	0	2	3	6	2	0	0	0	0	0	0	0	0	0	199	546	
5:30 PM	0	0	0	21	0	0	0	163	4	0	0	5	2	6	0	0	0	0	0	0	0	0	0	0	201	654	
5:45 PM	0	0	1	24	0	0	0	160	1	1	0	2	2	5	5	0	0	0	0	0	0	0	0	0	201	741	
Count Total	0	0	3	176	0	0	0	825	12	1	0	15	17	37	30	0	0	0	0	0	0	0	1	0	0	1,117	0
Peak Hour	0	0	1	90	0	0	0	582	7	1	0	13	13	25	9	0	0	0	0	0	0	0	0	0	741	0	



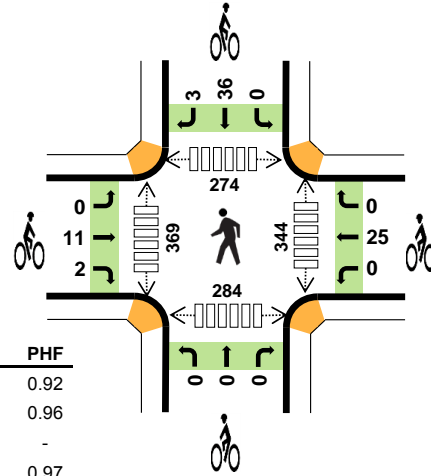
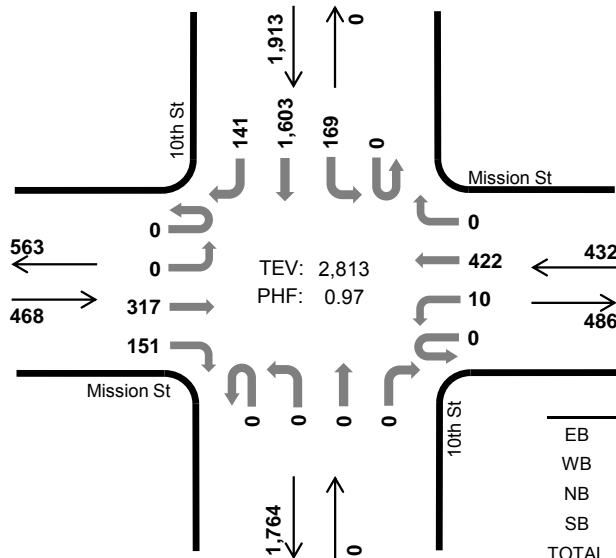
Int. 40

### 10th St Mission St



Peak Hour

Date: 01-30-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	3.6%	0.92
WB	6.3%	0.96
NB	-	-
SB	2.5%	0.97
TOTAL	3.2%	0.97

#### Two-Hour Count Summaries

Interval Start	Mission St Eastbound				Mission St Westbound				10th St Northbound				10th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	68	36	0	3	96	0	0	0	0	0	0	42	389	34	668	0	
4:15 PM	0	0	80	25	0	7	96	0	0	0	0	0	0	50	397	30	685	0	
4:30 PM	0	0	70	30	0	1	116	0	0	0	0	0	0	41	416	28	702	0	
4:45 PM	0	0	62	28	0	4	90	0	0	0	0	0	0	32	414	24	654	2,709	
5:00 PM	0	0	69	33	0	2	102	0	0	0	0	0	0	42	416	33	697	2,738	
5:15 PM	0	0	84	39	0	4	109	0	0	0	0	0	0	43	415	33	727	2,780	
5:30 PM	0	0	78	38	0	4	109	0	0	0	0	0	0	34	386	32	681	2,759	
5:45 PM	0	0	86	41	0	0	102	0	0	0	0	0	0	50	386	43	708	2,813	
Count Total	0	0	597	270	0	25	820	0	0	0	0	0	0	334	3,219	257	5,522	0	
Peak Hour	All	0	0	317	151	0	10	422	0	0	0	0	0	0	169	1,603	141	2,813	0
	HV	0	0	16	1	0	2	25	0	0	0	0	0	0	5	41	1	91	0
	HV%	-	-	5%	1%	-	20%	6%	-	-	-	-	-	-	3%	3%	1%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	11	6	0	13	30	1	4	0	6	11	61	73	82	56	272
4:15 PM	9	11	0	6	26	0	5	0	4	9	57	60	52	46	215
4:30 PM	5	6	0	9	20	3	3	0	12	18	62	65	60	60	247
4:45 PM	6	7	0	11	24	3	6	0	9	18	62	72	59	41	234
5:00 PM	4	5	0	12	21	4	6	0	12	22	99	110	70	73	352
5:15 PM	7	7	0	13	27	3	8	0	15	26	103	67	76	73	319
5:30 PM	2	6	0	8	16	2	6	0	5	13	81	101	63	82	327
5:45 PM	4	9	0	14	27	4	5	0	7	16	61	91	65	56	273
Count Total	48	57	0	86	191	20	43	0	70	133	586	639	527	487	2,239
Peak Hour	17	27	0	47	91	13	25	0	39	77	344	369	274	284	1,271

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Mission St				Mission St				10th St				10th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	9	2	0	2	4	0	0	0	0	0	0	2	11	0	30	0
4:15 PM	0	0	7	2	0	2	9	0	0	0	0	0	0	1	5	0	26	0
4:30 PM	0	0	5	0	0	1	5	0	0	0	0	0	0	1	8	0	20	0
4:45 PM	0	0	6	0	0	2	5	0	0	0	0	0	0	0	11	0	24	100
<b>5:00 PM</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>10</b>	<b>0</b>	<b>21</b>	<b>91</b>
<b>5:15 PM</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>1</b>	<b>27</b>	<b>92</b>
5:30 PM	0	0	2	0	0	1	5	0	0	0	0	0	0	0	8	0	16	88
5:45 PM	0	0	4	0	0	0	9	0	0	0	0	0	0	3	11	0	27	91
Count Total	0	0	43	5	0	9	48	0	0	0	0	0	0	9	76	1	191	0
Peak Hour	0	0	16	1	0	2	25	0	0	0	0	0	0	5	41	1	91	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Mission St			Mission St			10th St			10th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	1	0	0	4	0	0	0	0	0	0	5	1	11	0		
4:15 PM	0	0	0	0	5	0	0	0	0	0	0	4	0	9	0		
4:30 PM	0	3	0	0	3	0	0	0	0	0	1	10	1	18	0		
4:45 PM	0	3	0	0	6	0	0	0	0	0	1	8	0	18	56		
<b>5:00 PM</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>22</b>	<b>67</b>		
<b>5:15 PM</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>2</b>	<b>26</b>	<b>84</b>		
5:30 PM	0	0	2	0	6	0	0	0	0	0	0	4	1	13	79		
5:45 PM	0	4	0	0	5	0	0	0	0	0	0	7	0	16	77		
Count Total	0	18	2	0	43	0	0	0	0	0	0	2	63	5	133	0	
Peak Hour	0	11	2	0	25	0	0	0	0	0	0	36	3	77	0		

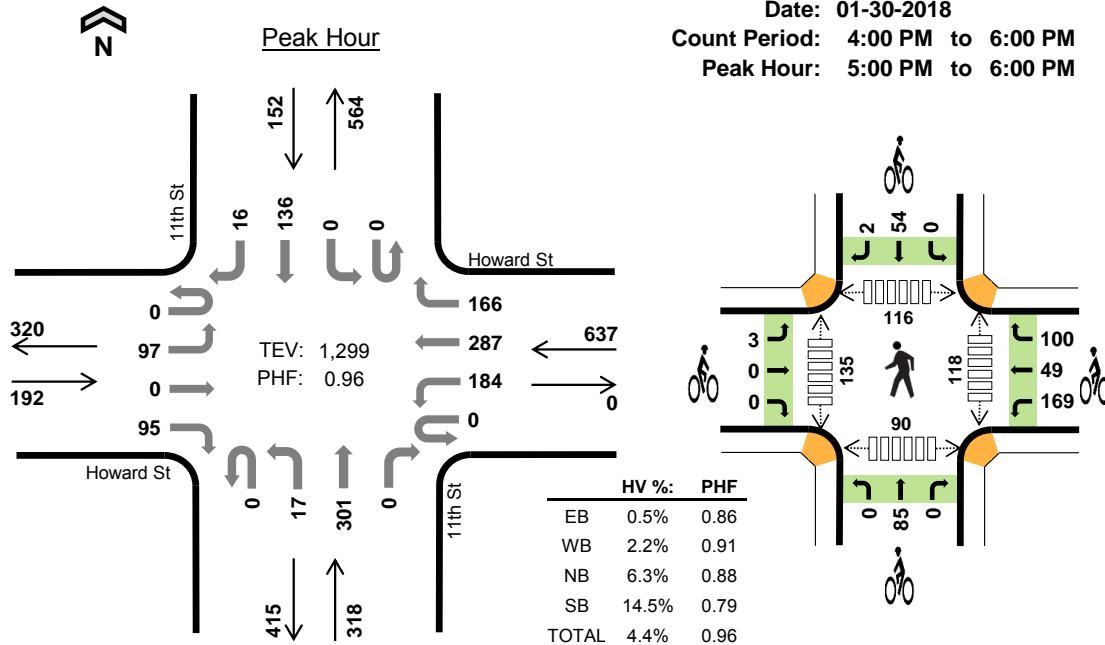
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 41

### 11th St Howard St



Date: 01-30-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 5:00 PM to 6:00 PM



#### Two-Hour Count Summaries

Interval Start	Howard St Eastbound				Howard St Westbound				11th St Northbound				11th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	13	0	34	0	37	53	35	0	4	58	0	0	0	36	6	276	0	
4:15 PM	0	19	0	32	0	46	50	43	0	4	59	0	0	0	30	4	287	0	
4:30 PM	0	16	0	20	0	42	71	37	0	2	47	0	0	0	31	4	270	0	
4:45 PM	1	20	0	23	0	50	56	27	0	3	66	0	0	0	32	3	281	1,114	
5:00 PM	0	18	0	24	0	55	70	50	0	4	61	0	0	0	32	6	320	1,158	
5:15 PM	0	28	0	28	0	38	62	36	0	1	76	0	0	0	44	4	317	1,188	
5:30 PM	0	29	0	27	0	53	69	43	0	5	81	0	0	0	29	4	340	1,258	
5:45 PM	0	22	0	16	0	38	86	37	0	7	83	0	0	0	31	2	322	1,299	
Count Total	1	165	0	204	0	359	517	308	0	30	531	0	0	0	265	33	2,413	0	
Peak Hour	All	0	97	0	95	0	184	287	166	0	17	301	0	0	0	136	16	1,299	0
	HV	0	1	0	0	0	6	5	3	0	0	20	0	0	0	22	0	57	0
	HV%	-	1%	-	0%	-	3%	2%	2%	-	0%	7%	-	-	-	16%	0%	4%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	5	6	6	19	0	15	8	8	31	30	32	14	24	100
4:15 PM	2	3	7	5	17	1	19	10	6	36	13	30	17	8	68
4:30 PM	0	1	5	5	11	2	37	15	1	55	30	43	17	22	112
4:45 PM	0	2	7	5	14	0	34	13	12	59	21	37	24	13	95
5:00 PM	0	3	5	5	13	1	61	13	16	91	32	29	35	20	116
5:15 PM	0	5	6	5	16	1	88	24	13	126	31	46	30	31	138
5:30 PM	0	2	5	6	13	1	90	23	14	128	25	29	22	18	94
5:45 PM	1	4	4	6	15	0	79	25	13	117	30	31	29	21	111
Count Total	5	25	45	43	118	6	423	131	83	643	212	277	188	157	834
Peak Hour	1	14	20	22	57	3	318	85	56	462	118	135	116	90	459

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Howard St				Howard St				11th St				11th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	1	0	0	1	4	0	0	6	0	0	0	5	1	19	0
4:15 PM	0	2	0	0	0	1	1	1	0	0	7	0	0	0	5	0	17	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	5	0	0	0	5	0	11	0
4:45 PM	0	0	0	0	0	1	0	1	0	0	7	0	0	0	5	0	14	61
5:00 PM	0	0	0	0	0	2	1	0	0	0	5	0	0	0	5	0	13	55
5:15 PM	0	0	0	0	0	3	0	2	0	0	6	0	0	0	5	0	16	54
5:30 PM	0	0	0	0	0	1	1	0	0	0	5	0	0	0	6	0	13	56
5:45 PM	0	1	0	0	0	0	3	1	0	0	4	0	0	0	6	0	15	57
Count Total	0	4	0	1	0	8	8	9	0	0	45	0	0	0	42	1	118	0
Peak Hour	0	1	0	0	0	6	5	3	0	0	20	0	0	0	22	0	57	0
<b>Two-Hour Count Summaries - Bikes</b>																		
Interval Start	Howard St			Howard St			11th St			11th St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	13	1	1	0	8	0	0	8	0	31	0				
4:15 PM	1	0	0	13	1	5	0	9	1	0	6	0	36	0				
4:30 PM	1	0	1	15	14	8	0	15	0	0	1	0	55	0				
4:45 PM	0	0	0	20	5	9	0	13	0	0	12	0	59	181				
5:00 PM	1	0	0	31	15	15	0	13	0	0	15	1	91	241				
5:15 PM	1	0	0	49	12	27	0	24	0	0	13	0	126	331				
5:30 PM	1	0	0	53	8	29	0	23	0	0	14	0	128	404				
5:45 PM	0	0	0	36	14	29	0	25	0	0	12	1	117	462				
Count Total	5	0	1	230	70	123	0	130	1	0	81	2	643	0				
Peak Hour	3	0	0	169	49	100	0	85	0	0	54	2	462	0				
<i>Note: U-Turn volumes for bikes are included in Left-Turn, if any.</i>																		

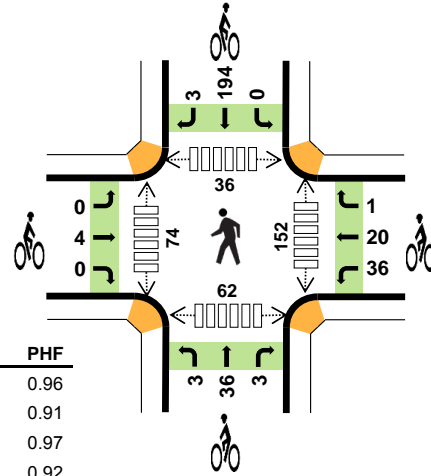
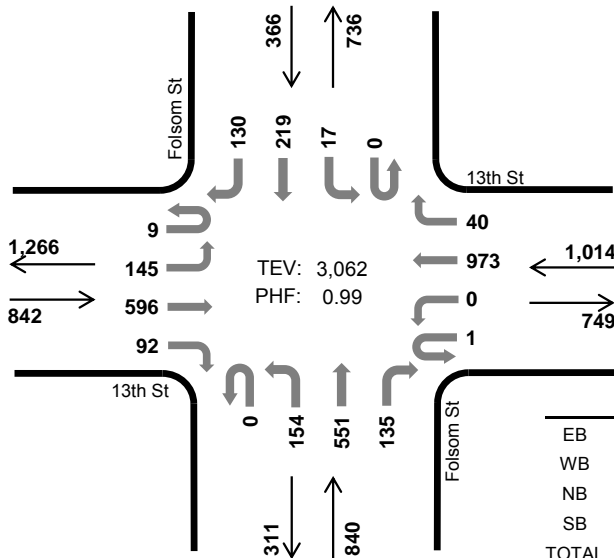
Int. 42

### Folsom St 13th St



Peak Hour

Date: 01-23-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	1.3%	0.96
WB	0.5%	0.91
NB	1.1%	0.97
SB	2.2%	0.92
TOTAL	1.1%	0.99

#### Two-Hour Count Summaries

Interval Start	13th St Eastbound				13th St Westbound				Folsom St Northbound				Folsom St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	3	39	168	22	0	0	181	11	0	40	114	42	0	12	48	22	702	0	
4:15 PM	4	31	142	22	0	0	198	2	0	28	141	37	0	7	42	20	674	0	
4:30 PM	7	30	146	27	0	0	198	7	0	24	145	36	0	8	49	26	703	0	
4:45 PM	2	47	142	15	0	0	249	6	0	40	123	38	0	12	41	21	736	2,815	
5:00 PM	0	39	153	21	0	0	230	9	0	37	149	30	0	4	53	35	760	2,873	
5:15 PM	2	36	136	21	1	0	270	8	0	37	135	37	0	5	51	31	770	2,969	
5:30 PM	4	41	150	24	0	0	242	8	0	35	132	34	0	6	61	33	770	3,036	
5:45 PM	3	29	157	26	0	0	231	15	0	45	135	34	0	2	54	31	762	3,062	
Count Total	25	292	1,194	178	1	0	1,799	66	0	286	1,074	288	0	56	399	219	5,877	0	
Peak Hour	All	9	145	596	92	1	0	973	40	0	154	551	135	0	17	219	130	3,062	0
	HV	0	2	7	2	0	0	5	0	0	2	5	2	0	0	7	1	33	0
	HV%	0%	1%	1%	2%	0%	-	1%	0%	-	1%	1%	1%	-	0%	3%	1%	1%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	0	2	0	5	2	0	4	14	20	25	10	8	18	61
4:15 PM	2	1	4	2	9	1	8	6	15	30	23	11	6	19	59
4:30 PM	1	1	4	0	6	0	4	7	18	29	35	17	5	19	76
4:45 PM	2	0	2	3	7	0	6	2	21	29	20	24	9	19	72
5:00 PM	4	0	3	2	9	1	11	9	31	52	20	18	9	19	66
5:15 PM	2	2	2	1	7	1	15	6	68	90	45	15	10	14	84
5:30 PM	4	2	2	3	11	0	11	8	36	55	39	19	8	20	86
5:45 PM	1	1	2	2	6	2	20	19	62	103	48	22	9	9	88
Count Total	19	7	21	13	60	7	75	61	265	408	255	136	64	137	592
Peak Hour	11	5	9	8	33	4	57	42	197	300	152	74	36	62	324

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	13th St				13th St				Folsom St				Folsom St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	1	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	5	0
4:15 PM	0	0	2	0	0	0	1	0	0	1	3	0	0	0	2	0	9	0
4:30 PM	0	0	1	0	0	0	1	0	0	0	2	2	0	0	0	0	6	0
4:45 PM	0	0	2	0	0	0	0	0	0	2	0	0	0	0	3	0	7	27
<b>5:00 PM</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>9</b>	<b>31</b>
<b>5:15 PM</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>29</b>
5:30 PM	0	1	2	1	0	0	2	0	0	0	1	1	0	0	2	1	11	34
5:45 PM	0	0	1	0	0	0	1	0	0	1	1	0	0	0	2	0	6	33
Count Total	1	2	13	3	0	0	7	0	0	5	11	5	0	0	12	1	60	0
Peak Hour	0	2	7	2	0	0	5	0	0	2	5	2	0	0	7	1	33	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	13th St			13th St			Folsom St			Folsom St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	2	0	0	0	0	0	4	0	0	14	0	20	0			
4:15 PM	0	0	1	5	3	0	0	6	0	0	15	0	30	0			
4:30 PM	0	0	0	1	2	1	0	5	2	0	18	0	29	0			
4:45 PM	0	0	0	4	2	0	0	2	0	1	20	0	29	108			
<b>5:00 PM</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>52</b>	<b>140</b>			
<b>5:15 PM</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>66</b>	<b>2</b>	<b>90</b>	<b>200</b>			
5:30 PM	0	0	0	7	3	1	0	8	0	0	36	0	55	226			
5:45 PM	0	2	0	12	8	0	3	16	0	0	61	1	103	300			
Count Total	0	6	1	46	27	2	3	53	5	1	261	3	408	0			
Peak Hour	0	4	0	36	20	1	3	36	3	0	194	3	300	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 45



Date: 02-01-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	28.2%	0.94
WB	16.5%	0.89
NB	-	-
SB	2.5%	0.96
SEB	2.3%	0.83
TOTAL	7.1%	0.97



Two-Hour Count Summaries

Interval Start	Market St Eastbound					Market St Westbound					8th St Northbound					Hyde St Southbound					Grove St Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
	4:00 PM	0	0	0	28	19	0	1	55	0	0	0	0	0	0	0	0	0	332	35	12	0	0	0	21		
4:15 PM	0	0	0	29	30	0	0	63	0	0	0	0	0	0	0	0	2	344	44	6	0	0	1	21	7	547	0
4:30 PM	0	0	0	38	33	0	0	50	0	0	0	0	0	0	0	1	348	31	15	0	0	1	16	4	537	0	
4:45 PM	0	0	0	30	35	0	2	55	0	0	0	0	0	0	0	4	332	47	15	0	0	0	20	6	546	2,138	
5:00 PM	0	0	0	33	32	0	2	58	0	0	0	0	0	0	0	3	313	37	12	0	0	0	26	6	522	2,152	
5:15 PM	0	0	0	38	28	0	0	73	0	0	0	0	0	0	0	3	317	47	20	0	0	0	24	6	556	2,161	
5:30 PM	0	0	0	30	31	0	0	69	0	0	0	0	0	0	0	2	319	53	19	0	0	0	30	9	562	2,186	
5:45 PM	0	0	0	31	25	0	1	57	0	0	0	0	0	0	0	3	334	40	28	0	0	0	16	12	547	2,187	
Count Total	0	0	0	257	233	0	6	480	0	0	0	0	0	0	0	18	2,639	334	127	0	0	2	174	55	4,325	0	
Peak Hour	All	0	0	0	132	116	0	3	257	0	0	0	0	0	0	11	1,283	177	79	0	0	0	96	33	2,187	0	
	HV	0	0	0	41	29	0	0	43	0	0	0	0	0	0	2	31	3	3	0	0	0	3	0	0	155	0
	HV%	-	-	-	31%	25%	-	0%	17%	-	-	-	-	-	-	18%	2%	2%	4%	-	-	-	3%	0%	7%	0	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	SEB	Total	EB	WB	NB	SB	SEB	Total	East	West	North	South	Northwest	Total
4:00 PM	14	10	0	15	1	40	15	21	0	1	3	40	114	123	5	254	165	661
4:15 PM	15	10	0	8	0	33	19	54	0	5	3	81	101	107	4	229	156	597
4:30 PM	17	11	0	12	1	41	26	70	0	2	4	102	97	127	5	233	161	623
4:45 PM	12	14	0	7	0	33	24	68	0	4	4	100	118	125	1	251	150	645
5:00 PM	18	11	0	4	0	33	26	82	0	9	9	126	127	135	13	296	154	725
5:15 PM	25	9	0	9	2	45	32	135	0	6	7	180	124	138	12	318	168	760
5:30 PM	12	13	0	14	0	39	25	133	0	7	2	167	132	138	7	278	182	737
5:45 PM	15	10	0	12	1	38	22	126	0	10	3	161	116	89	3	236	160	604
Count Total	128	88	0	81	5	302	189	689	0	44	35	957	929	982	50	2,095	1,296	5,352
Peak Hr	70	43	0	39	3	155	105	476	0	32	21	634	499	500	35	1,128	664	2,826



**Two-Hour Count Summaries - Heavy Vehicles**

Interval Start	Market St Eastbound					Market St Westbound					8th St Northbound					Hyde St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	9	5	0	0	10	0	0	0	0	0	0	0	0	0	11	2	2	0	0	0	1	0	40	0
4:15 PM	0	0	0	7	8	0	0	10	0	0	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	33	0
4:30 PM	0	0	0	10	7	0	0	11	0	0	0	0	0	0	0	0	0	12	0	0	0	0	1	0	0	41	0
4:45 PM	0	0	0	6	6	0	1	13	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	0	0	33	147
5:00 PM	0	0	0	11	7	0	0	11	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	33	140
5:15 PM	0	0	0	14	11	0	0	9	0	0	0	0	0	0	0	0	1	5	1	2	0	0	0	2	0	45	152
5:30 PM	0	0	0	7	5	0	0	13	0	0	0	0	0	0	0	0	1	12	0	1	0	0	0	0	0	39	150
5:45 PM	0	0	0	9	6	0	0	10	0	0	0	0	0	0	0	0	0	10	2	0	0	0	0	1	0	38	155
Count Total	0	0	0	73	55	0	1	87	0	0	0	0	0	0	0	0	3	67	6	5	0	0	1	4	0	302	0
Peak Hour	0	0	0	41	29	0	0	43	0	0	0	0	0	0	0	0	2	31	3	3	0	0	0	3	0	155	0

**Two-Hour Count Summaries - Bikes**

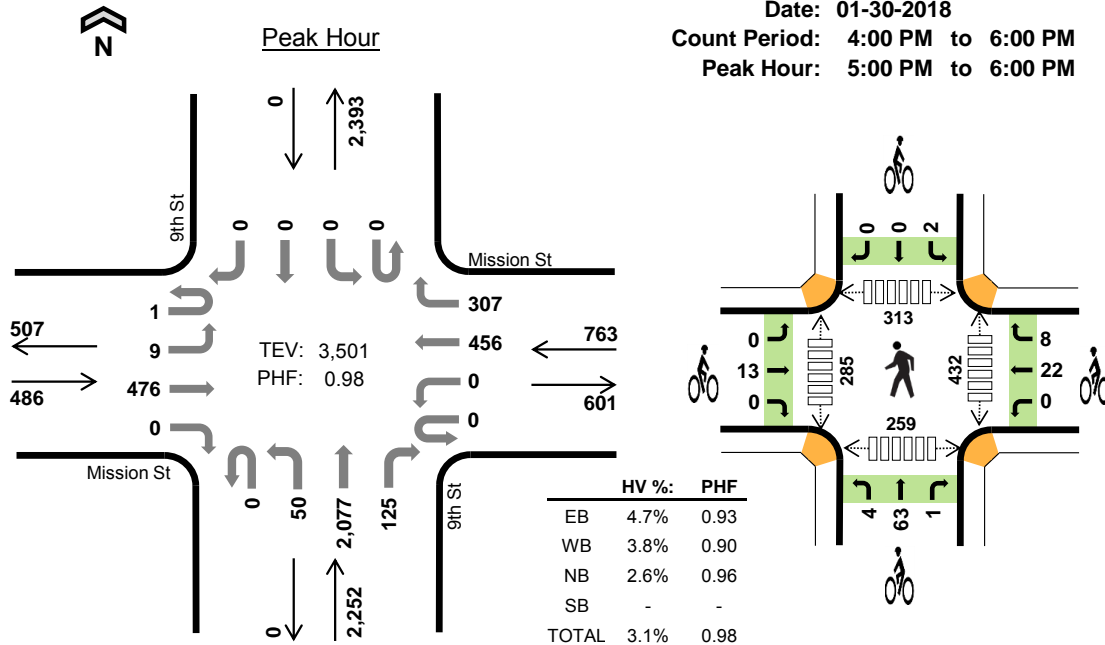
Interval Start	Market St Eastbound					Market St Westbound					8th St Northbound					Hyde St Southbound					n/a Southeastbound					15-min Total	Rolling One Hour
	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	LT	BL	TH	RT	UT	LT	TH	RT	HR	UT	HL	BL	BR	HR		
4:00 PM	0	0	0	15	0	0	0	21	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	1	40	0
4:15 PM	0	0	0	18	1	0	0	54	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	3	0	81	0
4:30 PM	0	0	0	25	1	0	0	70	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	4	0	102	0
4:45 PM	0	0	0	21	3	0	0	68	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0	100	323
5:00 PM	0	0	0	23	3	0	0	82	0	0	0	0	0	0	0	0	1	4	4	0	0	0	0	9	0	126	409
5:15 PM	0	0	0	32	0	0	0	135	0	0	0	0	0	0	0	0	0	5	0	1	0	0	0	4	3	180	508
5:30 PM	0	0	0	25	0	0	0	133	0	0	0	0	0	0	0	0	0	6	1	0	0	0	0	2	0	167	573
5:45 PM	0	0	0	20	2	0	0	126	0	0	0	0	0	0	0	0	1	6	3	0	0	0	0	3	0	161	634
Count Total	0	0	0	179	10	0	0	689	0	0	0	0	0	0	0	0	2	23	15	4	0	0	0	31	4	957	0
Peak Hour	0	0	0	100	5	0	0	476	0	0	0	0	0	0	0	0	2	21	8	1	0	0	0	18	3	634	0

Int. 46

### 9th St Mission St



Date: 01-30-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



#### Two-Hour Count Summaries

Interval Start	Mission St Eastbound				Mission St Westbound				9th St Northbound				9th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	2	108	0	0	0	89	52	0	20	478	33	0	0	0	0	782	0	
4:15 PM	0	1	127	0	0	0	97	48	0	19	490	34	0	0	0	0	816	0	
4:30 PM	0	2	112	0	0	0	101	59	0	17	500	35	0	0	0	0	826	0	
4:45 PM	0	2	94	0	0	0	96	58	0	11	491	31	0	0	0	0	783	3,207	
5:00 PM	0	2	113	0	0	0	89	67	0	16	530	40	0	0	0	0	857	3,282	
5:15 PM	0	2	118	0	0	0	127	76	0	13	521	26	0	0	0	0	883	3,349	
5:30 PM	1	1	118	0	0	0	111	81	0	9	545	26	0	0	0	0	892	3,415	
5:45 PM	0	4	127	0	0	0	129	83	0	12	481	33	0	0	0	0	869	3,501	
Count Total	1	16	917	0	0	0	839	524	0	117	4,036	258	0	0	0	0	6,708	0	
Peak Hour	All	1	9	476	0	0	0	456	307	0	50	2,077	125	0	0	0	0	3,501	0
	HV	0	2	21	0	0	0	25	4	0	2	51	5	0	0	0	0	110	0
	HV%	0%	22%	4%	-	-	-	5%	1%	-	4%	2%	4%	-	-	-	-	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	11	6	16	0	33	2	5	6	0	13	78	58	59	48	243
4:15 PM	8	12	17	0	37	1	4	14	0	19	83	70	61	52	266
4:30 PM	6	6	15	0	27	4	3	8	1	16	81	76	63	74	294
4:45 PM	5	6	13	0	24	4	4	17	0	25	100	71	80	61	312
5:00 PM	7	7	16	0	30	7	7	18	0	32	117	90	78	67	352
5:15 PM	6	8	14	0	28	3	8	19	0	30	109	72	74	54	309
5:30 PM	2	5	12	0	19	1	6	14	1	22	90	72	93	81	336
5:45 PM	8	9	16	0	33	2	9	17	1	29	116	51	68	57	292
Count Total	53	59	119	0	231	24	46	113	3	186	774	560	576	494	2,404
Peak Hour	23	29	58	0	110	13	30	68	2	113	432	285	313	259	1,289

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Mission St				Mission St				9th St				9th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	10	0	0	0	5	1	0	0	14	2	0	0	0	0	33	0
4:15 PM	0	0	8	0	0	0	11	1	0	0	15	2	0	0	0	0	37	0
4:30 PM	0	1	5	0	0	0	6	0	0	0	14	1	0	0	0	0	27	0
4:45 PM	0	1	4	0	0	0	6	0	0	0	13	0	0	0	0	0	24	121
5:00 PM	0	0	7	0	0	0	7	0	0	0	14	2	0	0	0	0	30	118
5:15 PM	0	2	4	0	0	0	5	3	0	1	12	1	0	0	0	0	28	109
5:30 PM	0	0	2	0	0	0	5	0	0	1	11	0	0	0	0	0	19	101
5:45 PM	0	0	8	0	0	0	8	1	0	0	14	2	0	0	0	0	33	110
Count Total	0	5	48	0	0	0	53	6	0	2	107	10	0	0	0	0	231	0
Peak Hour	0	2	21	0	0	0	25	4	0	2	51	5	0	0	0	0	110	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Mission St			Mission St			9th St			9th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	2	0	0	5	0	0	5	1	0	0	0	13	0			
4:15 PM	0	1	0	0	3	1	0	12	2	0	0	0	19	0			
4:30 PM	0	4	0	0	2	1	0	8	0	1	0	0	16	0			
4:45 PM	0	4	0	0	4	0	0	16	1	0	0	0	25	73			
5:00 PM	0	7	0	0	5	2	1	17	0	0	0	0	32	92			
5:15 PM	0	3	0	0	6	2	2	16	1	0	0	0	30	103			
5:30 PM	0	1	0	0	3	3	1	13	0	1	0	0	22	109			
5:45 PM	0	2	0	0	8	1	0	17	0	1	0	0	29	113			
Count Total	0	24	0	0	36	10	4	104	5	3	0	0	186	0			
Peak Hour	0	13	0	0	22	8	4	63	1	2	0	0	113	0			

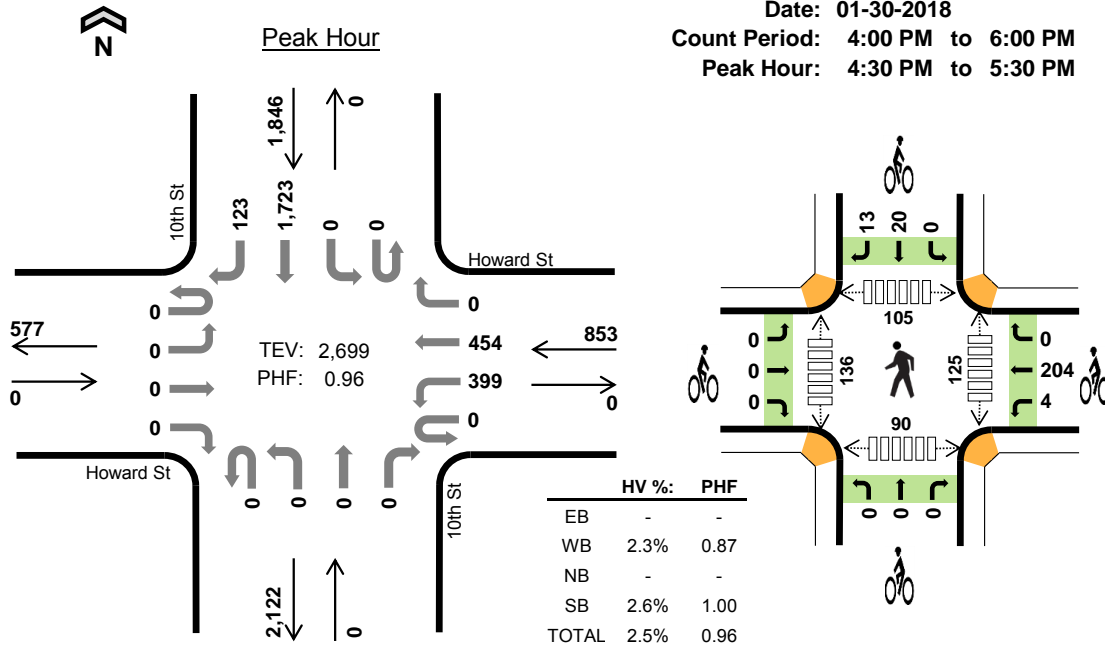
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 47

### 10th St Howard St



Date: 01-30-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:30 PM to 5:30 PM



#### Two-Hour Count Summaries

Interval Start	Howard St Eastbound				Howard St Westbound				10th St Northbound				10th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	0	0	0	106	90	0	0	0	0	0	0	0	409	29	634	0	
4:15 PM	0	0	0	0	0	103	102	0	0	0	0	0	0	0	407	41	653	0	
4:30 PM	0	0	0	0	0	92	106	0	0	0	0	0	0	0	427	35	660	0	
4:45 PM	0	0	0	0	0	90	110	0	0	0	0	0	0	0	437	23	660	2,607	
5:00 PM	0	0	0	0	0	110	135	0	0	0	0	0	0	0	429	32	706	2,679	
5:15 PM	0	0	0	0	0	107	103	0	0	0	0	0	0	0	430	33	673	2,699	
5:30 PM	0	0	0	0	0	87	124	0	0	0	0	0	0	0	412	35	658	2,697	
5:45 PM	0	0	0	0	0	105	130	0	0	0	0	0	0	0	398	27	660	2,697	
Count Total	0	0	0	0	0	800	900	0	0	0	0	0	0	0	3,349	255	5,304	0	
Peak Hour	All	0	0	0	0	0	399	454	0	0	0	0	0	0	0	1,723	123	2,699	0
	HV	0	0	0	0	0	13	7	0	0	0	0	0	0	0	46	2	68	0
	HV%	-	-	-	-	-	3%	2%	-	-	-	-	-	-	-	3%	2%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	3	0	13	16	0	18	0	7	25	29	31	21	17	98
4:15 PM	0	6	0	11	17	1	23	0	5	29	26	24	24	23	97
4:30 PM	0	6	0	11	17	0	31	0	7	38	29	25	22	22	98
4:45 PM	0	3	0	14	17	0	27	0	6	33	17	39	31	17	104
5:00 PM	0	5	0	11	16	0	67	0	9	76	49	35	28	31	143
5:15 PM	0	6	0	12	18	0	83	0	11	94	30	37	24	20	111
5:30 PM	0	6	0	9	15	0	92	0	6	98	38	36	27	19	120
5:45 PM	0	1	0	11	12	0	82	0	10	92	41	35	16	28	120
Count Total	0	36	0	92	128	1	423	0	61	485	259	262	193	177	891
Peak Hour	0	20	0	48	68	0	208	0	33	241	125	136	105	90	456

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Howard St				Howard St				10th St				10th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	0	11	2	16	0
4:15 PM	0	0	0	0	0	4	2	0	0	0	0	0	0	0	9	2	17	0
4:30 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	0	11	0	17	0
4:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	0	14	0	17	67
5:00 PM	0	0	0	0	0	3	2	0	0	0	0	0	0	0	10	1	16	67
5:15 PM	0	0	0	0	0	3	3	0	0	0	0	0	0	0	11	1	18	68
5:30 PM	0	0	0	0	0	4	2	0	0	0	0	0	0	0	9	0	15	66
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	9	2	12	61
Count Total	0	0	0	0	0	23	13	0	0	0	0	0	0	0	84	8	128	0
Peak Hour	0	0	0	0	0	13	7	0	0	0	0	0	0	0	46	2	68	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Howard St			Howard St			10th St			10th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	0	0	0	18	0	0	0	0	0	0	0	6	1	25	0	
4:15 PM	0	1	0	0	23	0	0	0	0	0	0	0	3	2	29	0	
4:30 PM	0	0	0	2	29	0	0	0	0	0	0	0	5	2	38	0	
4:45 PM	0	0	0	0	27	0	0	0	0	0	0	0	4	2	33	125	
5:00 PM	0	0	0	1	66	0	0	0	0	0	0	0	5	4	76	176	
5:15 PM	0	0	0	1	82	0	0	0	0	0	0	0	6	5	94	241	
5:30 PM	0	0	0	4	88	0	0	0	0	0	0	0	1	5	98	301	
5:45 PM	0	0	0	1	81	0	0	0	0	0	0	0	6	4	92	360	
Count Total	0	1	0	9	414	0	0	0	0	0	0	0	36	25	485	0	
Peak Hour	0	0	0	4	204	0	0	0	0	0	0	0	20	13	241	0	

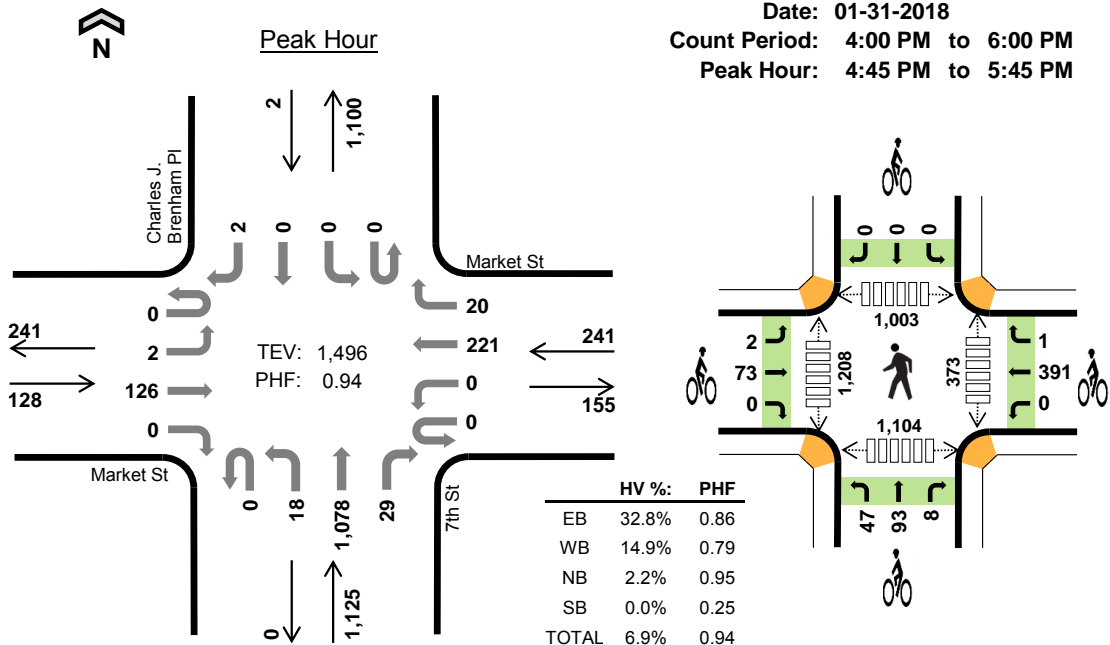
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 48

### 7th St Market St



Date: 01-31-2018  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 4:45 PM to 5:45 PM



#### Two-Hour Count Summaries

Interval Start	Market St Eastbound				Market St Westbound				7th St Northbound				7th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	1	32	0	0	0	44	3	0	7	256	12	0	0	0	0	355	0	
4:15 PM	0	0	34	0	0	0	50	5	0	1	225	16	0	0	0	1	332	0	
4:30 PM	0	0	29	0	0	0	60	4	0	4	260	4	0	0	0	0	361	0	
<b>4:45 PM</b>	<b>0</b>	<b>1</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>255</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>367</b>	<b>1,415</b>	
5:00 PM	0	0	29	0	0	0	45	5	0	6	258	7	0	0	0	0	350	1,410	
5:15 PM	0	0	33	0	0	0	51	2	0	6	284	7	0	0	0	0	383	1,461	
<b>5:30 PM</b>	<b>0</b>	<b>1</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>7</b>	<b>0</b>	<b>4</b>	<b>281</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>396</b>	<b>1,496</b>	
5:45 PM	0	0	26	0	0	0	50	6	0	3	263	7	0	0	0	1	356	1,485	
Count Total	0	3	247	0	0	0	425	38	0	33	2,082	68	0	0	0	4	2,900	0	
Peak Hour	All	0	2	126	0	0	0	221	20	0	18	1,078	29	0	0	0	2	1,496	0
	HV	0	1	41	0	0	0	36	0	0	8	16	1	0	0	0	0	103	0
	HV%	-	50%	33%	-	-	-	16%	0%	-	44%	1%	3%	-	-	-	0%	7%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	8	6	11	0	25	18	38	14	0	70	88	296	254	190	828
4:15 PM	9	12	5	0	26	17	47	14	1	79	73	281	202	226	782
4:30 PM	7	10	11	0	28	19	61	16	0	96	95	287	256	212	850
<b>4:45 PM</b>	<b>11</b>	<b>6</b>	<b>7</b>	<b>0</b>	<b>24</b>	<b>20</b>	<b>52</b>	<b>22</b>	<b>0</b>	<b>94</b>	<b>98</b>	<b>277</b>	<b>229</b>	<b>216</b>	<b>820</b>
5:00 PM	10	8	7	0	25	17	102	35	0	154	90	324	263	312	989
5:15 PM	11	7	4	0	22	18	114	43	0	175	104	318	254	285	961
<b>5:30 PM</b>	<b>10</b>	<b>15</b>	<b>7</b>	<b>0</b>	<b>32</b>	<b>20</b>	<b>124</b>	<b>48</b>	<b>0</b>	<b>192</b>	<b>81</b>	<b>289</b>	<b>257</b>	<b>291</b>	<b>918</b>
5:45 PM	8	9	3	0	20	18	113	74	0	205	69	259	225	244	797
Count Total	74	73	55	0	202	147	651	266	1	1,065	698	2,331	1,940	1,976	6,945
Peak Hour	42	36	25	0	103	75	392	148	0	615	373	1,208	1,003	1,104	3,688

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Market St				Market St				7th St				Charles J. Brenham Pl				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	8	0	0	0	6	0	0	3	6	2	0	0	0	0	25	0
4:15 PM	0	0	9	0	0	0	12	0	0	0	3	2	0	0	0	0	26	0
4:30 PM	0	0	7	0	0	0	9	1	0	3	8	0	0	0	0	0	28	0
4:45 PM	0	0	11	0	0	0	6	0	0	2	4	1	0	0	0	0	24	103
5:00 PM	0	0	10	0	0	0	8	0	0	2	5	0	0	0	0	0	25	103
5:15 PM	0	0	11	0	0	0	7	0	0	1	3	0	0	0	0	0	22	99
5:30 PM	0	1	9	0	0	0	15	0	0	3	4	0	0	0	0	0	32	103
5:45 PM	0	0	8	0	0	0	9	0	0	0	3	0	0	0	0	0	20	99
Count Total	0	1	73	0	0	0	72	1	0	14	36	5	0	0	0	0	202	0
Peak Hour	0	1	41	0	0	0	36	0	0	8	16	1	0	0	0	0	103	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Market St			Market St			7th St			Charles J. Brenham Pl			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	1	17	0	0	38	0	1	7	6	0	0	0	70	0			
4:15 PM	0	17	0	0	47	0	3	9	2	0	0	1	79	0			
4:30 PM	0	19	0	0	61	0	5	10	1	0	0	0	96	0			
4:45 PM	1	19	0	0	52	0	4	14	4	0	0	0	94	339			
5:00 PM	0	17	0	0	102	0	10	24	1	0	0	0	154	423			
5:15 PM	0	18	0	0	114	0	16	26	1	0	0	0	175	519			
5:30 PM	1	19	0	0	123	1	17	29	2	0	0	0	192	615			
5:45 PM	0	18	0	0	113	0	24	50	0	0	0	0	205	726			
Count Total	3	144	0	0	650	1	80	169	17	0	0	1	1,065	0			
Peak Hour	2	73	0	0	391	1	47	93	8	0	0	0	615	0			

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

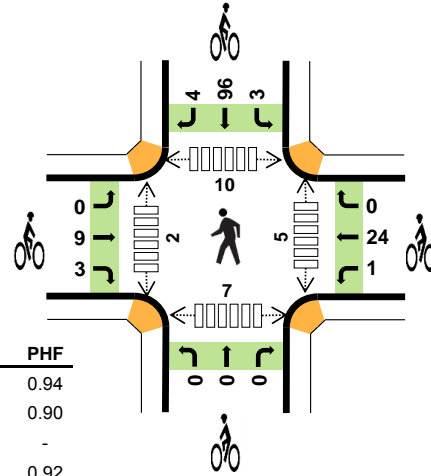
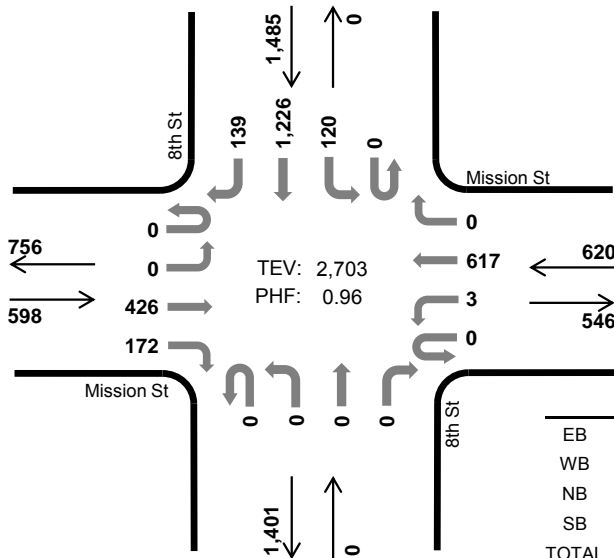
Int. 49

### 8th St Mission St



Peak Hour

Date: 01-30-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	3.7%	0.94
WB	5.0%	0.90
NB	-	-
SB	5.1%	0.92
TOTAL	4.7%	0.96

#### Two-Hour Count Summaries

Interval Start	Mission St Eastbound				Mission St Westbound				8th St Northbound				8th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	0	90	50	0	1	105	0	0	0	0	0	0	28	309	33	616	0	
4:15 PM	0	0	123	36	0	1	113	0	0	0	0	0	0	38	312	35	658	0	
4:30 PM	0	0	115	39	0	0	117	0	0	0	0	0	0	31	290	33	625	0	
4:45 PM	0	0	83	40	0	0	128	0	0	0	0	0	0	35	293	23	602	2,501	
5:00 PM	0	0	99	51	0	1	114	0	0	0	0	0	0	25	313	32	635	2,520	
5:15 PM	0	0	96	38	0	0	171	0	0	0	0	0	0	30	333	39	707	2,569	
5:30 PM	0	0	109	46	0	0	162	0	0	0	0	0	0	33	282	32	664	2,608	
5:45 PM	0	0	122	37	0	2	170	0	0	0	0	0	0	32	298	36	697	2,703	
Count Total	0	0	837	337	0	5	1,080	0	0	0	0	0	0	252	2,430	263	5,204	0	
Peak Hour	All	0	0	426	172	0	3	617	0	0	0	0	0	0	120	1,226	139	2,703	0
	HV	0	0	22	0	0	0	31	0	0	0	0	0	0	8	63	4	128	0
	HV%	-	-	5%	0%	-	0%	5%	-	-	-	-	-	-	7%	5%	3%	5%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	11	6	0	17	34	3	3	0	8	14	1	1	4	4	10
4:15 PM	9	7	0	26	42	1	5	0	10	16	2	1	4	1	8
4:30 PM	8	5	0	20	33	3	3	0	17	23	2	2	5	4	13
4:45 PM	5	7	0	17	29	6	5	0	22	33	1	2	4	0	7
5:00 PM	6	8	0	18	32	9	5	0	22	36	3	0	3	2	8
5:15 PM	6	8	0	21	35	1	9	0	34	44	1	1	4	1	7
5:30 PM	1	7	0	19	27	1	5	0	25	31	1	1	1	1	4
5:45 PM	9	8	0	17	34	1	6	0	22	29	0	0	2	3	5
Count Total	55	56	0	155	266	25	41	0	160	226	11	8	27	16	62
Peak Hour	22	31	0	75	128	12	25	0	103	140	5	2	10	7	24



<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Mission St				Mission St				8th St				8th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	7	4	0	0	6	0	0	0	0	0	0	1	15	1	34	0
4:15 PM	0	0	9	0	0	0	7	0	0	0	0	0	0	1	20	5	42	0
4:30 PM	0	0	8	0	0	0	5	0	0	0	0	0	0	1	18	1	33	0
4:45 PM	0	0	5	0	0	0	7	0	0	0	0	0	0	2	15	0	29	138
<b>5:00 PM</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>17</b>	<b>0</b>	<b>32</b>	<b>136</b>
<b>5:15 PM</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>16</b>	<b>2</b>	<b>35</b>	<b>129</b>
5:30 PM	0	0	1	0	0	0	7	0	0	0	0	0	0	4	15	0	27	123
5:45 PM	0	0	9	0	0	0	8	0	0	0	0	0	0	0	15	2	34	128
Count Total	0	0	51	4	0	0	56	0	0	0	0	0	0	13	131	11	266	0
Peak Hour	0	0	22	0	0	0	31	0	0	0	0	0	0	8	63	4	128	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Mission St			Mission St			8th St			8th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	3	0	0	3	0	0	0	0	0	0	8	0	14	0		
4:15 PM	0	1	0	0	5	0	0	0	0	0	1	9	0	16	0		
4:30 PM	0	3	0	0	3	0	0	0	0	0	0	15	2	23	0		
4:45 PM	0	6	0	0	5	0	0	0	0	0	3	18	1	33	86		
<b>5:00 PM</b>	<b>0</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>1</b>	<b>36</b>	<b>108</b>		
<b>5:15 PM</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>33</b>	<b>0</b>	<b>44</b>	<b>136</b>		
5:30 PM	0	1	0	0	5	0	0	0	0	0	2	21	2	31	144		
5:45 PM	0	1	0	0	6	0	0	0	0	0	0	21	1	29	140		
Count Total	0	22	3	1	40	0	0	0	0	0	7	146	7	226	0		
Peak Hour	0	9	3	1	24	0	0	0	0	0	3	96	4	140	0		

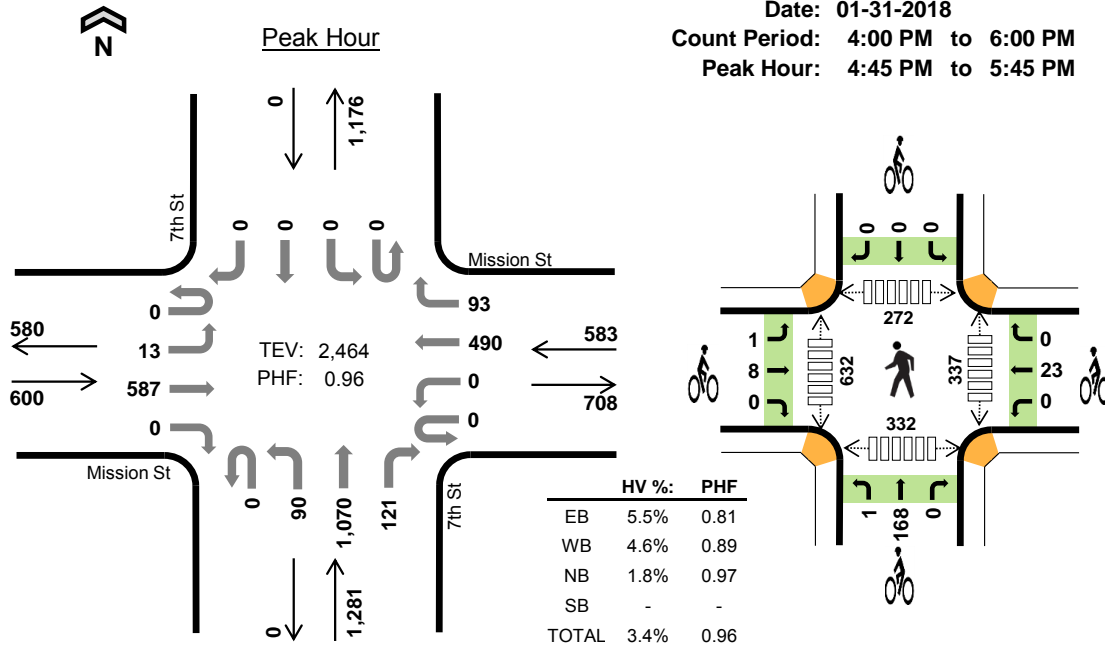
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Int. 51

### 7th St Mission St



Date: 01-31-2018  
Count Period: 4:00 PM to 6:00 PM  
Peak Hour: 4:45 PM to 5:45 PM



#### Two-Hour Count Summaries

Interval Start	Mission St Eastbound				Mission St Westbound				7th St Northbound				7th St Southbound				15-min Total	Rolling One Hour	
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
4:00 PM	0	3	135	0	0	0	91	20	0	6	247	35	0	0	0	0	537	0	
4:15 PM	0	5	147	0	0	0	104	21	0	22	234	28	0	0	0	0	561	0	
4:30 PM	0	4	126	0	0	0	94	25	0	19	238	31	0	0	0	0	537	0	
4:45 PM	0	4	129	0	0	0	111	18	0	24	259	28	0	0	0	0	573	2,208	
5:00 PM	0	5	180	0	0	0	108	35	0	21	263	32	0	0	0	0	644	2,315	
5:15 PM	0	2	136	0	0	0	127	21	0	22	269	33	0	0	0	0	610	2,364	
5:30 PM	0	2	142	0	0	0	144	19	0	23	279	28	0	0	0	0	637	2,464	
5:45 PM	0	2	126	0	0	0	122	22	0	18	248	22	0	0	0	0	560	2,451	
Count Total	0	27	1,121	0	0	0	901	181	0	155	2,037	237	0	0	0	0	4,659	0	
Peak Hour	All	0	13	587	0	0	0	490	93	0	90	1,070	121	0	0	0	0	2,464	0
	HV	0	0	33	0	0	0	22	5	0	1	21	1	0	0	0	0	83	0
	HV%	-	0%	6%	-	-	-	4%	5%	-	1%	2%	1%	-	-	-	-	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	13	6	8	0	27	3	5	19	0	27	70	84	59	39	252
4:15 PM	6	5	5	0	16	7	2	17	0	26	66	119	49	53	287
4:30 PM	10	6	13	0	29	0	1	22	0	23	71	165	68	68	372
4:45 PM	5	7	6	0	18	2	7	29	0	38	77	136	64	63	340
5:00 PM	14	9	6	0	29	2	5	50	0	57	79	174	71	85	409
5:15 PM	7	6	4	0	17	3	2	46	0	51	85	181	67	89	422
5:30 PM	7	5	7	0	19	2	9	44	0	55	96	141	70	95	402
5:45 PM	9	12	1	0	22	1	4	76	0	81	62	152	66	73	353
Count Total	71	56	50	0	177	20	35	303	0	358	606	1,152	514	565	2,837
Peak Hour	33	27	23	0	83	9	23	169	0	201	337	632	272	332	1,573

<b>Two-Hour Count Summaries - Heavy Vehicles</b>																		
Interval Start	Mission St				Mission St				7th St				7th St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	11	0	0	0	5	1	0	0	7	1	0	0	0	0	27	0
4:15 PM	0	0	6	0	0	0	5	0	0	1	4	0	0	0	0	0	16	0
4:30 PM	0	0	10	0	0	0	3	3	0	1	10	2	0	0	0	0	29	0
4:45 PM	0	0	5	0	0	0	6	1	0	0	6	0	0	0	0	0	18	90
5:00 PM	0	0	14	0	0	0	7	2	0	0	6	0	0	0	0	0	29	92
5:15 PM	0	0	7	0	0	0	4	2	0	0	4	0	0	0	0	0	17	93
5:30 PM	0	0	7	0	0	0	5	0	0	1	5	1	0	0	0	0	19	83
5:45 PM	0	1	8	0	0	0	10	2	0	0	1	0	0	0	0	0	22	87
Count Total	0	3	68	0	0	0	45	11	0	3	43	4	0	0	0	0	177	0
Peak Hour	0	0	33	0	0	0	22	5	0	1	21	1	0	0	0	0	83	0

<b>Two-Hour Count Summaries - Bikes</b>																	
Interval Start	Mission St			Mission St			7th St			7th St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
4:00 PM	0	3	0	0	5	0	0	19	0	0	0	0	0	0	27	0	
4:15 PM	0	7	0	0	2	0	0	17	0	0	0	0	0	0	26	0	
4:30 PM	0	0	0	0	1	0	0	22	0	0	0	0	0	0	23	0	
4:45 PM	0	2	0	0	7	0	0	29	0	0	0	0	0	0	38	114	
5:00 PM	1	1	0	0	5	0	1	49	0	0	0	0	0	0	57	144	
5:15 PM	0	3	0	0	2	0	0	46	0	0	0	0	0	0	51	169	
5:30 PM	0	2	0	0	9	0	0	44	0	0	0	0	0	0	55	201	
5:45 PM	0	1	0	0	4	0	0	75	1	0	0	0	0	0	81	244	
Count Total	1	19	0	0	35	0	1	301	1	0	0	0	0	0	358	0	
Peak Hour	1	8	0	0	23	0	1	168	0	0	0	0	0	0	201	0	

Note: U-Turn volumes for bikes are included in Left-Turn, if any.



## **APPENDIX D-3**

### **EXISTING PARKING SUPPLY AND OCCUPANCY DATA**



**On-Street Parking Supply - Streets**

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
<b>Hayes Street</b>								
Larkin to Polk								
north	0	0	0	0	0	0	0	0
south	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>
<i>subtotal</i>	3	0	0	0	0	0	0	3
Polk to Van Ness								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
<b>Fell Street</b>								
Van Ness to Franklin								
north	11	0	0	2	0	0	0	13
south	<u>8</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>12</u>
<i>subtotal</i>	19	0	0	6	0	0	0	25
Van Ness to Market								
north	5	0	0	2	9	0	0	16
south	<u>8</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>23</u>
<i>subtotal</i>	13	0	0	4	10	2	10	39
Subtotal North	16	0	0	4	9	0	0	29
Subtotal South	<u>16</u>	<u>0</u>	<u>0</u>	<u>6</u>	<u>1</u>	<u>2</u>	<u>10</u>	<u>35</u>
<b>Fell Street Total</b>	32	0	0	10	10	2	10	64
<b>Oak Street</b>								
Van Ness to Franklin								
north	24	1	0	0	0	4	3	32
south	<u>6</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>14</u>
<i>subtotal</i>	30	1	0	4	0	4	7	46

**On-Street Parking Supply - Streets**

		Non		Commercial	Passenger Zones		Motor	Total
					Non			
Subtotal North	24	1	0	0	0	4	3	32
Subtotal South	<u>6</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>14</u>
<b>Oak Street Total</b>	30	1	0	4	0	4	7	46

**Page Street**

Franklin to Gough								
north	13	0	0	0	0	0	0	13
south	<u>10</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>13</u>
subtotal	23	0	0	3	0	0	0	26
Subtotal North	13	0	0	0	0	0	0	13
Subtotal South	<u>10</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>13</u>
<b>Page Street Total</b>	23	0	0	3	0	0	0	26

**Haight Street**

Gough to Octavia								
north	0	10	0	0	0	2	0	12
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	10	0	0	0	2	0	12
Subtotal North	0	10	0	0	0	2	0	12
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Haight Street Total</b>	0	10	0	0	0	2	0	12

**Mission St.**

13th to S. Van Ness								
north	24	0	0	0	2	5	10	41
south	<u>10</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>15</u>
subtotal	34	3	0	1	2	6	10	56
S. Van Ness to 11th								
north	0	0	0	0	0	0	0	0



## On-Street Parking Supply - Streets

		Non	Commercial	Passenger Zones		Motor	Total	
				Non	Commercial			
<i>south</i>	<u>5</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>9</u>
<i>subtotal</i>	5	0	0	3	0	1	0	9
11th to 10th								
<i>north</i>	14	0	0	2	0	0	3	19
<i>south</i>	<u>13</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>14</u>
<i>subtotal</i>	27	0	0	3	0	0	3	33
10th to Washburn								
<i>north</i>	6	0	0	3	0	2	0	11
<i>south</i>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
<i>subtotal</i>	14	0	0	3	0	2	0	19
<i>Subtotal North</i>	44	0	0	5	2	7	13	71
<i>Subtotal South</i>	<u>36</u>	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>46</u>
<b>Mission Street Total</b>	80	3	0	10	2	9	13	117

## Howard St.

13th to 12th								
<i>north</i>	11	0	0	0	0	0	0	11
<i>south</i>	<u>22</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>24</u>
<i>subtotal</i>	33	0	0	2	0	0	0	35
12th to Lafayette								
<i>north</i>	7	0	0	2	0	0	0	9
<i>south</i>	<u>4</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
<i>subtotal</i>	11	0	0	5	0	0	0	16
<i>Subtotal North</i>	18	0	0	2	0	0	0	20
<i>Subtotal South</i>	<u>26</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>31</u>
<b>Howard Street Total</b>	44	0	0	7	0	0	0	51

## Duboce Avenue

Valencia to Mission/Ois

**On-Street Parking Supply - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
north	0	4	0	1	0	0	5
south	<u>0</u>	<u>12</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>20</u>	<u>34</u>
subtotal	0	16	0	3	0	20	39
Subtotal North	0	4	0	1	0	0	5
Subtotal South	<u>0</u>	<u>12</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>20</u>	<u>34</u>
<b>Duboce Avenue Total</b>	0	16	0	3	0	20	39

**13th Street**

Otis/Mission to So. Van Ness

north	0	18	0	0	0	0	18
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	18	0	0	0	0	18

**Polk Street**

Fell to Hayes

east	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	0	0	0	0	0	0

**Van Ness Avenue**

Howard to Mission

east	15	0	0	0	0	8	23
west	<u>7</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>7</u>	<u>0</u>	<u>16</u>
subtotal	22	0	0	2	7	8	39

Mission to Market

east	21	0	0	0	0	1	22
west	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	27	0	0	0	0	1	28

Market to Fell

## On-Street Parking Supply - Streets

		Non	Commercial	Passenger Zones		Motor	Total		
				Non	Commercial				
	<i>east</i>	0	1	0	5	0	0	0	6
	<i>west</i>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>4</u>
	<i>subtotal</i>	1	2	0	6	0	1	0	10
Fell to Hayes									
	<i>east</i>	0	0	0	0	0	0	0	0
	<i>west</i>	<u>10</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
	<i>subtotal</i>	10	1	0	0	0	0	0	11
Franklin Street									
Page to Oak									
	<i>east</i>	3	1	0	2	0	1	0	7
	<i>west</i>	<u>10</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>
	<i>subtotal</i>	13	1	0	2	0	1	0	17
Oak to Fell									
	<i>east</i>	0	0	0	0	0	0	0	0
	<i>west</i>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
	<i>subtotal</i>	7	0	0	0	0	0	0	7
Gough Street									
Otis to Market									
	<i>east</i>	13	1	19	0	0	4	0	37
	<i>west</i>	<u>19</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>
	<i>subtotal</i>	32	2	19	0	0	4	0	57
Market to Page									
	<i>east</i>	0	0	0	0	0	0	0	0
	<i>west</i>	<u>10</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
	<i>subtotal</i>	10	0	0	1	0	0	0	11
Octavia Street									

## On-Street Parking Supply - Streets

	Non		Commercial	Passenger Zones			Motor	Total
				Non				
<b>Market to Haight</b>								
<i>east</i>	0	0	7	0	0	0	7	14
<i>west</i>	<u>0</u>	<u>0</u>	<u>12</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>12</u>
<i>subtotal</i>	0	0	19	0	0	0	7	26
<i>Subtotal East</i>	0	0	7	0	0	0	7	14
<i>Subtotal West</i>	<u>0</u>	<u>0</u>	<u>12</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>12</u>
<i>Octavia Street Total</i>	0	0	19	0	0	0	7	26
<b>Valencia Street</b>								
Duboce to McCoppin								
<i>east</i>	13	0	0	2	0	0	10	25
<i>west</i>	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>4</u>	<u>17</u>
<i>subtotal</i>	24	0	0	2	2	0	14	42
McCoppin to Market								
<i>east</i>	7	0	0	0	0	0	0	7
<i>west</i>	<u>5</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
<i>subtotal</i>	12	0	0	2	0	0	0	14
<i>Subtotal East</i>	20	0	0	2	0	0	10	32
<i>Subtotal West</i>	<u>16</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>4</u>	<u>24</u>
<i>Valencia Street Total</i>	36	0	0	4	2	0	14	56
<b>Otis Street</b>								
Duboce to McCoppin								
<i>east</i>	16	0	5	0	0	0	0	21
<i>west</i>	<u>3</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>
<i>subtotal</i>	19	1	5	1	0	0	0	26
Gough to S. Van Ness								
<i>north</i>	8	1	0	3	0	0	10	22
<i>south</i>	<u>18</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>18</u>

**On-Street Parking Supply - Streets**

		Non		Commercial	Passenger Zones		Motor	Total
					Non			
<i>subtotal</i>	26	1	0	3	0	0	10	40
<i>Subtotal</i>	24	1	5	3	0	0	10	43
<i>Subtotal</i>	<u>21</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>23</u>
<b><i>Otis Street Total</i></b>	45	2	5	4	0	0	10	66

**12th Street**

Howard to s. Van Ness

<i>east</i>	0	13	0	0	0	0	0	13
<i>west</i>	<u>0</u>	<u>15</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>
<i>subtotal</i>	0	28	0	0	0	0	0	28

S. Van Ness to Market

<i>east</i>	10	0	0	1	0	0	0	11
<i>west</i>	<u>23</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>29</u>
<i>subtotal</i>	33	1	0	4	2	0	0	40
<i>Subtotal East</i>	10	13	0	1	0	0	0	24
<i>Subtotal West</i>	<u>23</u>	<u>16</u>	<u>0</u>	<u>3</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>44</u>
<b><i>12th Street Total</i></b>	33	29	0	4	2	0	0	68

**11th Street**

Minna to Mission

<i>east</i>	3	0	0	0	0	0	0	3
<i>west</i>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	3	0	0	0	0	0	0	3

Mission to Market

<i>east</i>	6	0	0	3	0	2	12	23
<i>west</i>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	6	0	0	3	0	2	12	23
<i>Subtotal East</i>	9	0	0	3	0	2	12	26
<i>Subtotal West</i>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

## On-Street Parking Supply - Streets

		Non		Commercial	Passenger Zones		Motor	Total
					Non			
<b>11th Street Total</b>	9	0	0	3	0	2	12	26
<b>10th Street</b>								
Minna to Mission								
east	6	0	0	0	0	0	9	15
west	<u>5</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	11	0	0	1	0	0	9	21
Mission to Market								
east	7	0	0	3	0	0	0	10
west	<u>14</u>	<u>1</u>	<u>0</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>22</u>
subtotal	21	1	0	10	0	0	0	32
Subtotal East	13	0	0	3	0	0	9	25
Subtotal West	<u>19</u>	<u>1</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>28</u>
<b>10th Street Total</b>	32	1	0	11	0	0	9	53
<b>Total</b>	1,232	178	235	169	60	123	205	2,202
<b>East-West</b>								
Hayes Street	3	0	0	0	0	0	0	3
Fell Street	32	0	0	10	10	2	10	64
Oak Street	30	1	0	4	0	4	7	46
Page Street	23	0	0	3	0	0	0	26
Haight Street	0	10	0	0	0	2	0	12
Mission Street	80	3	0	10	2	9	13	117
Howard Street	44	0	0	7	0	0	0	51
<b>Duboce Avenue</b>	0	16	0	3	0	0	20	39
<b>13th Street</b>	16	66	0	2	0	0	3	87
subtotal East-West	228	96	0	39	12	17	53	445

**On-Street Parking Supply - Streets**

		Non		Commercial	Passenger Zones		Motor	Total
					Non			
<b>North-South</b>								
Polk Street	0	0	0	0	0	0	0	0
Van Ness Avenue	60	3	0	8	7	2	8	88
Franklin Street	20	1	0	2	0	1	0	24
Gough Street	42	2	19	1	0	4	0	68
Octavia Street	0	0	19	0	0	0	7	26
Valencia Street	36	0	0	4	2	0	14	56
Otis Street	45	2	5	4	0	0	10	66
12th Street	33	29	0	4	2	0	0	68
11th Street	9	0	0	3	0	2	12	26
10th Street	32	1	0	11	0	0	9	53
subtotal North-South	277	38	43	37	11	9	60	475
Total Check	505	134	43	76	23	26	113	920

**On-Street Parking Occupancy - Streets**

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
<b>Hayes Street</b>								
Larkin to Polk								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
Polk to Van Ness								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
Van Ness to Franklin								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
<b>Fell Street</b>								
Van Ness to Franklin								
north	11	0	0	2	0	0	0	13
south	<u>8</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
<i>subtotal</i>	19	0	0	5	0	0	0	24
Franklin to Gough								
north	5	0	0	2	4	0	0	11
south	<u>8</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>10</u>	<u>21</u>
<i>subtotal</i>	13	0	0	3	4	2	10	32
Subtotal North	16	0	0	4	4	0	0	24
Subtotal South	<u>16</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>2</u>	<u>10</u>	<u>32</u>
<b>Fell Street Total</b>	32	0	0	8	4	2	10	56
<b>Oak Street</b>								



**On-Street Parking Occupancy - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
Van Ness to Franklin							
north	24	1	0	0	0	2	29
south	<u>6</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>8</u>
subtotal	30	1	0	1	0	3	37
Subtotal North	24	1	0	0	0	2	29
Subtotal South	<u>6</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>8</u>
Oak Street Total	30	1	0	1	0	3	37

**Page Street**

Franklin to Gough							
north	13	0	0	0	0	0	13
south	<u>10</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>13</u>
subtotal	23	0	0	3	0	0	26
Subtotal North	13	0	0	0	0	0	13
Subtotal South	<u>10</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>13</u>
Page Street Total	23	0	0	3	0	0	26

**Haight Street**

Gough to Octavia							
north	0	10	0	0	0	1	11
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	10	0	0	0	1	11
Subtotal North	0	10	0	0	0	1	11
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Haight Street Total	0	10	0	0	0	1	11

**Mission St.**

13th to S. Van Ness							
north	24	0	0	0	2	0	29

**On-Street Parking Occupancy - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
<i>south</i>	<u>10</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>14</u>
<i>subtotal</i>	34	3	0	1	2	0	43
S. Van Ness to 11th							
<i>north</i>	0	0	0	0	0	0	0
<i>south</i>	<u>5</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>8</u>
<i>subtotal</i>	5	0	0	3	0	0	8
11th to 10th							
<i>north</i>	8	0	0	1	0	0	10
<i>south</i>	<u>13</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>14</u>
<i>subtotal</i>	21	0	0	2	0	0	24
10th to Washburn							
<i>north</i>	4	0	0	3	0	1	8
<i>south</i>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
<i>subtotal</i>	12	0	0	3	0	1	16
<i>Subtotal North</i>	36	0	0	4	2	1	47
<i>Subtotal South</i>	<u>36</u>	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>44</u>
<b>Mission Street Total</b>	72	3	0	9	2	1	91
<b>Howard St.</b>							
13th to 12th							
<i>north</i>	11	0	0	0	0	0	11
<i>south</i>	<u>22</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>24</u>
<i>subtotal</i>	33	0	0	2	0	0	35
12th to 11th							
<i>north</i>	7	0	0	1	0	0	8
<i>south</i>	<u>4</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>7</u>
<i>subtotal</i>	11	0	0	4	0	0	15
<i>Subtotal North</i>	18	0	0	1	0	0	19
<i>Subtotal South</i>	<u>26</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>31</u>

**On-Street Parking Occupancy - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Commercial	Non		
<b>Howard Street Total</b>	44	0	0	6	0	0	50
<b>Duboce Avenue</b>							
Valencia to Mission/Ois							
north	0	4	0	1	0	0	5
south	<u>0</u>	<u>12</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>	<u>32</u>
subtotal	0	16	0	1	0	20	37
Subtotal North	0	4	0	1	0	0	5
Subtotal South	<u>0</u>	<u>12</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>	<u>32</u>
<b>Duboce Avenue Total</b>	0	16	0	1	0	20	37
<b>13th Street</b>							
Otis/Mission to So. Van Ness							
north	0	17	0	0	0	0	17
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	17	0	0	0	0	17
<b>Van Ness Avenue</b>							
Howard to Mission							
east	15	0	0	0	0	0	15
west	<u>7</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>6</u>	<u>0</u>	<u>14</u>
subtotal	22	0	0	1	6	0	29
Mission to Market							
east	19	0	0	0	0	1	20
west	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
subtotal	27	0	0	0	0	1	28
Market to Fell							
east	0	0	0	2	0	0	2
west	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>

**On-Street Parking Occupancy - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Commercial	Non		
<i>subtotal</i>	1	0	0	3	0	0	4
Fell to Hayes							
<i>east</i>	0	0	0	0	0	0	0
<i>west</i>	<u>10</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
<i>subtotal</i>	10	1	0	0	0	0	11
<b>Franklin Street</b>							
Page to Oak							
<i>east</i>	3	1	0	1	0	1	6
<i>west</i>	<u>10</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>
<i>subtotal</i>	13	1	0	1	0	1	16
Oak to Fell							
<i>east</i>	0	0	0	0	0	0	0
<i>west</i>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
<i>subtotal</i>	6	0	0	0	0	0	6
<b>Gough Street</b>							
Otis to Market							
<i>east</i>	13	0	19	0	0	1	33
<i>west</i>	<u>19</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>
<i>subtotal</i>	32	1	19	0	0	1	53
Market to Page							
<i>east</i>	0	0	0	0	0	0	0
<i>west</i>	<u>10</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>11</u>
<i>subtotal</i>	10	0	0	1	0	0	11
<b>Octavia Street</b>							
Market to Haight							
<i>east</i>	0	0	7	0	0	0	7

### On-Street Parking Occupancy - Streets

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
<i>west</i>	<u>0</u>	<u>0</u>	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
<i>subtotal</i>	0	0	18	0	0	0	18
<b>Subtotal North</b>	0	0	7	0	0	0	7
<i>Subtotal South</i>	<u>0</u>	<u>0</u>	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
<b>Octavia Street Total</b>	0	0	18	0	0	0	18

### Valencia Street

Duboce to McCoppin							
<i>east</i>	12	0	0	1	0	0	13
<i>west</i>	<u>10</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>
<i>subtotal</i>	22	0	0	1	0	0	23
McCoppin to Market							
<i>east</i>	7	0	0	0	0	0	7
<i>west</i>	<u>5</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>7</u>
<i>subtotal</i>	12	0	0	2	0	0	14
<b>Subtotal East</b>	19	0	0	1	0	0	20
<b>Subtotal West</b>	<u>15</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>17</u>
<b>Valencia Street Total</b>	34	0	0	3	0	0	37

### Otis Street

Duboce to McCoppin							
<i>east</i>	16	0	4	0	0	0	20
<i>west</i>	<u>3</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>5</u>
<i>subtotal</i>	19	1	4	1	0	0	25
Gough to S. Van Ness							
<i>north</i>	8	1	0	3	0	0	22
<i>south</i>	<u>18</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>18</u>
<i>subtotal</i>	26	1	0	3	0	0	40
<b>Subtotal East</b>	24	1	4	3	0	0	42

**On-Street Parking Occupancy - Streets**

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
<b>Subtotal West</b>	<u>21</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>23</u>
<b>Otis Street Total</b>	45	2	4	4	0	10	65
<b>12th Street</b>							
Howard to s. Van Ness							
<b>east</b>	0	12	0	0	0	0	12
<b>west</b>	<u>0</u>	<u>15</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>
<i>subtotal</i>	0	27	0	0	0	0	27
S. Van Ness to Market							
<b>east</b>	10	0	0	1	0	0	11
<b>west</b>	<u>23</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>28</u>
<i>subtotal</i>	33	1	0	3	2	0	39
<b>Subtotal East</b>	10	12	0	1	0	0	23
<b>Subtotal West</b>	<u>23</u>	<u>16</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>43</u>
<b>12th Street Total</b>	33	28	0	3	2	0	66
<b>11th Street</b>							
Minna to Mission							
<b>east</b>	3	0	0	0	0	0	3
<b>west</b>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	3	0	0	0	0	0	3
Mission to Market							
<b>east</b>	6	0	0	3	0	1	22
<b>west</b>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	6	0	0	3	0	1	22
<b>Subtotal East</b>	9	0	0	3	0	1	25
<b>Subtotal West</b>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>11th Street Total</b>	9	0	0	3	0	1	25

## On-Street Parking Occupancy - Streets

		Non	Commercial	Passenger Zones		Motor	Total
				Non	Commercial		
<b>10th Street</b>							
Minna to Mission							
<i>east</i>	6	0	0	0	0	6	12
<i>west</i>	<u>5</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>6</u>
<i>subtotal</i>	11	0	0	1	0	6	18
Mission to Market							
<i>east</i>	5	0	0	3	0	0	8
<i>west</i>	<u>13</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>18</u>
<i>subtotal</i>	18	1	0	4	0	3	26
<i>Subtotal East</i>	11	0	0	3	0	6	20
<i>Subtotal West</i>	<u>18</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>3</u>	<u>24</u>
<b>10th Street Total</b>	29	1	0	5	0	6	44
<b>Total</b>	1,110	165	184	102	31	107	1,751
<b>East-West</b>							
Hayes Street	0	0	0	0	0	0	0
Fell Street	32	0	0	8	4	10	56
Oak Street	30	1	0	1	0	3	37
Page Street	23	0	0	3	0	0	26
Haight Street	0	10	0	0	0	1	11
Mission Street	72	3	0	9	2	4	91
Howard Street	44	0	0	6	0	0	50
<b>Duboce Avenue</b>	0	16	0	1	0	20	37
<b>13th Street</b>	9	64	0	1	0	1	75
subtotal East-West	210	94	0	29	6	38	383
<b>North-South</b>							
Polk Street	0	0	0	0	0	0	0

**On-Street Parking Occupancy - Streets**

		Non		Commercial	Passenger Zones		Motor	Total
					Non			
Van Ness Avenue	60	1	0	4	6	1	0	72
Franklin Street	19	1	0	1	0	1	0	22
Gough Street	42	1	19	1	0	1	0	64
Octavia Street	0	0	18	0	0	0	0	18
Valencia Street	34	0	0	3	0	0	0	37
Otis Street	45	2	4	4	0	0	10	65
12th Street	33	28	0	3	2	0	0	66
11th Street	9	0	0	3	0	1	12	25
10th Street	29	1	0	5	0	3	6	44
subtotal North-South	271	34	41	24	8	7	28	413
Total Check	481	128	41	53	14	13	66	796



On-Street Parking Supply - Alleys

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
<b>Ivy Street</b>								
Franklin to Gough								
north	0	13	0	0	0	0	0	13
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	13	0	0	0	0	0	13
Subtotal North	0	13	0	0	0	0	0	13
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Ivy Street Total</b>	0	13	0	0	0	0	0	13
<b>Lilly Street</b>								
Franklin to Gough								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>19</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>19</u>
<i>subtotal</i>	0	19	0	0	0	0	0	19
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>0</u>	<u>19</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>19</u>
<b>Lilly Street Total</b>	0	19	0	0	0	0	0	19
<b>Rose Street</b>								
Market to Franklin								
north	0	0	8	0	0	2	5	15
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	8	0	0	2	5	15
Subtotal North	0	0	8	0	0	2	5	15
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Rose Street Total</b>	0	0	8	0	0	2	5	15
<b>Hickory Street</b>								
Van Ness to Franklin								
north	0	0	0	0	0	0	0	0
south	<u>12</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>14</u>
<i>subtotal</i>	12	0	0	2	0	0	0	14
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>12</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>14</u>
<b>Hickory Street Total</b>	12	0	0	2	0	0	0	14
<b>Elm Street</b>								
Polk to Van Ness								
north	6	0	2	0	2	4	0	14
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	6	0	2	0	2	4	0	14
Subtotal North	6	0	2	0	2	4	0	14
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Elm Street Total</b>	6	0	2	0	2	4	0	14
<b>Redwood Street</b>								
Polk to Van Ness								
north	0	0	0	0	0	0	0	0
south	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
<i>subtotal</i>	3	0	5	0	0	0	0	8
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
<b>Redwood Street Total</b>	3	0	5	0	0	0	0	8
<b>Dr. Tom Wadell Street</b>								
Polk to Van Ness								

On-Street Parking Occupancy - Alleys

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
<b>Ivy Street</b>								
Franklin to Gough								
north	0	13	0	0	0	0	0	13
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	13	0	0	0	0	0	13
Subtotal North	0	13	0	0	0	0	0	13
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Ivy Street Total	0	13	0	0	0	0	0	13
<b>Lilly Street</b>								
Franklin to Gough								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>18</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>18</u>
subtotal	0	18	0	0	0	0	0	18
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>0</u>	<u>18</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>18</u>
Lilly Street Total	0	18	0	0	0	0	0	18
<b>Rose Street</b>								
Market to Franklin								
north	0	2	6	0	0	2	2	12
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	2	6	0	0	2	2	12
Subtotal North	0	2	6	0	0	2	2	12
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Rose Street Total	0	2	6	0	0	2	2	12
<b>Hickory Street</b>								
Van Ness to Franklin								
north	0	0	0	0	0	0	0	0
south	<u>12</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>
subtotal	12	1	0	2	0	0	0	15
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>12</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>
Hickory Street Total	12	1	0	2	0	0	0	15
<b>Elm Street</b>								
Polk to Van Ness								
north	5	0	2	0	1	1	0	9
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	5	0	2	0	1	1	0	9
Subtotal North	5	0	2	0	1	1	0	9
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Elm Street Total	5	0	2	0	1	1	0	9
<b>Redwood Street</b>								
Polk to Van Ness								
north	0	0	0	0	0	0	0	0
south	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
subtotal	3	0	5	0	0	0	0	8
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>3</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
Redwood Street Total	3	0	5	0	0	0	0	8
<b>Dr. Tom Wadell Street</b>								
Polk to Van Ness								

On-Street Parking Occupancy - Alleys

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
north	10	0	3	2	0	0	0	15
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	10	0	3	2	0	0	0	15
Subtotal North	10	0	3	2	0	0	0	15
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Dr. Tom Wadell Street Total</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>15</b>

**Stevenson Street**

12th to End								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	0	0	0	0	0	0	0
Gough to Brady								
north	0	0	0	0	0	0	0	0
south	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>9</u>
subtotal	5	0	0	0	4	0	0	9
McCoppin to Duboce								
east	0	15	0	0	0	0	0	15
west	<u>0</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
subtotal	0	22	0	0	0	0	0	22
Subtotal	0	15	0	0	0	0	0	15
Subtotal	<u>5</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>16</u>
<b>Stevenson Street Total</b>	<b>5</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>31</b>

**Brady Street**

Otis to Colton								
east	0	0	0	0	0	0	0	0
west	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
subtotal	11	0	0	0	0	0	0	11
Colton to Market								
east	6	0	0	0	0	0	0	6
west	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>
subtotal	11	0	0	0	0	0	0	11
Subtotal East	6	0	0	0	0	0	0	6
Subtotal West	<u>16</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>16</u>
<b>Brady Street Total</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>

**Colton Street**

Colusa to Brady								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	0	6	0	0	0	0	0	6
Brady to Gough								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	0	0	0	0	0	0	0
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
<b>Colton Street Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>

**Colusa Street**

Chase to Colton								
east	0	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	0	0	0	0	0	0	0

On-Street Parking Occupancy - Alleys

	Metered	Non Metered	Permit	Commercial Loading	Passenger Zones		Motor cycles	Total Check
					Part-time	Non Metered		
Subtotal East	0	0	0	0	0	0	0	0
Subtotal West	0	0	0	0	0	0	0	0
<b>Colusa Street Total</b>	0	0	0	0	0	0	0	0
<b>Chase Street</b>								
Colusa to End								
north	0	4	0	0	0	0	0	4
south	0	0	0	0	0	0	0	0
subtotal	0	4	0	0	0	0	0	4
Subtotal North	0	4	0	0	0	0	0	4
Subtotal South	0	0	0	0	0	0	0	0
<b>Chase Street Total</b>	0	4	0	0	0	0	0	4
<b>Jessie Street</b>								
McCoppin to End								
east	0	0	0	0	0	0	0	0
west	0	0	8	0	0	0	2	10
subtotal	0	0	8	0	0	0	2	10
Subtotal East	0	0	0	0	0	0	0	0
Subtotal West	0	0	8	0	0	0	2	10
<b>Jessie Street Total</b>	0	0	8	0	0	0	2	10
<b>McCoppin Street</b>								
Otis to Jessie								
north	0	3	0	0	0	0	0	3
south	0	8	0	0	0	0	0	8
subtotal	0	11	0	0	0	0	0	11
Jessie to Stevenson								
north	0	7	0	0	0	0	0	7
south	0	6	0	0	0	0	0	6
subtotal	0	13	0	0	0	0	0	13
Stevenson to Valencia								
north	0	4	0	0	0	0	0	4
south	0	7	0	0	0	0	0	7
subtotal	0	11	0	0	0	0	0	11
Subtotal North	0	14	0	0	0	0	0	14
Subtotal South	0	21	0	0	0	0	0	21
<b>McCoppin Street Total</b>	0	35	0	0	0	0	0	35
<b>Natoma Street</b>								
Lafayette to End								
north	0	0	0	0	0	0	0	0
south	0	0	6	0	0	0	0	6
subtotal	0	0	6	0	0	0	0	6
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	0	0	6	0	0	0	0	6
<b>Natoma Street Total</b>	0	0	6	0	0	0	0	6
<b>Minna Street</b>								
10th to 11th								
north	0	0	0	0	0	0	0	0
south	0	0	5	0	0	0	0	5
subtotal	0	0	5	0	0	0	0	5
11th to Lafayette								
north	0	0	0	0	0	0	0	0
south	0	0	16	0	0	0	0	16

On-Street Parking Occupancy - Alleys

	Passenger Zones						Motor cycles	Total Check
	Metered	Non Metered	Permit	Commercial Loading	Part-time	Non Metered		
<i>subtotal</i>	0	0	16	0	0	0	0	16
<i>Subtotal North</i>	0	0	0	0	0	0	0	0
<i>Subtotal South</i>	0	0	21	0	0	0	0	21
<b>Minna Street Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>
<b>Washburn Street</b>								
Howard to Mission								
<i>east</i>	0	11	0	1	0	0	0	12
<i>west</i>	0	0	0	0	0	0	0	0
<i>subtotal</i>	0	11	0	1	0	0	0	12
<i>SubtotalEast</i>	0	11	0	1	0	0	0	12
<i>Subtotal West</i>	0	0	0	0	0	0	0	0
<b>Washburn Street Total</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>
<b>Grace Street</b>								
Howard to Mission								
<i>east</i>	0	15	0	1	0	0	0	16
<i>west</i>	0	0	0	0	0	0	0	0
<i>subtotal</i>	0	15	0	1	0	0	0	16
<i>SubtotalEast</i>	0	15	0	1	0	0	0	16
<i>Subtotal West</i>	0	0	0	0	0	0	0	0
<b>Grace Street Total</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>
<b>Lafayette Street</b>								
Howard to Natoma								
<i>east</i>	0	0	0	0	0	0	0	0
<i>west</i>	0	0	6	0	0	0	0	6
<i>subtotal</i>	0	0	6	0	0	0	0	6
Natoma to Mission								
<i>east</i>	0	0	0	0	0	0	0	0
<i>west</i>	0	0	15	0	0	0	0	15
<i>subtotal</i>	0	0	15	0	0	0	0	15
<i>SubtotalEast</i>	0	0	0	0	0	0	0	0
<i>Subtotal West</i>	0	0	21	0	0	0	0	21
<b>Lafayette Street Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>
<b>Plum Street</b>								
S. Van Ness to Mission								
<i>east</i>	0	3	8	0	0	0	0	11
<i>west</i>	0	0	0	0	0	0	0	0
<i>subtotal</i>	0	3	8	0	0	0	0	11
<i>SubtotalEast</i>	0	3	8	0	0	0	0	11
<i>Subtotal West</i>	0	0	0	0	0	0	0	0
<b>Plum Street Total</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>
<b>Total Alleys</b>	<b>57</b>	<b>130</b>	<b>80</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>285</b>
<b>Hub Alleys</b>	<b>39</b>	<b>91</b>	<b>64</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>4</b>	<b>206</b>

**On-Street Parking Supply - Alleys**

		Non	Commercial	Passenger Zones			Motor	Total
				Non	Commercial	Motor		
north	10	0	3	2	0	0	0	15
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	10	0	3	2	0	0	0	15
Subtotal North	10	0	3	2	0	0	0	15
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Dr. Tom Wadell Street Total</b>	10	0	3	2	0	0	0	15

**Stevenson Street**

12th to End								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
Gough to Brady								
north	0	0	0	0	0	0	0	0
south	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>10</u>
<i>subtotal</i>	6	0	0	0	4	0	0	10
McCoppin to Duboce								
east	0	15	0	0	0	0	0	15
west	<u>0</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
<i>subtotal</i>	0	22	0	0	0	0	0	22
Subtotal	0	15	0	0	0	0	0	15
Subtotal	<u>6</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>17</u>
<b>Stevenson Street Total</b>	<b>6</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>32</b>

**Brady Street**

Otis to Colton								
east	0	0	0	0	0	0	0	0
west	<u>11</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11</u>
<i>subtotal</i>	11	0	0	0	0	0	0	11
Colton to Market								
east	6	0	0	0	0	0	0	6
west	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>
<i>subtotal</i>	11	0	0	0	0	0	0	11
Subtotal East	6	0	0	0	0	0	0	6
Subtotal West	<u>16</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>16</u>
<b>Brady Street Total</b>	<b>22</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>

**Colton Street**

Colusa to Brady								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
<i>subtotal</i>	0	6	0	0	0	0	0	6
Brady to Gough								
north	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
Subtotal North	0	0	0	0	0	0	0	0
Subtotal South	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
<b>Colton Street Total</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>

**Colusa Street**

Chase to Colton								
east	0	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>subtotal</i>	0	0	0	0	0	0	0	0
Subtotal East	0	0	0	0	0	0	0	0

On-Street Parking Supply - Alleys

		Passenger Zones							Total
		Non	Commercial	Non	Motor				
Subtotal West	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Colusa Street Total</b>	0	0	0	0	0	0	0	0	0
<b>Chase Street</b>									
Colusa to End									
north	0	4	0	0	0	0	0	0	4
south	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	4	0	0	0	0	0	0	4
Subtotal North	0	4	0	0	0	0	0	0	4
Subtotal South	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Chase Street Total</b>	0	4	0	0	0	0	0	0	4
<b>Jessie Street</b>									
McCoppin to End									
east	0	0	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>4</u>	<u>12</u>
subtotal	0	0	8	0	0	0	4	4	12
Subtotal East	0	0	0	0	0	0	0	0	0
Subtotal West	<u>0</u>	<u>0</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4</u>	<u>4</u>	<u>12</u>
<b>Jessie Street Total</b>	0	0	8	0	0	0	4	4	12
<b>McCoppin Street</b>									
Otis to Jessie									
north	0	3	0	0	0	0	0	0	3
south	<u>0</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8</u>
subtotal	0	11	0	0	0	0	0	0	11
Jessie to Stevenson									
north	0	7	0	0	0	0	0	0	7
south	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	0	13	0	0	0	0	0	0	13
Stevenson to Valencia									
north	0	4	0	0	0	0	0	0	4
south	<u>0</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>7</u>
subtotal	0	11	0	0	0	0	0	0	11
Subtotal North	0	14	0	0	0	0	0	0	14
Subtotal South	<u>0</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>21</u>
<b>McCoppin Street Total</b>	0	35	0	0	0	0	0	0	35
<b>Natoma Street</b>									
Lafayette to End									
north	0	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	0	0	6	0	0	0	0	0	6
Subtotal North	0	0	0	0	0	0	0	0	0
Subtotal South	<u>0</u>	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
<b>Natoma Street Total</b>	0	0	6	0	0	0	0	0	6
<b>Minna Street</b>									
10th to 11th									
north	0	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>
subtotal	0	0	5	0	0	0	0	0	5
11th to Lafayette									
north	0	0	0	0	0	0	0	0	0
south	<u>0</u>	<u>0</u>	<u>16</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>16</u>
subtotal	0	0	16	0	0	0	0	0	16
Subtotal North	0	0	0	0	0	0	0	0	0

**On-Street Parking Supply - Alleys**

		Non	Commercial	Passenger Zones			Motor	Total
				Non	Commercial	Motor		
Subtotal South	<u>0</u>	<u>0</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>21</u>
<b>Minna Street Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>
<b>Washburn Street</b>								
Howard to Mission								
east	0	11	0	3	0	0	0	14
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	11	0	3	0	0	0	14
SubtotalEast	0	11	0	3	0	0	0	14
Subtotal West	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Washburn Street Total</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>
<b>Grace Street</b>								
Howard to Mission								
east	0	18	0	1	0	0	0	19
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	18	0	1	0	0	0	19
SubtotalEast	0	18	0	1	0	0	0	19
Subtotal West	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Grace Street Total</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>19</b>
<b>Lafayette Street</b>								
Howard to Natoma								
east	0	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6</u>
subtotal	0	0	6	0	0	0	0	6
Natoma to Mission								
east	0	0	0	0	0	0	0	0
west	<u>0</u>	<u>0</u>	<u>15</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>15</u>
subtotal	0	0	15	0	0	0	0	15
SubtotalEast	0	0	0	0	0	0	0	0
Subtotal West	<u>0</u>	<u>0</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>21</u>
<b>Lafayette Street Total</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>
<b>Plum Street</b>								
S. Van Ness to Mission								
east	0	4	10	2	0	0	0	16
west	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
subtotal	0	4	10	2	0	0	0	16
SubtotalEast	0	4	10	2	0	0	0	16
Subtotal West	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Plum Street Total</b>	<b>0</b>	<b>4</b>	<b>10</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>
<b>Total Alleys</b>	<b>59</b>	<b>132</b>	<b>84</b>	<b>10</b>	<b>6</b>	<b>6</b>	<b>9</b>	<b>306</b>
<b>Hub Alleys</b>	<b>40</b>	<b>90</b>	<b>68</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>9</b>	<b>217</b>



Street Network Changes	SUPPLY								OCCUPANCY									
	Vehicle Parking Spaces			Commercial Loading	Passenger Zones			Motor cycles	Total Check	Vehicle Parking Spaces			Commercial Loading	Passenger Zones			Motor cycles	Total Check
	Non Metered	Metered	Permit		Part-time	Non Metered	Motor cycles			Total Check	Non Metered	Metered		Permit	Part-time	Non Metered		
	Metered	Metered	Permit	Part-time	Non Metered	Metered		Metered	Metered		Permit	Part-time	Metered					
<b>1. 12th St: Market to Mission Sts</b>																		
east side	10	0	0	1	0	0	0	11	10	0	0	1	0	0	0	0	11	
west side	23	1	0	3	2	0	0	29	23	1	0	2	2	0	0	0	28	
subtotal	33	1	0	4	2	0	0	40	33	1	0	3	2	0	0	0	39	
<b>2. Gough St: Market to Otis Sts</b>																		
east side	13	1	19	0	0	4	0	37	13	0	19	0	0	1	0	0	33	
west side	19	1	0	0	0	0	0	20	19	1	0	0	0	0	0	0	20	
subtotal	32	2	19	0	0	4	0	57	32	1	19	0	0	1	0	0	53	
<b>4. SVN Ave: Howard to Mission</b>																		
east side	15	0	0	0	0	0	8	23	15	0	0	0	0	0	0	0	15	
west side	7	0	0	2	7	0	0	16	7	0	0	1	6	0	0	0	14	
subtotal	22	0	0	2	7	0	8	39	22	0	0	1	6	0	0	0	29	
<b>5a. Otis St: SVN Ave to Gough St</b>																		
north side	8	1	0	3	0	0	10	22	8	1	0	3	0	0	0	10	22	
south side	18	0	0	0	0	0	0	18	18	0	0	0	0	0	0	0	18	
subtotal	26	1	0	3	0	0	10	40	26	1	0	3	0	0	0	10	40	
<b>5b. Otis St: Gough St to Duboce Ave</b>																		
east side	16	0	5	0	0	0	0	21	16	0	4	0	0	0	0	0	20	
west side	3	1	0	1	0	0	0	5	3	1	0	1	0	0	0	0	5	
subtotal	19	1	5	1	0	0	0	26	19	1	4	1	0	0	0	0	25	
<b>6a. Duboce: Otis/Mission to Valencia Sts</b>																		
north side	0	4	0	1	0	0	0	5	0	4	0	1	0	0	0	0	5	
south side	0	12	0	2	0	0	20	34	0	12	0	0	0	0	20	0	32	
subtotal	0	16	0	3	0	0	20	39	0	16	0	1	0	0	20	0	37	
<b>6b. 13th St: Folsom to SVN Ave</b>																		
north side	0	48	0	0	0	0	3	51	0	47	0	0	0	0	0	1	48	
south side	16	0	0	2	0	0	0	18	9	0	0	1	0	0	0	0	10	
subtotal	16	48	0	2	0	0	3	69	9	47	0	1	0	0	1	0	58	
<b>6c. 13th St: SVN Ave to Mission/Otis Sts</b>																		
north side	0	18	0	0	0	0	0	18	0	17	0	0	0	0	0	0	17	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	18	0	0	0	0	0	18	0	17	0	0	0	0	0	0	17	
<b>7. Lily St: Franklin to Gough Sts</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	0	19	0	0	0	0	0	19	0	18	0	0	0	0	0	0	18	
subtotal	0	19	0	0	0	0	0	19	0	18	0	0	0	0	0	0	18	
<b>8. Rose St: Gough to Franklin Sts</b>																		
north side	0	0	8	0	0	2	5	15	0	2	6	0	0	2	2	2	12	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	0	8	0	0	2	5	15	0	2	6	0	0	2	2	2	12	
<b>9a. Minna St: 10th to 11th Sts</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	0	0	5	0	0	0	0	5	0	0	5	0	0	0	0	0	5	
subtotal	0	0	5	0	0	0	0	5	0	0	5	0	0	0	0	0	5	
<b>9b. Minna St: 11th to Lafayette Sts</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	0	0	16	0	0	0	0	16	0	0	16	0	0	0	0	0	16	
subtotal	0	0	16	0	0	0	0	16	0	0	16	0	0	0	0	0	16	
<b>10. Lafayette St: Mission to Howard Sts</b>																		
east side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
west side	0	0	21	0	0	0	0	21	0	0	6	0	0	0	0	0	6	
subtotal	0	0	21	0	0	0	0	21	0	0	6	0	0	0	0	0	6	
<b>11. Stevenson St: Brady to Gough Sts</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	6	0	0	0	4	0	0	10	5	0	0	0	4	0	0	0	9	

Street Network Changes	SUPPLY									OCCUPANCY								
	Vehicle Parking Spaces			Commercial Loading	Passenger Zones			Motor cycles	Total Check	Vehicle Parking Spaces			Commercial Loading	Passenger Zones			Motor cycles	Total Check
	Non Metered	Metered	Permit		Part-time	Non Metered	Non Metered			Non Metered	Metered	Non Metered		Permit	Part-time	Non Metered		
	Metered	Metered	Permit	Part-time	Non Metered	Non Metered	Non Metered	Metered	Non Metered	Permit	Part-time	Non Metered	Metered	Non Metered	Permit	Part-time	Non Metered	
subtotal	6	0	0	0	4	0	0	10	5	0	0	0	4	0	0	0	9	
<b>12. Stevenson St: Gough St to dead end</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>13. Colusa Pl: Colton St to Chase Ct</b>																		
east side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
west side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>14. Chase Ct: Colusa Place to dead end</b>																		
north side	0	4	0	0	0	0	0	4	0	4	0	0	0	0	0	0	4	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	4	0	0	0	0	0	4	0	4	0	0	0	0	0	0	4	
<b>15. Colton Pl: Brady to Gough Sts</b>																		
north side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>16. Brady St: Market to Colton (west side)</b>																		
east side	6	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	6	
west side	5	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	5	
subtotal	11	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	11	
<b>17. Brady St: Colton to Otis Sts</b>																		
east side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
west side	11	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	11	
subtotal	11	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	11	
<b>18. Plum St: SVN Ave to Mission St</b>																		
north side	0	4	10	2	0	0	0	16	0	3	8	0	0	0	0	0	11	
south side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
subtotal	0	4	10	2	0	0	0	16	0	3	8	0	0	0	0	0	11	
<b>19. Jessie St: South from McCoppin St</b>																		
east side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
west side	0	0	8	0	0	0	4	12	0	0	8	0	0	0	2	2	10	
subtotal	0	0	8	0	0	0	4	12	0	0	8	0	0	0	2	2	10	
<b>20. Stevenson St: McCoppin to Duboce</b>																		
east side	0	15	0	0	0	0	0	15	0	15	0	0	0	0	0	0	15	
west side	0	7	0	0	0	0	0	7	0	7	0	0	0	0	0	0	7	
subtotal	0	22	0	0	0	0	0	22	0	22	0	0	0	0	0	0	22	
<b>Total Plan Streets and Alleys</b>	<b>176</b>	<b>136</b>	<b>92</b>	<b>17</b>	<b>13</b>	<b>6</b>	<b>50</b>	<b>490</b>	<b>168</b>	<b>133</b>	<b>72</b>	<b>10</b>	<b>12</b>	<b>3</b>	<b>35</b>	<b>433</b>		
Streets	148	87	24	15	9	4	41	328	141	84	23	10	8	1	31	298		
Alleys	28	49	68	2	4	2	9	162	27	49	49	0	4	2	4	135		
subtotal Plan Changes	176	136	92	17	13	6	50	490	168	133	72	10	12	3	35	433		
Project Street: Fell Street	13	0	0	4	10	2	10	39	13	0	0	3	4	2	10	32		
Project Street: Franklin Street	13	1	0	2	0	1	0	17	13	1	0	1	0	1	0	16		
Project Street: Oak Street	30	1	0	4	0	4	7	46	30	1	0	1	0	2	3	37		
subtotal projects	56	2	0	10	10	7	17	102	56	2	0	5	4	5	13	85		
Total	232	138	92	27	23	13	67	592	224	135	72	15	16	8	48	518		
			462															
Hub Total Streets	505	134	43	76	23	26	113	920	481	128	41	53	14	13	66	796		
Hub Total Alleys	40	90	68	4	4	2	9	217	39	91	64	2	4	2	4	206		
<b>Total Hub Streets</b>	<b>545</b>	<b>224</b>	<b>111</b>	<b>80</b>	<b>27</b>	<b>28</b>	<b>122</b>	<b>1,137</b>	<b>520</b>	<b>219</b>	<b>105</b>	<b>55</b>	<b>18</b>	<b>15</b>	<b>70</b>	<b>1,002</b>		

**Publicly-accessible Off-street Public Parking Facilities**

Name or Location	Facility Type	Posted Hours of Operation	Midday Conditions		% Occupied
			Supply	Occupancy	
1 Fox Plaza/1390 Market Street	garage	6 AM - 8 PM	400	400	100%
2 150 Hayes Street	garage		120	120	100%
3 One Polk Street	garage		133	133	100%
4 1650 Mission Street	garage	7 AM - 6 PM	74	72	97%
5 1660 Mission Street	garage	7 AM - 5 PM	52	41	79%
6 1455 Market/55 11th Street	garage	6 AM - 10 PM	194	190	98%
7 Market Sq Garage/840 Jessie St	garage	6 AM - Midnight	350	300	86%
8 12th Street/Kissling Street	garage		470	455	97%
9 Franklin & Oak NE Corner/110 Franklin	surface lot		40	36	90%
10 Franklin & Oak SE Corner/98 Franklin Proj	surface lot		73	73	100%
11 15 Oak Street/One Oak Project	surface lot	6 AM - 6 PM	44	42	95%
12 1615 Market Street	surface lot		69	41	59%
13 23 Brady Street	surface lot		93	86	92%
14 53 Colton Street	surface lot	6 AM - 7:30 PM	40	35	88%
15 Colusa Place	surface lot		37	15	41%
16 1537 Mission Street	surface lot		20	16	80%
			2,209	2,055	93%
<b>Surveys conducted in May 2018</b>		Garages	1,793	1,711	95%
<b>Traffic Counts Plus</b>		Surface Lots	<u>416</u>	<u>344</u>	<u>83%</u>
			2,209	2,055	93%
		North of Market	810	804	99%
		South of Market	<u>1,399</u>	<u>1,251</u>	<u>89%</u>
			2,209	2,055	93%



**APPENDIX D-4**  
TRAVEL DEMAND INPUTS AND ANALYSIS



# MEMORANDUM

Date: January 4, 2019

To: Daniel Wu and Alana Callagy, San Francisco Planning Department

From: Teresa Whinery and Eric Womeldorff, Fehr & Peers  
Luba Wyznyckyj, LCW Consulting

**Subject:** The Hub Plan, 30 Van Ness Avenue Project, 98 Franklin Street Project, and Hub Housing Sustainability District Environmental Impact Report – Estimation of Project Travel Demand

SF16-0904

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This memorandum presents the assumptions and methodologies used to estimate the travel demand, including vehicular parking and loading demand, for the Hub Plan and for two individual projects within the Hub Plan area at 30 Van Ness Avenue and 98 Franklin Street, and the Hub Housing Sustainability District (HSD) (collectively, the “proposed project”). “Travel demand” refers to trips from people walking, bicycling, riding transit, and driving that would be generated by the proposed project; this memorandum summarizes the travel demand associated with the proposed project by the various ways people travel.

Results of the travel demand analysis documented in this memorandum will be used as input into the transportation, air quality, and noise analyses for the environmental impact analysis for The Hub Plan, 30 Van Ness Avenue Project, 98 Franklin Street Project, and Hub HSD Environmental Impact Report (the “EIR”). For the EIR analysis, development under the Hub Plan is being analyzed at a program-level basis for the land use changes that would result from upzoning 17 sites, while streetscape and public realm improvements, the two individual projects, and the Hub HSD are being analyzed at a project-level basis.

## 1.1 OVERVIEW OF HUB PLAN AND INDIVIDUAL PROJECT COMPONENTS

**Development Under the Plan.** The Hub Plan would amend the 2008 Market and Octavia Area Plan of the San Francisco General Plan for the eastern portions of the Market and Octavia Area Plan. The Hub Plan’s land use strategy seeks to increase the number of housing units within the Hub Plan area, focusing larger-scale development around the Van Ness Muni station with development of lower height and density surrounding it. The San Francisco Planning Department is proposing to rezone portions of an approximately 84-acre area of San Francisco within the Downtown/Civic Center, Southwest Market, Western Addition, and Mission neighborhoods. **Figure 1** presents the boundaries of the Hub Plan area. In general, proposed land use changes would remove land use restrictions, increase height and bulk allowances along the Van Ness/South Van Ness Avenue corridor, and extend the Downtown General Commercial zoning designation across the entire Hub Plan area.

Travel demand for the Hub Plan was estimated for two analysis years: 2020 and 2040. Year 2020 reflects the near-term assessment of the Hub Plan, and was selected as it represents the nearest baseline year for which travel demand forecasts are available (referred to as 2020 baseline). Year 2040 was selected as the future cumulative year, because 2040 is the latest year for which future travel demand forecasts are available.

**TABLE 1: HUB PLAN PROJECT DEVELOPMENT COMPONENTS**

<b>Elements Analyzed in the EIR</b>	<b>2020 No Project</b>	<b>2020 Plus Hub Plan</b>	<b>2040 Cumulative</b>	<b>Net Change under Hub Area Plan</b>
<b>Residential Housing Units</b>	<b>9,434</b>	<b>17,513</b>	<b>20,858</b>	<b>8,079</b>
<i>30 Van Ness Avenue Project<sup>a</sup></i>	0	610	610	610
<i>98 Franklin Street Project</i>	0	345	345	345
<b>Employment / Commercial Use</b>	<b>21,348 jobs</b>	<b>21,491 jobs</b>	<b>24,071 jobs</b>	<b>143 jobs<sup>a</sup></b>
<i>30 Van Ness Avenue Project</i>	Retail: 13,840 square feet Office: 184,102 square feet	Retail: 21,000 square feet Office: 350,000 square feet	Retail: 21,000 square feet Office: 350,000 square feet	Retail: 7,160 square feet Office: 165,898 square feet
<i>98 Franklin Street Project</i>	N/A	Retail: 3,100 square feet School: 60 students <sup>c</sup>	Retail: 3,100 square feet School: 60 students <sup>b</sup>	Retail: 3,100 square feet School: 60 students <sup>b</sup>

NOTE:

- a. There is a discrepancy between the SF-CHAMP model inputs and the EIR because the EIR used the number of employees for the two projects from the project sponsors, while the SF-CHAMP used estimates based on the square footage that was proposed.
- b. The 30 Van Ness Avenue project is anticipated to include from 350 to 610 residential dwelling units. This analysis assumes the higher density option from this range.
- c. 98 Franklin Street Project includes relocation of 30 classrooms from the existing French American International School located at 150 Oak Street. The project would accommodate current high school student enrollment plus an increase of 60 students, for a new total of 440 students. See Section 1.2.2 for a discussion of why a number of new students is listed as opposed to square footage of school use.

SOURCE: San Francisco Planning Department, 2018; 30 Van Ness Avenue Application for Environmental Evaluation, June 2018; 98 Franklin Street Application for Environmental Evaluation, August 2018

**Table 1** presents the land use assumptions for overall development under the Hub Plan for 2020 and 2040 conditions, as well as for the individual 30 Van Ness Avenue and 98 Franklin Street projects and the Hub HSD. It shows total land use for four scenarios:

- 2020 no project: Near-term assessment of conditions without the Hub Plan
- 2020 plus Hub Plan: Near-term assessment of conditions with the Hub Plan



- 2040 cumulative: Future, cumulative assessment of year 2040 conditions with the Hub Plan

As noted in Table 1, under 2020 plus Hub Plan conditions, development under the Hub Plan would include approximately 8,079 new residential housing units and 143 new jobs within the Hub Plan area compared to the 2020 no project conditions. This land use growth represents both development permitted under the Market and Octavia Plan (occurring within the Hub Plan area) and the additional development that would be enabled under the Hub Plan rezoning, including the 30 Van Ness Avenue and 98 Franklin Street projects. Thus, for the near-term analysis of the Hub Plan, it is assumed that implementation of the Hub Plan would encourage development at levels exceeding those currently permitted for the 17 parcels proposed for upzoning by the Hub Plan. In addition, the Hub Plan includes an increase of 15 percent to residential units to account for the application of density bonuses under state and local law.

Under 2040 cumulative conditions, the total number of housing units within the Hub Plan area would increase to 20,858 units, and the total number of jobs would increase to 2,471 jobs, including all development under the Project.

**30 Van Ness Avenue and 98 Franklin Street Projects.** As noted above, travel demand was also estimated for two individual projects within the Hub Plan Area: at 30 Van Ness Avenue and at 98 Franklin Street. The total amount shown for the Hub Plan includes the individual projects.

- The 30 Van Ness Avenue Project site currently contains a five-story building accommodating 164,480 square feet of general office space and 12,790 square feet of retail pharmacy use and 1,050 square feet of eating and drinking uses. The proposed development at 30 Van Ness Avenue would include 21,000 square feet of retail, 350,000 square feet of general office, and between 350 and 610 residential units.
- The 98 Franklin Street Project site currently contains a surface parking lot accommodating 100 vehicular parking spaces. The proposed development at 98 Franklin Street would include 3,100 square feet of retail, approximately 75,000 square feet of institutional (school) use (see note b. in Table 1 above for detail on estimated students), and 345 residential units. The project would accommodate current student enrollment at the existing French American International School (FAIS) and an increase of 60 students, for a new total of 440 students, and an increase in staff by five to a total of 65 staff members.

In total, these two individual projects would include up to approximately 955 housing units, 24,100 square feet of retail uses, relocation and minor increase in enrollment (i.e., an additional 60 students) of a high school accommodating 440 students and 65 staff, and 350,000 square feet of office space.

**Street Network Changes.** In addition to the development under the Hub Plan, the Hub Plan includes a package of street and alley network changes (“street network changes”) to create a safer transportation experience for everyone; make transit, walking, bicycling, for-hire (shared) vehicle use, and car-sharing the preferred ways for people to travel; facilitate passenger loading and commercial deliveries; and enhance the public realm. Proposed street network changes include combinations of wider sidewalks, bulbouts, curb extensions, raised crosswalks, streetscape and median improvements, upgraded and/or new transit-only lanes,

re-located Muni portals (i.e., canopies to underground station entrance, excluding common bus shelters), bikeways and bicycle parking, and travel lane modifications. Street network changes are proposed on the following streets and alleys:

- **Streets.** Mission Street/Van Ness Avenue intersection, 12<sup>th</sup> Street between Market and Mission streets, South Van Ness Avenue between 13<sup>th</sup> and Mission streets, Otis Street between Duboce and South Van Ness avenues, Gough Street between Otis and Stevenson streets, 13<sup>th</sup> Street/Duboce Avenue between Folsom and Valencia streets.
- **Alleys:** Stevenson Street between Brady and Gough streets, Colusa Place, Chase Court, Lily Street between Franklin and Gough streets, Lafayette Street between Mission and Howard streets, Brady Street from Market to Otis Streets, Jessie Street south from McCoppin Street, Plum Street between Mission Street and South Van Ness Avenue, Rose Street between Gough and Franklin streets, Minna Street between 10<sup>th</sup> and Lafayette streets, Stevenson Street between McCoppin Street and Duboce Avenue, and Stevenson Street between Gough Street and 1699 Market Street.

The Hub Plan also proposes to improve access at the Muni Van Ness Avenue station could include changes such as circulation and platform improvements.

Implementation of the proposed street network changes would occur over time, as funding becomes available and as future development projects are constructed. Changes in the roadway network would result in overall changes to travel patterns through the Hub Plan area and could potentially affect travel demand and mode choice; as such, they have been included in analysis of the Hub Plan's travel demand analysis.

## 1.2 TRAVEL DEMAND METHODOLOGY

Two travel demand approaches were employed to determine travel demand. For development under the Hub Plan which is being analyzed at a program level, the San Francisco County Transportation Authority's travel demand forecasting model (SF-CHAMP model) was used. Land use inputs into the SF-CHAMP model include housing units and employment by a range of general types of employment for geographic areas referred to as Transportation Analysis Zones (TAZs).<sup>1</sup> For the two individual projects which are being analyzed at a project-level, the San Francisco Transportation Impact Analysis Guidelines issued by the Planning Department in 2018 were used to develop travel demand for the specific land uses proposed for each site by the project sponsors. The two approaches are described below.

Changes to the roadway network are included in the SF-CHAMP travel demand model and affect the assignment of vehicles to roadways within the project area; however, neither the roadway changes nor other project elements (such as the inclusion of a Housing Sustainability District) are anticipated to generate new travel activity; as such, they are qualitatively assessed in other portions of this analysis.

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<sup>1</sup> Transportation Analysis Zones (TAZs) are used by planners as part of transportation planning models for transportation analyses and other planning purposes. The TAZs vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas.

## 1.2.1 Development under the Plan

### Use of SF-CHAMP Travel Demand Model

Travel demand associated with the Hub Plan's projected growth, as well as changes in travel patterns associated with the Hub Plan's proposed street network changes were estimated based on outputs from the SF-CHAMP model. The SF-CHAMP model is an activity-based travel demand model that has been validated to represent existing and future estimated trip generation and distribution/routing in San Francisco. The model predicts all person travel for a full day based on the total number, and locations, of population, proposed housing units and employment, which are then allocated to different periods throughout the day, using time-of-day sub-models. The SF-CHAMP model predicts person travel for auto, transit, walking and bicycle trips. The SF-CHAMP model also forecasts vehicular traffic on regional freeways, major arterials and on the Hub Transportation Study Area<sup>2</sup> local roadway network considering the available roadway capacity, origin-destination demand and travel speeds when assigning the future travel demand to the roadway network.

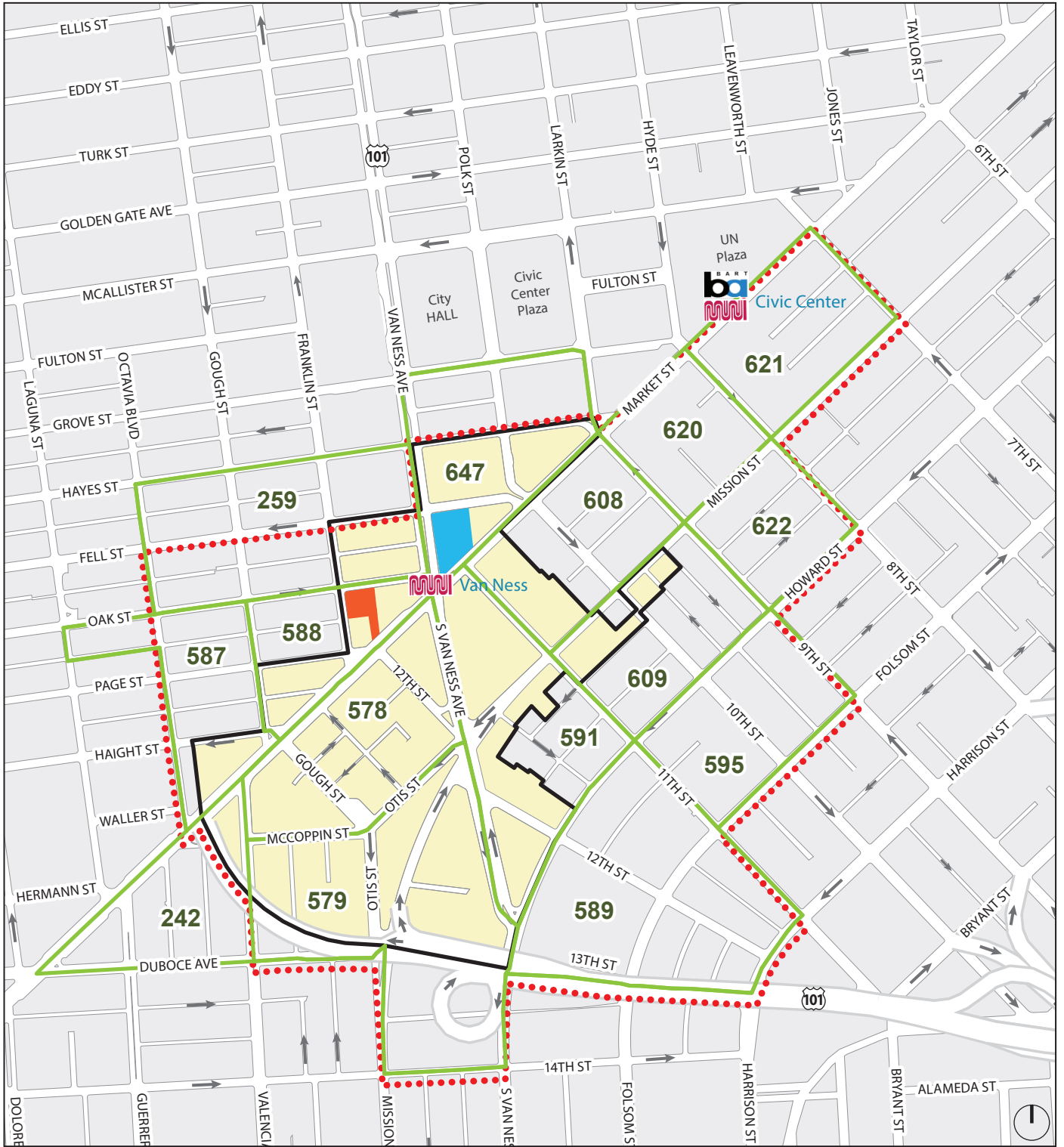
SF-CHAMP divides San Francisco into 981 TAZs. It also includes zones outside of San Francisco, for which it uses the same geography as the current Metropolitan Transportation Commission Model: "Travel Model One."<sup>3</sup> As shown on **Figure 1**, there are a total of 15 TAZs within the Hub Plan area. The boundaries of the TAZs are illustrated on **Figure 1**.

For each TAZ, the model estimates the travel demand based on TAZ population and employment assumptions developed by the Association of Bay Area Governments (ABAG). Within San Francisco, the San Francisco Planning Department is responsible for allocating ABAG's countywide growth forecast to each TAZ for the future year model, based upon existing zoning and approved plans, using a given TAZ's potential zoning capacity, and the anticipated extent of redevelopment of existing uses.

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<sup>2</sup> See **Figure 1** for the boundaries of the Hub Transportation Study Area.

<sup>3</sup> Travel Model One is a simulation model of typical weekday travel designed to assist in regional planning activities. Like SF-CHAMP, it is an activity-based model that incorporates regional data concerning anticipated changes in land use and the transportation network.



**LEGEND**

- The Hub Plan Area
- The Hub Transportation Study Area
- 98 Franklin
- # TAZs Included in Hub Plan Travel Demand
- BART Station
- Muni Station
- 30 Van Ness

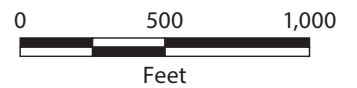


Figure 1  
Study Area and Existing Roadway Network

For analysis of 2020 no project and 2020 plus Hub Plan conditions, the SF-CHAMP was modified to include five development projects within the Hub Plan area that are currently under construction or completing construction. These include the 1500 Mission Street, 1546-1564 Market Street, 1669 Market Street, 150 Van Ness Avenue, and 22-24 Franklin Street projects.

For analysis of future 2040 cumulative conditions, the ABAG assumptions from the *Projections, Jobs-Housing Connection* were used, with adjustments by the planning department to individual TAZs. Complete land use information included in the 2040 cumulative condition is documented in the March 2018 SFCTA memorandum *Input Assumptions for Hub and Civic Center 2040 Baseline SF-CHAMP Model Run*.

For both the 2020 plus Hub Plan conditions and the 2040 cumulative conditions, model outputs include development occurring under the proposed Civic Center/Public Realm plan. The Civic Center/Public Realm plan includes the addition of 257 new jobs in the area immediately north of the Hub Plan, as well as providing additional changes to the roadway network. In the 2020 analysis year, the land use effects of both projects are analyzed separately; however, in the 2040 year, the cumulative effect of both projects is reflected in the 2040 plus Hub Plan scenario.

The SF-CHAMP model was calibrated for the ways people travel using the most recent available household travel survey data, from 2010-2012. Since that time, the prevalence of for-hire vehicles has increased in San Francisco, mostly due to growth in the number of Transportation Network Company (“TNC”) vehicles, such as Lyft and Uber, demand for such services, and frequency of trips by all methods of travel. SF-CHAMP estimates the probability of driving based on auto ownership, household income, and other variables. To the extent that people previously would have traveled in another personal or for-hire vehicle (e.g., taxi) but now travel using a TNC service, this is accounted for in previous household travel surveys. However, this does not account for how the increased availability of for-hire vehicles and changes in the cost of for-hire rides may induce additional use of those services.

There is limited direct information publicly available as to how the introduction/adoption of TNCs affects travel behavior (e.g., whether people using these services are making trips they would not otherwise make, or substituting a TNC ride for a trip they would make another way). The U.S. Census Bureau and other government sources do not include TNC vehicles as a separate travel category when conducting survey/data collection (e.g., American Community Survey, Decennial Census). Thus, little can be determined from these standard data sources. Further, the TNCs are private businesses and generally choose not to disclose specific information regarding the number of vehicles or drivers in their service fleet, miles driven with or without passengers, passengers transported, etc., except as may be required under California Public Utilities Commission regulations.

Several independent studies of TNC use in major metro areas including San Francisco suggest that between 25 to 55 percent of trips made via TNC would have otherwise been made via walking, transit, or bicycle; these studies also show that up to 20 percent of all TNC trips would not have occurred without the presence

of TNCs.<sup>4 5</sup> These studies estimate that a total of one-third to three-fifths of all trips made via TNC represent new automobile trips added to the street network.

Intercept surveys at individual land uses indicate that the share of people using TNCs varies substantially from neighborhood to neighborhood and from land use to land use, with individual buildings having between one percent and 22 percent of all trips by TNC.<sup>6</sup> These new trips are in addition to potential increases in vehicle mileage due to drivers operating outside of passenger service (i.e., while waiting for a ride request or en route to pickup a passenger).

Although demand for travel via personal or TNC vehicles may increase, the overall number of vehicles on the roadway is limited by the roadway capacity during peak periods of travel. Generally, roadway capacity is one of the key inputs of the travel demand forecasting process in San Francisco. Essentially, roadway capacity functions as a limit on the amount of vehicles on the roadway at any one time regardless of whether they are TNC or personal vehicles. As such, SF-CHAMP vehicle trip estimates are presumed to include some level of TNC activity, particularly in the Plan area where the roadway network operates at capacity for much of the day. TNC trips are not specifically included in the SF-CHAMP model due to a lack of available travel survey data during development of the model itself. In the event that use of TNCs does increase the VMT per capita in the study area, this effect is anticipated to be well below the VMT per capita threshold for a significant impact due to the very low baseline level of VMT per capita in the study area.

In addition to not specifically including TNC trips, SF-CHAMP does not account for recent or anticipated introduction of new ways for people to travel (e.g., conventional and electric, docked and dockless bikeshare, dockless shared electric scooters). Since household survey data was last collected in San Francisco, both docked and dockless bikeshare systems have expanded, with dockless shared electric scooters anticipated to restart operations in 2019 after City-legislated removal following their introduction in 2018. While many trips made by these shared, active ways of travel likely represent a shift from walking

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<sup>4</sup> Alemi, F., Circella, G., Handy, S., & Mokhtarian, P. (2018). What influences travelers to use Uber? Exploring the factors affecting the adoption of on-demand ride services in California. *Travel Behavior and Society*, 13, 88-104.

Circella, G., Alemi, F., Tiedeman, K., Handy, S., & Mokhtarian, P. (2018). The Adoption of Shared Mobility in California and Its Relationship with Other Components of Travel Behavior (No. NCST-RR-201802)

Clewlow, R. R., & Mishra, G. S. (2017). Disruptive transportation: The adoption, utilization, and impacts of ride-hailing in the United States. University of California, Davis, Institute of Transportation Studies, Davis, CA, Research Report UCD-ITS-RR-17-07

Henao, A., & Marshall, W. (2017). A Framework for Understanding the impacts of ridesourcing on Transportation. In *Disrupting Mobility* (pp. 197-209). Springer, Cham.

Rayle, L., Dai, D., Chan, N., Cervero, R., & Shaheen, S. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. *Transport Policy*, 45, 168-178.

Rodier, C. J. (2018). The Effects of Ride Hailing Services on Travel and Associated Greenhouse Gas Emissions.

Schaller, B. (2018). *The New Automobility: Lyft, Uber and the Future of American Cities*.

<sup>5</sup> While these estimates reflect recent research, the research conducted so far has focused on stated preference studies, asking individual riders how they would have otherwise made their trip. These surveys do not necessarily allow for more nuanced responses due to other changes in travel behavior unrelated to mode (i.e., would have made a different trip via a different mode).

<sup>6</sup> San Francisco Travel Demand Update Data Summary Report, Fehr & Peers, 2018.

and bicycling activity modeled by SF-CHAMP, there are no adjustments for induced trips due to increased availability of shared bicycles and scooters, or changes in feasible walking or bicycling distance accounted for in SF-CHAMP.

Other changes in travel behavior since the most recent data collection in San Francisco include potential increases in commercial traffic due to on-demand delivery services (e.g., Uber Eats, Amazon Now), increased levels of internet commerce (such as increased volume of deliveries due to Amazon Prime), or potential changes in travel behavior due to SFMTA's private shuttle program and increased numbers of long-distance employer shuttles operating within San Francisco.

SF-CHAMP also does not include any potential effects from increased use of autonomous vehicles (AVs). AV technology is poised to build on the expansion of vehicle use that has already occurred due to TNCs by potentially making vehicle travel more convenient and less costly over the next five years and beyond<sup>7</sup>. Automobile, TNC, and technology companies are investing considerably in and advancing innovation in AV technologies, and are currently testing AVs on public roads across the U.S., including San Francisco. As of April 2018, developers of autonomous vehicles in California can obtain permits to test AVs without a human driver serving as the lead controller of the steering, accelerating, and decelerating; however, a human is required to monitor from behind the steering wheel in the driver's seat.

AVs are expected to affect vehicle travel significantly and have the potential to both increase and decrease total vehicle travel in various ways. Consensus among transportation practitioners is that AVs are more likely to increase vehicle miles traveled by reducing the cost of vehicle travel, and potentially making vehicle travel more convenient (people driving may be willing to travel longer distances and more frequently if they can work, socialize, or perform other tasks instead of driving the vehicle). Testing of AV effects on vehicle miles traveled using a range of regional transportation models indicates that AV adoption may increase VMT by 10 to 60 percent.<sup>8</sup> However, many questions remain as to how AVs will be regulated, and how such regulations may help manage AV effects on emissions, other ways of travel, and the design and functioning of cities, e.g., land use such as vehicular parking garages and lots. As such, analysis of the effects of AVs on the transportation network would be speculative for the purposes of CEQA, and were not considered in the travel demand analysis.

The SF-CHAMP model also includes anticipated changes in roadway configurations and transit operations, such as the number of lanes available to vehicles, transit-only lanes, turn restrictions, and changes in speed limits. These changes to the roadway network and transit operations can affect the number of individuals using each roadway segment, and could also elicit some slight changes in the way people travel due to anticipated changes in travel times for transit, walking, and bicycling relative to driving.

The existing setting at the time that a CEQA notice of preparation of an EIR is issued for a given project (whether at program or project level) typically forms the baseline against which project impacts are

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<sup>7</sup> Johnson, C., & Walker, J. (2016). Peak car ownership: the market opportunity of electric automated mobility services. Rocky Mountain Institute and Mobility Transformation.

<sup>8</sup> Fehr & Peers (2017). "How will autonomous vehicles influence the future of travel?" Retrieved October 5, 2018 from <http://www.fehrandpeers.com/autonomous-vehicle-research/>

measured. However, the Van Ness improvement project, or Van Ness Bus Rapid Transit (BRT), was under construction as of release of the notice of preparation and is planned to be completed in 2020, prior to the construction of the proposed street network changes or development under the Hub Plan. Following completion of the Van Ness BRT project, Van Ness Avenue will have two mixed-flow travel lanes in each direction, and two transit-only lanes (i.e., one in each direction) within a median BRT right-of-way. In addition, all left turns on Van Ness Avenue are removed except for the northbound left turn at Lombard Street, and the southbound left turn at Broadway. Thus, the 2017 existing double-left-turn lanes from northbound Van Ness Avenue onto Hayes Street are removed. These Van Ness BRT changes were assumed for 2020 baseline conditions. In addition, the 2020 baseline conditions assume planned transit improvements under Muni Forward, Folsom Street road diet, and completion of the Central Subway.<sup>9</sup>

The 2040 cumulative scenario includes completion of planned and reasonably foreseeable transportation network changes, including the Geary BRT project, Polk Street Streetscape project, Upper Market Street Safety Project, Central SoMa Plan street network changes, Western SoMa Community Plan street network changes, and the Better Market Street project, among others.

### **SF-CHAMP Analysis Scenarios**

The SF-CHAMP model was used to estimate travel demand for five scenarios, including the baseline no project conditions assuming approved, funded, and constructed projects by 2020 and four “plus Hub Plan” scenarios. The following scenarios were input into the model to develop forecasts for future years:

- 2020 baseline no project (approved, funded and completed projects by 2020)
- 2020 baseline plus development under the Hub Plan
- 2020 baseline plus development under the Hub Plan and Hub Plan street network changes
- 2040 cumulative, including development under the Hub Plan
- 2040 cumulative, including development under the Hub Plan and Hub Plan street network changes

For the 2020 baseline and 2040 cumulative SF-CHAMP model runs, the Hub Plan land use changes also include an additional 257 jobs within the Civic Center Public Realm Plan area. In addition, for the 2040 cumulative plus Hub Plan scenario, the Hub Plan street network changes also include those identified for the proposed Civic Center Public Realm Plan.

For each scenario, the SF-CHAMP model run was coded to reflect changes in housing units, population and employment with implementation of the Hub Plan’s proposed land use strategy. In addition to development under the Hub Plan, the scenarios that include changes to the transportation network were modified to reflect proposed street network changes (i.e., changes to the total number and direction of travel lanes, protected transit-only lanes, cycle tracks, etc.). The traffic volume output (and thus the forecasted changes

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<sup>9</sup> A full list of projects included in the 2020 baseline conditions is attached to this memorandum as **Attachment A**. A full list of projects included in the 2040 cumulative conditions is included as **Attachment B**.



in traffic volumes by scenario) reflects estimated changes to traffic volumes resulting from the proposed street network changes.

### 1.2.2 30 Van Ness Avenue and 98 Franklin Street Project Sites

Travel demand for the two individual projects at 30 Van Ness Avenue and 98 Franklin Street was developed in accordance with guidance provided by the San Francisco Planning Department. This analysis follows the *SF Guidelines for Transportation Impact Analysis* (the "SF Guidelines"), including changes to methodology presented in draft memoranda dated October 2018 discussing updated travel demand rates and methodology. Calculations are based on the total proposed land uses at each project site. The exception is the proposed school use in the 98 Franklin Street Project, for which travel demand was estimated for the 60 additional students and five additional employees that would travel to the site, because the project would increase enrollment by only 60 students compared to FAIS' current enrollment.

As noted above, both individual project sites currently contain existing uses. However, as a conservative assessment of project impacts, the existing persons and vehicles traveling to and from the project sites were not subtracted from the trips that would be generated by the new uses. These trips may continue to occur nearby the project site.

## 1.3 TRAVEL DEMAND BY MODE OF TRAVEL FOR DEVELOPMENT UNDER THE PLAN

The travel demand associated with development under the Hub Plan includes trips generated by additional employees, residents, and visitors. **Table 2** summarizes the increase in person trips<sup>10</sup> by mode and vehicle trips during the a.m. and p.m. peak hours generated by development under the Hub Plan compared to the 2020 no project conditions. **Table 3** compares the 2020 plus Hub Plan increase in person trips and vehicle trips to total person trips and vehicle trips in the Hub Plan Area under 2040 cumulative conditions. Results of the various SF-CHAMP model analysis scenarios that included land use changes without street network changes, or that included changes due to the Civic Center and Public Realm plan, did not identify appreciable changes to the number or mode of person trips when compared to the scenario with only development under the Hub Plan (total person trips changed by less than 0.1 percent), thus they are not presented in **Table 2** or **Table 3**.

As shown in **Table 2** and **Table 3** under both the 2020 baseline plus Hub Plan and 2040 cumulative conditions, the largest number of trips generated by the Plan, both by magnitude and percentage increase, is non-motorized trips, which include walk trips and bicycle trips.

Under the 2020 baseline plus Hub Plan scenario, development under the Hub Plan represents development within the Hub Plan area plus the additional development that would be enabled as a result of the proposed rezoning under the Hub Plan. This scenario takes into account the increase in space available for housing through changes to the planning code and zoning map so as to allow the development of a taller, larger and more diverse array of buildings and heights within the Hub Plan area; this scenario also includes public realm improvements identified in the Hub Plan. Under 2020 baseline plus Hub Plan conditions, the number

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<sup>10</sup> A person trip is a trip made by one person by any means of transportation (auto, transit, walk, etc.).

of daily person trips would increase due to development in the Hub Plan by 41 percent. Associated daily vehicle trips would increase by about 29 percent.

Under 2040 cumulative conditions, it is anticipated that the Hub Plan area would be built out as currently permitted under the Market and Octavia Area Plan, along with the incremental development that would be enabled as a result of the proposed rezoning under the Hub Plan.

**TABLE 2: SUMMARY OF HUB PLAN AREA WEEKDAY DAILY, AM AND PM PEAK HOUR TRAVEL DEMAND BY WAY OF TRAVEL—2020 CONDITIONS**

Analysis Period/Analysis Scenario	Way of Travel				Vehicle Trips
	Auto	Transit	Non-Motorized <sup>a</sup>	Total	
<b>Daily</b>					
2020 baseline no project	92,093	40,129	87,654	219,875	80,209
2020 baseline plus Hub Plan	121,686	54,740	134,416	310,841	103,190
<i>Change from 2020 baseline no project<sup>b</sup></i>	29,593	14,611	46,762	90,966	22,981
<i>Percent change from 2020 baseline no project<sup>b</sup></i>	32.1%	36.4%	53.3%	41.4%	28.7%
<b>AM Peak Hour</b>					
2020 baseline no project	12,074	9,400	11,916	33,391	10,703
2020 baseline plus Hub Plan	16,003	12,736	18,530	47,270	13,854
<i>Change from 2020 baseline no project<sup>b</sup></i>	3,929	3,336	6,614	13,879	3,151
<i>Percent change from 2020 baseline no project<sup>b</sup></i>	32.5%	35.5%	55.5%	41.6%	29.4%
<b>PM Peak Hour</b>					
2020 baseline no project	18,333	11,423	19,575	49,331	15,529
2020 baseline plus Hub Plan	24,826	15,360	31,058	71,243	20,438
<i>Change from 2020 baseline no project<sup>b</sup></i>	6,493	3,937	11,483	21,912	4,909
<i>Percent change from 2020 baseline no project<sup>b</sup></i>	35.4%	34.5%	58.7%	44.4%	31.6%

SOURCE: San Francisco County Transportation Authority; Fehr & Peers, 2018.

NOTES:

- a. Non-motorized includes walking, bicycle, and other non-motorized trips.
- b. Totals may not sum due to rounding.

**TABLE 3: SUMMARY OF HUB PLAN AREA WEEKDAY DAILY, AM AND PM PEAK HOUR TRAVEL DEMAND BY WAY PEOPLE TRAVEL—2040 CUMULATIVE CONDITIONS**

Analysis Period/Analysis Scenario	Person Trips by Way of Travel				Vehicle Trips
	Auto	Transit	Non-Motorized <sup>a</sup>	Total	
<b>Daily</b>					
2040 cumulative plus Hub Plan	151,196	63,601	156,142	370,939	125,090
<i>2020 Hub Plan contribution<sup>b</sup></i>	29,593	14,611	46,762	90,966	22,981
<i>Percent contribution of Hub Plan</i>	19.6%	23.0%	29.9%	24.5%	18.4%
<b>AM Peak Hour</b>					
2040 cumulative plus Hub Plan	20,096	14,704	21,447	56,246	16,989
<i>2020 Hub Plan contribution<sup>b</sup></i>	3,929	3,336	6,614	13,879	3,151
<i>Percent contribution of Hub Plan</i>	19.6%	22.7%	30.8%	24.7%	18.5%
<b>PM Peak Hour</b>					
2040 cumulative plus Hub Plan	31,258	17,972	36,127	85,357	24,968
<i>2020 Hub Plan contribution<sup>b</sup></i>	6,493	3,937	11,483	21,912	4,909
<i>Percent contribution of Hub Plan</i>	20.8%	21.9%	31.8%	25.7%	19.7%

SOURCE: San Francisco County Transportation Authority; Fehr & Peers, 2018.

NOTES:

- a. Non-motorized includes walking, bicycle, and other non-motorized trips
- b. 2020 Hub Plan contribution is the net change between 2020 baseline and 2020 plus Hub Plan conditions, as presented in Table 2

**Table 4** compares the way people travel for auto, transit, and non-motorized modes for daily and a.m. and p.m. peak hours, for 2020 and 2040 conditions. With build out of development under the Hub Plan, there would be minimal shifts in the way people travel, generally with a small decrease in the share of people traveling by auto and/or transit and a small increase in people walking and biking.

**TABLE 4: SUMMARY OF WAY OF TRAVEL FOR HUB PLAN—WEEKDAY DAILY, AM AND PM PEAK HOURS — 2020 BASELINE AND 2040 CUMULATIVE CONDITIONS**

Analysis Period/Way of Travel	2020 Baseline Conditions		2040 Cumulative Conditions
	No Project	Plus Hub Plan	
<b>Daily</b>			
Auto	42%	39%	41%
Transit	18%	18%	17%
Non-Motorized <sup>a</sup>	40%	43%	42%
<b>Total</b>	100%	100%	100%
<b>AM Peak Hour</b>			
Auto	36%	34%	36%
Transit	28%	27%	26%
Non-Motorized <sup>a</sup>	36%	39%	38%
<b>Total</b>	100%	100%	100%
<b>PM Peak Hour</b>			
Auto	37%	35%	37%
Transit	23%	22%	21%
Non-Motorized <sup>a</sup>	40%	43%	42%
<b>Total</b>	100%	100%	100%

SOURCE: San Francisco Transportation Authority; Fehr & Peers, 2018.

NOTES:

a. Non-motorized includes walking, bicycling, and other non-motorized ways of travel such as scooters and skateboards.

SF-CHAMP model output on the origin and destination of the new transit and vehicle trips to and from the Hub Plan area was summarized for 2020 baseline plus Hub Plan conditions compared to 2020 no project conditions.<sup>11</sup> The origins and destinations were summarized for the nine San Francisco subareas, East Bay, North Bay, South Bay, and trips that are internal to the Hub Plan area (i.e., trips that begin and end within the Hub Plan area).<sup>12</sup> **Figure 2** presents the nine subareas within San Francisco. The distribution of transit person trips and vehicle trips generated by the development under the Hub Plan are summarized in **Table 5** for daily trips and in **Table 6** for p.m. peak hour trips.

The majority of new trips generated by development under the Hub Plan would occur within San Francisco; with the largest share of new transit trips occurring between the Hub Plan area and the Downtown/North Beach area (32 percent). The largest share of new vehicle trips (18 percent) would occur between the Hub

<sup>11</sup> The distribution of origins and destinations under 2040 cumulative conditions are +/- one percentage point compared to 2020 baseline conditions, and are therefore not reported separately.

<sup>12</sup> The Hub Plan area overlaps with multiple subareas; distributions to each subarea do not include trips internal to the Hub Plan area.

Plan area and the Marina/Western Market area, which includes neighborhoods in the northwest quadrant of San Francisco such as the Marina, Pacific Heights, and Castro; a similar share of new auto trips would travel to the Mission/Potrero district (18 percent) and to the Downtown/North Beach district (17 percent). The daily and p.m. peak hour trip distributions among the various origins and destinations are similar.

**Table 5** and **Table 6** also present the split between inbound versus outbound directions (i.e., travel to, or away from the Hub Plan area). During the p.m. peak hour there are somewhat more trips inbound to the Hub Plan area as compared to outbound from the Hub Plan area (with generally between 60 to 70 percent of all trips in the inbound direction).



SF-CHAMP Neighborhoods
  The Hub Plan Area

0 1 2 Miles

Figure 2  
Neighborhoods Used in Trip Distribution

**TABLE 5: SUMMARY OF HUB PLAN TRANSIT AND VEHICLE TRIP DISTRIBUTION, 2020 BASELINE CONDITIONS, WEEKDAY DAILY**

Origin/Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Hub Plan Area	Outbound from Hub Plan Area	Total	Inbound to Hub Plan Area	Outbound from Hub Plan Area	Total
Downtown/North Beach	16%	16%	32%	9%	8%	17%
SoMa	3%	3%	7%	2%	2%	5%
Marina/Western Market	7%	7%	14%	9%	9%	18%
Mission/Potrero	6%	6%	12%	9%	9%	18%
Outer Mission/Hills	3%	3%	5%	3%	3%	7%
Bayshore	2%	2%	4%	3%	3%	6%
Richmond	1%	2%	3%	2%	2%	4%
Sunset	4%	4%	8%	3%	3%	6%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
South Bay	2%	2%	4%	5%	5%	9%
East Bay	4%	4%	9%	3%	3%	6%
North Bay	<1%	<1%	<1%	<1%	<1%	1%
<i>Internal to the Hub Plan area</i>	2%		2%	4%		4%
<b>Total<sup>a</sup></b>	<b>49%</b>	<b>51%</b>	<b>100%</b>	<b>50%</b>	<b>50%</b>	<b>100%</b>

SOURCE: San Francisco Transportation Authority; Fehr & Peers, 2018.

NOTE:

- a. Percentages for all origins/destinations may not sum due to rounding.

**TABLE 6: SUMMARY OF HUB PLAN TRANSIT AND VEHICLE TRIP DISTRIBUTION, 2020 BASELINE CONDITIONS, WEEKDAY PM PEAK HOUR**

Origin/Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Hub Plan Area	Outbound from Hub Plan Area	Total	Inbound to Hub Plan Area	Outbound from Hub Plan Area	Total
Downtown/North Beach	26%	7%	33%	10%	6%	16%
SoMa	5%	1%	7%	3%	2%	5%
Marina/Western Market	8%	5%	13%	10%	8%	18%
Mission/Potrero	7%	5%	12%	10%	8%	18%
Outer Mission/Hills	3%	3%	5%	4%	4%	8%
Bayshore	2%	2%	4%	3%	3%	6%
Richmond	1%	1%	3%	2%	2%	4%
Sunset	4%	3%	7%	3%	3%	6%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
South Bay	3%	1%	4%	7%	3%	10%
East Bay	6%	3%	9%	4%	2%	6%
North Bay	<1%	<1%	<1%	<1%	<1%	<1%
<i>Internal to the Hub Plan area</i>			2%			4%
<b>Total<sup>a</sup></b>	<b>68%</b>	<b>32%</b>	<b>100%</b>	<b>59%</b>	<b>41%</b>	<b>100%</b>

SOURCE: San Francisco Transportation Authority; Fehr & Peers, 2018.

NOTE:

- a. Percentages for all origins/destinations may not sum due to rounding.



## **1.4 LOADING AND PARKING DEMAND**

### **1.4.1 Freight Delivery and Service Vehicle Demand**

The SF Guidelines methodology for estimating off-street and on-street commercial (freight and delivery service) loading/unloading demand was used to calculate the demand associated with development under the Hub Plan, based on projected development for 2020 baseline conditions. The loading demand calculations are provided in Attachment D.

Daily truck and service vehicle trips were calculated based on the rates per 1,000 square feet for the various land uses as provided in the SF Guidelines, then converted to hourly demand based on a 9-hour day and a 25-minute average stay. Average hourly loading space demand was converted to a peak hour demand by applying a peaking factor of 1.25 (meaning that peak hour deliveries would be at a 25% higher rate than other hours), as specified in the SF Guidelines. Development under the Hub Plan is expected to generate 383 new daily truck and service vehicle trips, with a total demand for 22 loading spaces during the peak hour of loading demand and 18 loading spaces during the average hour of loading demand.

### **1.4.2 Vehicle Parking Demand**

The SF Guidelines methodology for estimating vehicle parking demand was used to calculate the parking demand associated with development and land use changes under the Hub Plan, based on projected development for 2020 baseline conditions. Parking demand consists of both long-term demand (typically residents and employees) and short-term demand (typically visitors and patrons). The vehicle parking demand calculations are attached in Attachment D.

Residential long-term parking demand was estimated based on the number of housing units proposed and the background parking rate in the Plan area. Parking demand for office and retail uses was calculated by using the existing background parking supply for non-residential uses. Development under the Hub Plan is expected to result in a demand for 5,148 vehicle parking spaces, of which 5,133 spaces would be associated with residential parking demand and 16 spaces would be short-term and long-term office and commercial vehicle parking demand.

## **1.5 30 VAN NESS AVENUE PROJECT**

The proposed 30 Van Ness Avenue Project consists of 21,000 square feet of retail space, up to 350,000 square feet of office space, and up to 610 residential units. **Table 7** summarizes the 30 Van Ness Avenue Project travel demand by way of travel on a weekday daily basis and for p.m. peak hour conditions. The proposed 30 Van Ness Avenue Project would generate 12,280 new person-trips on a weekday daily basis. During the weekday p.m. peak hour, the 30 Van Ness Avenue Project would generate about 1,097 new person-trips and 182 new vehicle-trips (58 inbound and 124 outbound). About 24 percent of the p.m. peak-hour person-trips would be by auto, 28 percent by transit, and 48 percent by other ways of travel (including walking and bicycling).

**TABLE 7: 30 VAN NESS AVENUE PROJECT TRIP GENERATION BY WAY OF TRAVEL AND LAND USE**

Analysis Period/Land Use	Land Use Quantity	Person Trips by Way of Travel					Vehicle Trips <sup>b</sup>
		Auto	Transit	Walk	Other <sup>a</sup>	Total	
<b>Daily</b>							
Retail	21,000 sf	501	800	1,729	117	3,147	307
Office	350,000 sf	1,346	1,583	2,324	203	5,457	1,035
Residential	610 <sup>c</sup> Units	1,139	1,036	1,395	107	3,677	739
Total		2,986	3,418	427	5,448	12,280	2,080
<b>PM Peak Hour</b>							
Retail <sup>b</sup>	21,000 sf	45	72	156	10	283	27
Office	350,000 sf	120	141	207	18	487	98
Residential	610 <sup>c</sup> Units	101	92	124	10	327	57
Total		266	305	38	487	1,097	182

NOTES:

- a. Other includes trips by bicycle, motorcycle, and other non-motorized ways of travel
- b. TNC and taxi trips are included in vehicle trips and auto person trips.
- c. The 30 Van Ness Avenue Project would include at least 350 residential units, but possibly up to 610 units. As a conservative analysis, the higher 610-unit count was assumed.

\*sf = square feet

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

Detailed estimated trip distribution is shown in **Table 8** and **Table 9** for weekday daily and p.m. peak hour conditions, respectively. On a daily basis and during the p.m. peak hour, the majority of the project-generated transit and vehicle trips would be within San Francisco. During the p.m. peak hour, about 42 percent of the transit trips and 31 percent of the vehicle trips would be to and from the North Bay, South Bay and East Bay.

The freight delivery and service vehicle demand generated by the 30 Van Ness Avenue Project would be 142 delivery/service vehicle-trips per day. This corresponds to a demand for eight loading spaces during both the peak hour of loading activities and seven spaces during the average hour.

The new uses associated with the 30 Van Ness Avenue Project would generate a vehicular parking demand for about 623 spaces. The residential component of 30 Van Ness Avenue Project would generate a demand for 343 spaces (with peak demand occurring during the overnight period), and the retail and office uses would generate a parking demand for 280 spaces (with peak demand occurring mid-day).

The 30 Van Ness Avenue Project would also generate a PM peak hour passenger loading demand of 110 passenger loading instances, 55 of which would occur during the peak 15 minutes of the peak hour. This results in loading demand requiring a supply of four passenger loading spaces at the project site.



**TABLE 8: SUMMARY OF 30 VAN NESS AVENUE PROJECT TRANSIT AND VEHICLE TRIP DISTRIBUTION, WEEKDAY DAILY**

Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Site	Outbound from Site	Total	Inbound to Site	Outbound from Site	Total
San Francisco						
Downtown/North Beach	9%	12%	21%	9%	7%	15%
SoMa	1%	1%	2%	3%	1%	4%
Marina/Western Market	6%	5%	11%	7%	10%	18%
Mission/Potrero	3%	3%	5%	3%	2%	5%
Outer Mission/Hills	3%	3%	5%	6%	8%	14%
Bayshore	<1%	1%	2%	3%	2%	5%
Richmond	2%	2%	4%	1%	1%	2%
Sunset	2%	2%	3%	2%	1%	2%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
<i>Subtotal San Francisco</i>	26%	28%	53%	34%	31%	66%
South Bay	6%	7%	13%	7%	7%	14%
East Bay	14%	16%	30%	7%	7%	14%
North Bay	2%	1%	4%	3%	3%	6%
<b>Total<sup>a</sup></b>	<b>48%</b>	<b>52%</b>	<b>100%</b>	<b>52%</b>	<b>48%</b>	<b>100%</b>

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

NOTE:

a. Percentages for all origins/destinations may not sum due to rounding.

**TABLE 9: SUMMARY OF 30 VAN NESS AVENUE PROJECT TRANSIT AND VEHICLE TRIP DISTRIBUTION, WEEKDAY PM PEAK HOUR**

Origin/Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Site	Outbound from Site	Total	Inbound to Site	Outbound from Site	Total
San Francisco						
Downtown/North Beach	9%	9%	18%	15%	12%	27%
SoMa	1%	1%	2%	1%	1%	2%
Marina/Western Market	6%	10%	16%	3%	10%	13%
Mission/Potrero	1%	5%	6%	1%	2%	2%
Outer Mission/Hills	4%	2%	6%	3%	12%	14%
Bayshore	<1%	1%	1%	1%	3%	4%
Richmond	4%	4%	8%	1%	1%	2%
Sunset	1%	1%	2%	4%	<1%	4%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
<i>Subtotal San Francisco</i>	25%	33%	58%	28%	41%	69%
South Bay	1%	8%	10%	2%	10%	12%
East Bay	1%	27%	29%	2%	12%	13%
North Bay	<1%	3%	4%	<1%	6%	6%
<b>Total<sup>a</sup></b>	<b>28%</b>	<b>72%</b>	<b>100%</b>	<b>31%</b>	<b>69%</b>	<b>100%</b>

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

NOTE:

a. Percentages for all origins/destinations may not sum due to rounding.

## 1.6 98 FRANKLIN STREET PROJECT

The 98 Franklin Street Project consists of a residential tower with 345 dwelling units above a five-story podium hosting a high school and 3,100 square feet of retail. The high school would accommodate the 380 existing students who would be relocated from the FAIS's 150 Oak Street site, and would increase student enrollment by 60 students up to 440 students. The 98 Franklin Street Project would also result in the addition of up to five staff members, for a total of 65 staff members at the high school.

The 98 Franklin Street Project would generate 2,674 person trips on a weekday daily basis. During the p.m. peak hour, the project would generate 248 new person trips and 49 new vehicle trips (29 inbound and 20 outbound). About 30 percent of the p.m. peak-hour person trips would be by auto, 29 percent by transit, and 41 percent by other ways of travel (including walking and bicycling).

**TABLE 10: 98 FRANKLIN STREET PROJECT TRIP GENERATION BY WAY OF TRAVEL AND LAND USE**

Analysis Period/Land Use	Land Use Quantity	Person Trips by Mode					Vehicle Trips <sup>2</sup>
		Auto	Transit	Walk	Other <sup>1</sup>	Total	
<b>Daily</b>							
Retail	3.1ksf	74	118	255	17	465	45
Residential	345 Units	644	586	789	61	2,080	418
School <sup>3</sup>	60 Students 5 Staff	51	69	6	4	130	80
Total		769	773	1,050	82	2,674	543
<b>PM Peak Hour</b>							
Retail	3.1ksf	12	5	24	1	42	7
Residential	345 Units	57	52	70	5	185	32
School <sup>3</sup>	60 Students 5 Staff	6	14	1	0	21	10
Total		75	71	1,050	7	248	49

**NOTES:**

1. Other includes trips by bicycle, motorcycle, and other non-motorized modes
2. TNC and taxi trips are included in vehicle trips.
3. Represents a net increase of 60 students and 5 staff members at the FAIS. 32% of students and 50% of staff are expected to leave school during the p.m. peak hour.

\*sf = square feet

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

Detailed estimated trip distribution for the 98 Franklin Street Project is shown in **Table 11** and **Table 12** for weekday daily and p.m. peak hour conditions, respectively. On a daily basis and during the p.m. peak hour, the majority of the project-generated transit and vehicle trips would be within San Francisco. During the p.m. peak hour, about 12 percent of the transit trips and 8 percent of the vehicle trips would be to and from the North Bay, South Bay and East Bay.

The freight delivery and service vehicle demand generated by the 98 Franklin Street Project would be about six delivery/service vehicle-trips per day. This corresponds to a demand for one loading space during both the average hour and peak hour of loading activities.

The new uses associated with the 98 Franklin Street Project would generate a vehicle parking demand for 234 spaces. The residential component of 98 Franklin Street Project would generate a demand for 225 spaces, and the retail uses would generate a vehicle parking demand for eight spaces. The addition of five new staff members is expected to add demand for one additional long term vehicle parking space.

The 98 Franklin Street Project would also generate a PM peak hour passenger loading demand of 23 passenger loading instances, 12 of which would occur during the peak 15 minutes of the peak hour. This results in loading demand requiring a supply of one passenger loading space at the project site. This does not include loading associated with school pick-up or drop-off, as the French-American International School would continue to direct families to conduct pick-up and drop-off activities in their existing loading zone outside of the Hub Plan area.

**TABLE 11: SUMMARY OF 98 FRANKLIN STREET PROJECT TRANSIT AND VEHICLE TRIP DISTRIBUTION, WEEKDAY DAILY**

Origin/Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Site	Outbound from Site	Total	Inbound to Site	Outbound from Site	Total
San Francisco						
Downtown/North Beach	16%	24%	40%	13%	10%	23%
SoMa	1%	1%	3%	5%	1%	6%
Marina/Western Market	7%	5%	12%	10%	14%	25%
Mission/Potrero	1%	2%	3%	4%	3%	7%
Outer Mission/Hills	2%	1%	3%	8%	8%	16%
Bayshore	<1%	<1%	1%	1%	1%	2%
Richmond	2%	3%	5%	<1%	1%	1%
Sunset	2%	2%	4%	3%	1%	4%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
<i>Subtotal San Francisco</i>	31%	39%	69%	46%	38%	84%
South Bay	7%	7%	14%	6%	5%	11%
East Bay	4%	12%	16%	2%	2%	4%
North Bay	<1%	<1%	<1%	1%	<1%	1%
<b>Total<sup>a</sup></b>	<b>42%</b>	<b>58%</b>	<b>100%</b>	<b>54%</b>	<b>46%</b>	<b>100%</b>

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

NOTE:

a. Percentages for all origins/destinations may not sum due to rounding.



**TABLE 12: SUMMARY OF 98 FRANKLIN STREET PROJECT TRANSIT AND VEHICLE TRIP DISTRIBUTION, WEEKDAY PM PEAK HOUR**

Origin/Destination	New Transit Trips			New Vehicle Trips		
	Inbound to Site	Outbound from Site	Total	Inbound to Site	Outbound from Site	Total
San Francisco						
Downtown/North Beach	21%	14%	34%	38%	18%	56%
SoMa	<1%	<1%	<1%	<1%	<1%	<1%
Marina/Western Market	7%	14%	21%	5%	13%	18%
Mission/Potrero	<1%	3%	3%	<1%	<1%	<1%
Outer Mission/Hills	9%	<1%	9%	<1%	<1%	<1%
Bayshore	<1%	<1%	<1%	3%	3%	5%
Richmond	10%	7%	17%	<1%	<1%	<1%
Sunset	2%	2%	3%	13%	<1%	13%
Treasure Island	<1%	<1%	<1%	<1%	<1%	<1%
<i>Subtotal San Francisco</i>	48%	40%	88%	59%	33%	92%
South Bay	2%	3%	5%	3%	3%	5%
East Bay	<1%	7%	7%	3%	<1%	3%
North Bay	<1%	<1%	<1%	<1%	<1%	<1%
<b>Total<sup>a</sup></b>	<b>50%</b>	<b>50%</b>	<b>100%</b>	<b>62%</b>	<b>38%</b>	<b>100%</b>

SOURCE: San Francisco Planning Department, Fehr & Peers, 2018.

NOTE:

a. Percentages for all origins/destinations may not sum due to rounding.

**Attachments:**

Attachment A: 2020 Baseline Input Memorandum

Attachment B: 2040 Baseline Input Memorandum

Attachment C: Detailed Travel Demand Calculations

Attachment D: Detailed Parking & Loading Calculations

Attachment E: Alternatives Travel Demand Calculations for 30 Van Ness and 98 Franklin

**TRAVEL DEMAND MEMORANDUM**

**ATTACHMENT A: 2020 BASELINE MODEL INPUTS**



# Memorandum

**DATE:** 03.02.2018  
**TO:** San Francisco Planning Department, Hub Project and Civic Center Public Realm Plan Team  
**FROM:** Dan Tischler, Senior Transportation Planner, Technology, Data & Analysis, SFCTA  
**SUBJECT:** Input Assumptions for Hub and Civic Center 2020 Baseline SF-CHAMP Model Run

## Summary and Context

The purpose of this memo is to document inputs used in the SF-CHAMP 5.2 regional travel demand model for modeling a 2020 Baseline Scenario (Scenario 2 of 8) to be used to evaluate the feasibility of implementing the Hub Project and Civic Center Public Realm Plan.

## BACKGROUND

The San Francisco Planning Department is working on two geographically adjacent planning efforts: the Market Street Hub Project and the Civic Center Public Realm Plan. Both projects consider changes to land use and street design in the adjacent areas of the Market Street and Van Ness Ave intersection and the Civic Center area. The San Francisco County Transportation Authority is conducting travel demand modeling in a single, combined effort for the Hub Project and Civic Center Public Realm Plan. This memo describes input assumptions for one model scenario within this effort.

## SCENARIO DESCRIPTION

The 2020 Baseline Scenario (Scenario 2 of 8) is designed to reflect projected baseline conditions in the San Francisco Bay Area in the year 2020. More detail is provided within the City of San Francisco than elsewhere in the San Francisco Bay Area and the scenario will be used for focused analysis of travel in the Hub Project and Civic Center Public Realm Plan areas.

## LAND USE

2020 land use assumptions are derived from the “Jobs-Housing-Connection” (JHC) projections developed by ABAG and MTC. While ABAG/MTC Jobs-Housing Connections Strategy Land Use numbers for population, employment, employed residents and jobs are used at a TAZ (close to Census Tract size) level of geographic granularity outside San Francisco, the San Francisco Planning Department (SF Planning) uses the ABAG/MTC Jobs-Housing Connections Strategy control totals to allocate base year household and employment land use data within San Francisco. SF Planning makes use of numerous commercial datasets to refine initial ABAG distributions within San Francisco.

In addition to SF Planning land use allocations of JHC land use control totals, SF Planning has provided more recent and up-to-date household and employment projections for TAZs in the Hub Project and Civic Center Public Realm Plan areas. These updates were provided by SF Planning in the spreadsheet “Hub\_CivicCenter\_Modeling\_LU\_Inputs.xlsx.” Specific TAZs with Hub and Civic Center updates include: 242, 259, 286, 296, 578, 579, 587, 588, 589, 591, 595, 608, 609, 618, 619, 620, 621, 622, 646, 647, 648, and 683.

*Original and adjusted total 2020 baseline allocations for Hub and Civic Center area TAZs:*

<b>Source</b>	<b>HH</b>	<b>CIE</b>	<b>MED</b>	<b>MIPS</b>	<b>RETAIL</b>	<b>PDR</b>	<b>VISITOR</b>
SF Planning Allocations	10,659	7,781	982	26,656	5,590	2,013	600
Updated Hub and Civic Center Allocations	14,276	4,408	1,483	23,159	4,390	1,533	272

*Adjusted 2020 baseline land use allocations for Hub and Civic Center area TAZs:*

<b>Geography</b>	<b>HH</b>	<b>CIE</b>	<b>MED</b>	<b>MIPS</b>	<b>RETAIL</b>	<b>PDR</b>	<b>VISITOR</b>
TAZ 242	603	58	22	534	221	96	0
TAZ 259	629	404	278	1,367	355	38	7
TAZ 286	323	688	26	1,134	228	13	4
TAZ 296	1,381	208	52	565	142	27	54
TAZ 578	986	249	40	659	229	37	20
TAZ 579	589	172	78	740	161	193	0
TAZ 587	579	137	39	391	230	10	0
TAZ 588	745	185	90	477	213	18	17
TAZ 589	207	26	9	369	240	242	0
TAZ 591	746	0	0	2,499	252	85	4
TAZ 595	366	52	9	106	109	226	0
TAZ 608	2,039	277	0	1,574	130	0	0
TAZ 609	361	134	99	830	251	142	0
TAZ 618	24	283	0	212	306	15	4
TAZ 619	673	272	127	709	413	68	24
TAZ 620	375	94	6	84	48	0	113
TAZ 621	1,055	93	127	1,310	173	0	0
TAZ 622	276	45	53	298	118	123	4
TAZ 646	0	4	25	1,557	0	15	0
TAZ 647	1,129	342	119	2,469	226	12	4

TAZ 648	48	345	48	2,801	154	4	0
TAZ 683	1,142	340	236	2,474	191	169	17

*Adjusted 2020 baseline land use allocations for San Francisco and the entire Bay Area:*

<b>Geography</b>	<b>HH</b>	<b>CIE</b>	<b>MED</b>	<b>MIPS</b>	<b>RETAIL</b>	<b>PDR</b>	<b>VISITOR</b>
San Francisco	380,925	70,404	46,949	344,962	111,408	65,269	24,196
Bay Area	2,835,526	581,384	293,875	1,558,640	480,020	916,310	148,481

Land use inputs are saved on a server at SFCTA at:

Y:\champ\landuse\p2011\SCS.JobsHousingConnection.Winter2017update\hub\_land\_use

#### TRANSPORTATION NETWORKS

This section discusses 2020 Baseline assumptions for transit, roadways, and toll policies. The transportation networks used in the 2020 Baseline Scenario reflect a representative baseline from our current understanding of projects scheduled for implementation by the year 2020. Project implementation dates often shift during the planning and construction processes so actual project implementation may differ from assumptions documented in this memo. This section discusses the near-term baseline assumptions for San Francisco and regional road projects, transit projects, and tolling policies. Some of the listed projects have already been completed and are currently operational.

#### ROAD NETWORK

Local street network assumptions in the Hub and Civic Center areas reflect the diagrams presented as Figures 1-4.

#### **Figure 1: Civic Center Streets, East-West, 2020 Baseline**

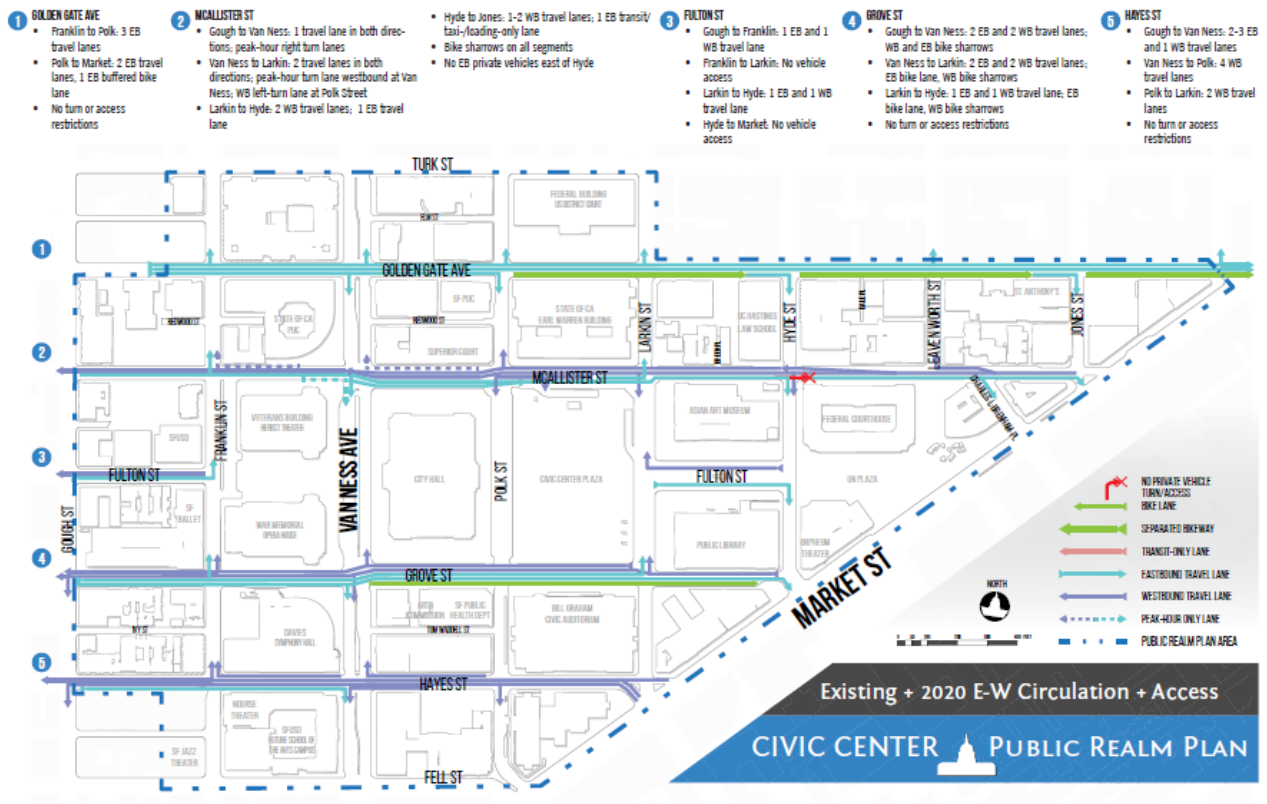


Figure 2: Civic Center Streets, North-South, 2020 Baseline

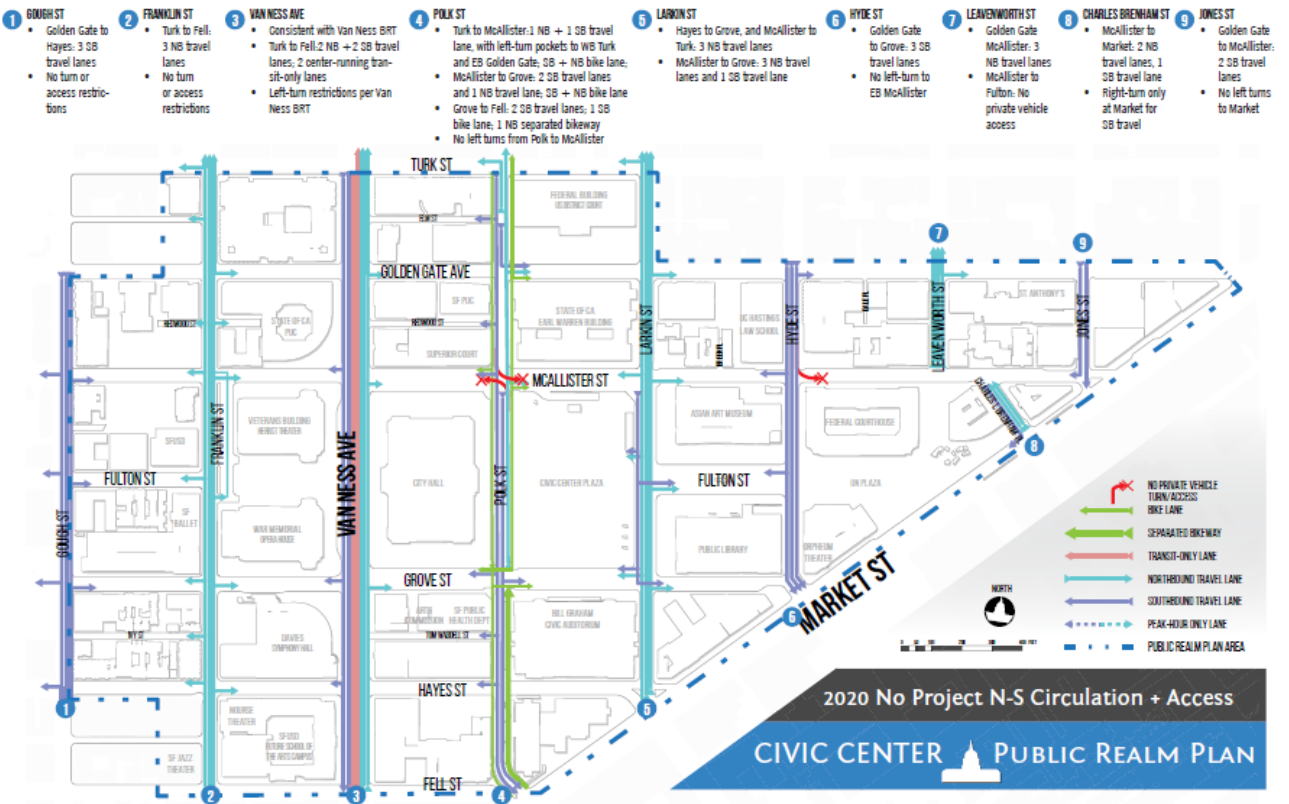
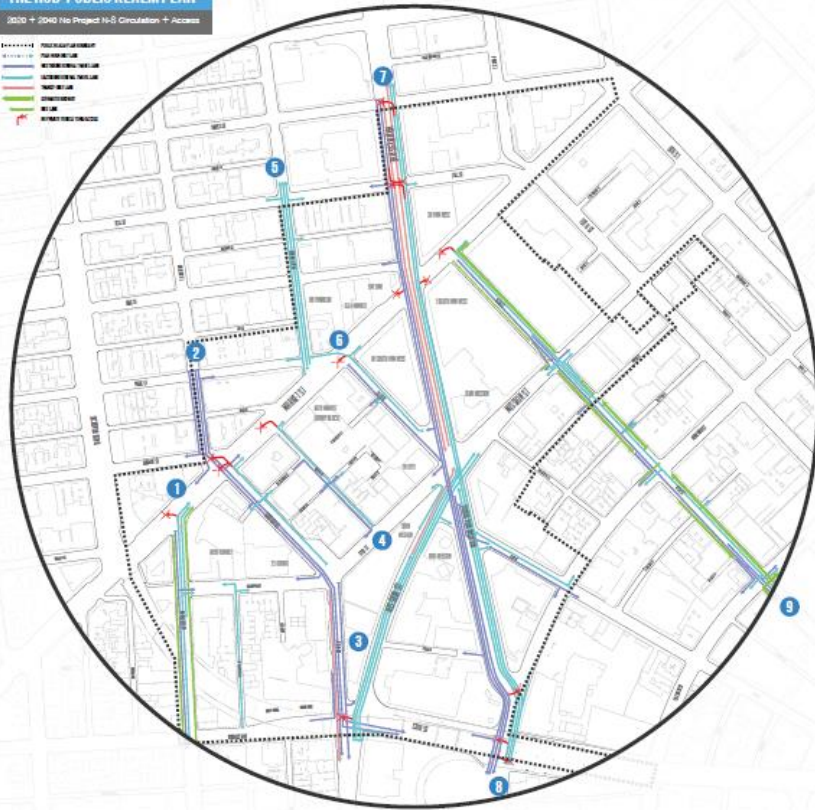


Figure 3: Hub Streets, North-South, 2020 Baseline



**THE HUB PUBLIC REALM PLAN**  
2020 + 2040 No Project N-S Circulation + Access

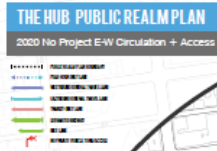
- PROPOSED CIRCULATION
- EXISTING CIRCULATION
- PROPOSED BIKE LANE
- EXISTING BIKE LANE
- PROPOSED TRANSIT LANE
- EXISTING TRANSIT LANE
- PROPOSED ACCESS
- EXISTING ACCESS



**2020 + 2040 NO PROJECT N-S CIRCULATION AND ACCESS**

- 1 VALENCIA STREET**
  - Market to McCoppin: 1 SB travel lane, 2 NB travel lanes; 1 NB + 1 SB bike lane, at Market, 2 NB lanes are right-turn-only to EB Market
  - McCoppin to 15th St: 1 SB + 1 NB travel lanes; 1 NB + 1 SB bike lane
  - No turns from Valencia to McCoppin west of Valencia
- 2 GOUGH STREET**
  - Page to Haight: 4 SB travel lanes
  - Haight/Market to Otis: 2 SB travel lanes, 1 NB travel lane
  - At Market, NB lane is right-turn-only to EB Market
- 3 OTIS STREET - MISSION STREET (COMPLETED)**
  - Otis St, Gough/McCoppin to Duboce: 1 transit-only lane, 3 lanes SB + 1 right-turn-only lane at Duboce
  - Mission, South Van Ness to Duboce/13th: 3 lanes NB, expanding to 5 lanes at South Van Ness, including 1 U-turn lane, 1 transit-only lane (onto Van Ness) lane, 1 left turn (onto South Van Ness) lane, 1 left turn and through lane, and 1 right turn (onto South Van Ness) and through lane
- 4 BRADY STREET**
  - Market to Stevenson: 1 NB travel lane, right-turn-only to Market EB
  - Stevenson to Otis: 1 NB + 1 SB travel lane
- 5 FRANKLIN STREET**
  - Page to Fell: 3 NB travel lanes
  - No left or right turn onto Oak Street
- 6 12TH STREET**
  - Market to S Van Ness, + S Van Ness to Howard: 1 NB + 1 SB travel lanes
  - At Market, NB lane allowed to turn left Page/Franklin, but left onto WB Market is not permitted
  - At South Van Ness, SB lane straight onto South Van Ness or right-turn to Otis only
- 7 VAN NESS AVENUE**
  - Consistent with Van Ness BRT, including no left turns permitted to Hayes or Fell Streets
  - Hayes to Market: 2 NB + 2 SB travel lanes, 1 NB + SB center-running transit-only lane
  - No left or right turns to Market St
- 8 SOUTH VAN NESS AVENUE**
  - Market to 13th St: 3 SB travel lanes + left-turn pocket to SB 12th St, 3 NB travel lanes
  - No turns from SB SVN to Howard; No left turns to 13th Street
- 9 11TH STREET**
  - Market to Mission St: 1 NB travel lane, 1 SB travel lane with right-turn pocket to WB Mission St, 1 SB bike lane and 1 NB protected bike lane
  - Mission to Howard St: 1 NB travel lane with dedicated LT to WB Mission starting at Minna, 1 SB travel lane; NB + SB protected bike lanes
  - Howard to Folsom St: 1 NB travel lane, 1 SB travel lane with dedicated LT to EB Folsom starting at Burns Place; NB + SB protected bike lanes

Figure 4: : Hub Streets, East-West, 2020 Baseline (excludes changes to Market Street)



**2020 NO PROJECT E-W CIRCULATION AND ACCESS**

- 1 MARKET STREET**
  - Octavia to Valencia: 2 WB travel lanes, 2 EB travel lanes, 1 WB bike lane, with left-turn pocket to SB Valencia St, EB bike sharrows
  - Valencia to Franklin/12th St: 2 WB travel lanes, with a 3rd, left-turn-only lane to Valencia between Gough and Valencia, 4 EB travel lanes, including 2 left-turn only lanes to Franklin, 1 WB bike lane, 1 EB raised bike lane east of Gough
  - Franklin/12th St to Market St: 2 WB travel lanes, 1 EB travel lane, 1 EB transit-only lane, 1 WB bike lane + 1 EB bike lane
  - Market St to 10th St: 1 WB travel lane, 1 EB travel lane, with a forced right turn at 10th St, 1 WB + EB transit-only lane, 1 WB buffered bike lane + 1 EB buffered bike lane between transit and vehicles
  - 10th St to 9th St: 1 WB travel lane, 1 EB travel lane, 1 WB + EB transit-only lane, 1 WB + 1 EB buffered bike lanes
- 2 PAGE STREET**
  - Gough to Franklin: 1 WB + 1 EB travel lane, WB + EB bike sharrows;
  - Access allowed to Market from EB Page and from Market to WB Page
- 3 STEVENSON STREET**
  - 1699 Market St dead-end to Gough: Unmarked, narrow two-way travel
  - Gough to Brady: 1 EB travel lane
  - 1601 Market St dead-end to 12th St: Unmarked, narrow two-way travel
- 4 COLTON STREET**
  - Gough to Brady: 1 narrow WB travel lane
  - Brady to Colusa Place: Unmarked, narrow two-way travel
- 5 COLUSA PLACE & CHASE COURT**
  - Unmarked, narrow two-way travel
- 6 MCCOPPIN STREET**
  - Valencia to Otis: 1 WB + 1 EB travel lanes, 1 WB bike lane
  - At Otis, left-turn allowed to Gough
- 7 DUBOCE & 13TH STREETS**
  - Duboce, Valencia to Mission: 3 WB travel lanes (right-most lane fed from Duboce Street Central Freeway off-ramp), 1-3 EB travel lanes
  - 13th St, Mission to Howard St: 2 WB travel lanes, 4 EB travel lanes, including 2 right-turn-only lanes to Central Freeway on-ramp at South Van Ness
- 8 OTIS ST**
  - South Van Ness to Brady: 2 WB travel lanes, 1 transit-only lane, 1 WB separated bike lane
  - Brady to Gough: 3 WB travel lanes, including 1 right-turn-only to Gough and McCoppin, 1 WB transit-only lane, and 2 through lanes to SB Otis; 1 WB protected bike lane to McCoppin
- 9 MISSION ST**
  - 10th to 11th St: 2 WB travel lanes + 2 EB travel lanes
  - 11th St to South Van Ness: 2 WB travel lanes, expanding at South Van Ness to 6 WB lanes with right-turn-only lane to Van Ness, transit-only lane, 2 WB through lanes, and 2 left-turn-only lanes to South Van Ness; 2 EB through lanes from Mission St, 1 WB bike lane

Table 1 presents other San Francisco street and road projects anticipated for completion before 2020. SF-CHAMP also assumes regional roadway project implementation in accordance with the Plan Bay Area regional transportation plan of 2013.

**Table I: Roadway Projects in San Francisco Completed before 2020**

Network Project	Description
<b>Fell/Oak Bikeways (Bike Plan)</b> <i>BikePlan\Bike_FellOakBikeways</i>	Bike lane addition and general purpose lane removal on Fell and Oak between Baker and Scott.
<b>Cesar Chavez Streetscape (Bike Plan)</b> <i>BikePlan\Streetscape_CesarChavez</i>	Bike lane addition and general purpose lane removal on Cesar Chavez between Guerrero and Hampshire.
<b>Sansome Contraflow Transit Lane (TEP/Muni Forward<sup>1</sup>)</b> <i>TEP_SansomeContraflow</i>	Contraflow bus-only lane on Sansome between Broadway and Washington.

<sup>1</sup> Muni TEP has been renamed “Muni Forward”.

<b>Folsom Road Diet, 19<sup>th</sup> to 26<sup>th</sup></b> <i>RoadDiets\Folsom19thTo26th</i>	Bike lane addition and general purpose lane removal on Folsom from 19 <sup>th</sup> to 26 <sup>th</sup> .
<b>Folsom Road Diet 4<sup>th</sup> to 11<sup>th</sup></b> <i>RoadDiets\Folsom4thTo11th</i>	Bike lane addition and general purpose lane removal on Folsom from 4 <sup>th</sup> to 11 <sup>th</sup> .
<b>Doyle Drive / Presidio Parkway Rebuild</b> <i>DoyleDrive</i>	Construction of new Presidio Parkway and on/off ramps
<b>Mariposa Ramp, Mission Bay</b> <i>MissionBay_MariposaRamp</i>	Increase Hwy 101 offramp to Mariposa from 1 to 2 lanes.
<b>Mission Bay Street Grid</b> <i>MissionBayGrid</i>	Build out Mission Bay grid street network between 16th and the channel.
<b>Minor Restriping Projects</b>	Left turn lane on WB Harrison at 11 <sup>th</sup> , removal of EB lane  Removal of NB Tow-away lane on 6 <sup>th</sup> from Folsom to Market  Bike lane SB on Beale from Folsom to Bryant
<b>Haight Contraflow Transit Lane</b> <i>TwoWayHaight</i>	Add a contraflow bus-only lane on easternmost block of Haight, between Octavia and Gough/Market. <b>Already Exists</b>
<b>Alemanya Bike Lanes</b> <i>BikePlan\2014</i>	Bike lanes are added to Alemany Blvd between Rousseau and Putnam. Sharrows are added between Putnam and Bayshore Blvd. To accommodate the new bike lanes, one general-purpose lane is removed on eastbound Alemany between Rousseau and Putnam and westbound Alemany between Putnam and Ellsworth.
<b>San Bruno Project</b>	New bike lane is added between Mansell and Paul. Some bus stops are removed or relocated.
<b>Bike Plan 2014</b> <i>BikePlan\2014</i>	Expansion of sharrows and bike lanes throughout the city from the San Francisco Bicycle Plan.
<b>2<sup>nd</sup> Street Bike Lanes (Bike Plan)</b> <i>BikePlan\2ndStreet</i>	Bike lanes on 2nd Street between Market and Townsend
<b>Brannan (Central SoMa)</b> <i>CentralCorridor\Brannan</i>	Class 2 bike lane on EB Brannan from 8 <sup>th</sup> to Kelly and on WB Brannan from Embarcadero to 8 <sup>th</sup> St. Class 3 bike lane on EB Brannan from Kelly to Embarcadero. Remove one travel lane (leaving one lane) in each direction between 8th St and Kelly in both directions.
<b>7<sup>th</sup> and 8<sup>th</sup> Streets Complete Streets</b>	8 <sup>th</sup> Street: Class 4 bike lane on from Market to Townsend. Three lanes from Market to s/o Harrison. Project removes one lane from

	Harrison to Bryant. Add NB sharrows from Townsend to Brannan. 7 <sup>th</sup> Street: three traffic lanes and class 4 bike lane from Market to Heron in 2020. Extend bike lane and road diet to Townsend in 2040.
<b>Upper Market Street</b>	Implements a variety of street and circulation changes to the Upper Market Street area included lane changes, turn restrictions, and bicycle facilities
<b>Page Street Neighborway</b>	Install traffic diverter at Page and Webster. Eastbound traffic must turn right or left at Webster

#### REGIONAL TRANSIT NETWORK

By 2020, several regional transit improvements are anticipated. These projects include BART extensions, the first phase of SMART, and AC Transit's East Bay BRT project. Table 2: lists regional transit projects assumed in the 2020 Baseline Scenario.

**Table 2: Regional Transit Agency Projects Completed before 2020**

<b>Network Project</b>	<b>Description</b>
<b>eBART</b> <i>BART_eBART</i>	eBART line from Pittsburg to Antioch
<b>BART Oakland Airport Connector</b> <i>BART_OAC</i>	Replace AirBART with the Oakland Airport Connector
<b>BART Warm Springs Station</b> <i>BART_WarmSprings</i>	Extend BART service from Fremont to Warm Springs
<b>BART Berryessa Extension</b> <i>BART_SanJose (Phase 1)</i>	Extend BART service from Warm Springs to Milpitas and Berryessa
<b>SMART Phase 1</b> <i>SMART</i>	Phase 1 of SMART, providing service from San Rafael to Santa Rosa.
<b>AC Transit East Bay BRT</b>	Upgrades the existing #1 bus route to BRT. Project includes center-median and curbside transit-only lanes and bus stations along International Boulevard from Uptown Oakland to San Leandro.

#### MUNI NETWORK

The MUNI transit network has several planned service expansions and improvements scheduled by 2020. Muni will implement the projects listed in Table 3: :

**Table 3: MUNI Transit Projects Completed Before 2020**

<b>Network Project</b>	<b>Description</b>
------------------------	--------------------

<b>Transit Effectiveness Project/Muni Forward)</b> <i>Muni_TEP</i>	Muni service changes consistent with the Transit Effectiveness Project (TEP) EIR <sup>2</sup> . Projects and their corresponding service changes attached in Table 4: Headways of Muni routes .
<b>Muni Transit Signal Priority</b> <i>Muni_TSP\Future</i>	Transit Signal Priority along Muni Rapid bus routes.
<b>Muni Treasure Island Service</b> <i>Muni_TI</i>	Muni service between the Transbay Terminal and Treasure Island and Civic Center and Treasure Island.
<b>Central Subway</b> <i>Muni_CentralSubway</i>	Central Subway will run above ground from 4 <sup>th</sup> and King to 4 <sup>th</sup> and Harrison, and below ground from 4 <sup>th</sup> and Harrison, along Stockton, to Chinatown. Phase 1 will have 7.5 minute headways on a short (Chinatown to 3 <sup>rd</sup> and 18 <sup>th</sup> /19 <sup>th</sup> Street) and long route (Chinatown to Bayshore). Full build will have 5 minute headways.
<b>Lincoln/Crossover Transit-only Left-turn</b> <i>Muni_Lincoln_Crossover</i>	Muni-only left-turn from Lincoln Way onto 19 <sup>th</sup> /Crossover Drive.
<b>Muni Low Floor Buses</b> <i>Muni_LowFloorBuses</i>	Muni fleet will be replaced by all low-floor buses by 2020.
<b>Van Ness Bus Rapid Transit</b> <i>Muni_VanNessBRT</i>	Center A Variation on Van Ness from Mission to Lombard. Project scheduled to be completed by 2019.
<b>Transbay Terminal Bus Ramps</b> <i>TransbayTerminalBusRamps</i>	Bus-only ramps to the Transbay Terminal from the Bay Bridge.

#### TRANSIT FREQUENCY

Table 4 lists assumptions for Muni line headways after service changes planned under “Muni Forward” have been implemented. These headways are assumed in the 2020 Baseline Scenario.

**Table 4: Headways of Muni routes at full implementation of Muni Forward (in minutes)**

Muni Line	Time of Day		
	AM Period	Midday Period	PM Period
<b>1 California</b>	7	5	6
<b>2 Clement</b>	7.5	10	7.5
<b>3 Jackson</b>	15	30	15
<b>5 Fulton</b>	3	5	3.5
<b>6 Haight-Parnassus</b>	12	15	12
<b>7R Haight/Noriega Rapid</b>	7.5	8	7.5

<sup>2</sup> The Transit Effectiveness Project EIR cleared a set of improvements that are now being implemented through the “Muni Forward” program.

8AX Bayshore 'A' Express	6	--	7
8BX Bayshore 'B' Express	6	--	7
8 Bayshore	--	7.5	--
9 San Bruno	10	12	10
9L San Bruno Rapid	10	12	10
10 Townsend	6	10	6
11 Downtown Connector	15	15	15
14R Mission Rapid	7.5	9	7.5
14X Mission Express	7.5	0	7.5
21 Hayes	8	12	9
22 Fillmore	6	7.5	8
24 Divisadero	9	10	9
28 19th Avenue	9	9	9
28R 19th Avenue Rapid	9	9	9
29 Sunset	8	15	10
30 Stockton	3.5	4	4
30X Marina Express	4	--	7
31 Balboa	12	15	12
33 Ashbury-18th	12	12	12
35 Eureka	20	20	20
37 Corbett	15	20	15
38 Geary	6	7.5	6
38R Geary Rapid	5	5	5
41 Union	7	--	7
43 Masonic	8	12	10
44 O'Shaughnessy	7.5	12	8
47 Van Ness	7.5	9	7.5
48 Quintara/24th Street	15	15	15
52 Excelsior	20	20	20
54 Felton	15	20	15
55 16th Street	15	15	15
57 Parkmerced	20	20	15
F Market & Wharves	7.5	6	5
J Church	8	10	9
K Ingleside	8	10	8

<b>L Taraval</b>	7.5	10	7.5
<b>M Oceanview</b>	8.5	10	8.5
<b>N Judah</b>	5.5	10	6
<b>T Third / T Third Short</b>	7.5 / 7.5	10 / 10	7.5 / 7.5

TOLLS

SF-CHAMP assumes that Bay Area Bridge tolls increase in line with inflation over the long term. For future year scenarios, SF-CHAMP tolls are assessed at values that are constant in real terms. In addition to this assumption, scheduled toll changes are also assumed in the model. SF-CHAMP assumes the scheduled 2018 Golden Gate Bridge toll increase. Starting in 2018, Golden Gate Bridge tolls will be \$8.00 for two-axle vehicles and \$5.00 for high occupancy vehicles in 2018\$ terms.

**TRAVEL DEMAND MEMORANDUM**

**ATTACHMENT B: 2040 BASELINE MODEL INPUTS**





# Memorandum

**DATE:** 03.14.2018  
**TO:** San Francisco Planning Department, Hub and Civic Center Public Realm Plans Team  
**FROM:** Dan Tischler, Senior Transportation Planner, Technology, Data & Analysis, SFCTA  
**SUBJECT:** DRAFT Input Assumptions for Hub and Civic Center 2040 Baseline SF-CHAMP Model Run

## Summary and Context

The purpose of this memo is to document inputs used in the SF-CHAMP 5.2 regional travel demand model for the purpose of modeling a 2040 Baseline Scenario (Scenario 6 of 8) to be used to evaluate the feasibility of implementing the Hub and Civic Center Public Realm Plans.

## STUDY OVERVIEW

The San Francisco Planning Department is working on two geographically adjacent planning efforts: the Market Street Hub Project and the Civic Center Public Realm Plan. Both projects consider changes to land use and street design in the adjacent areas of the Market Street and Van Ness Ave intersection and the Civic Center area.

The San Francisco County Transportation Authority is conducting travel demand modeling, in a single, combined effort, for the Hub Project and Civic Center Public Realm Plan. This memo describes input assumptions for one model scenario within this effort.

## SCENARIO DESCRIPTION

The 2040 Baseline Scenario (Scenario 6 of 8) is designed to reflect projected baseline conditions in the San Francisco Bay Area in the year 2040. More detail is provided within the City of San Francisco than elsewhere in the San Francisco Bay Area and the scenario will be used for focused analysis of travel in the Hub Project and Civic Center Public Realm Plan areas. Land use

2040 land use assumptions are derived from the Jobs-Housing-Connection (JHC) projections developed by ABAG and MTC. While ABAG/MTC Jobs-Housing Connections Strategy Land Use numbers for population, employment, employed residents and jobs are used at a TAZ (close to Census Tract size) level of geographic granularity outside San Francisco, the San Francisco Planning Department (SF Planning) uses the ABAG/MTC Jobs-Housing Connections Strategy control totals to allocate base year household and employment land use data within San Francisco. SF Planning makes use of numerous commercial datasets to refine initial ABAG distribution within San Francisco.

In addition to SF Planning land use allocations of JHC land use control totals, SF Planning has provided more recent and up-to-date household and employment projections for TAZs in the Hub Project and

Civic Center Public Realm Plan areas. These updates were provided by SF Planning in the spreadsheet “Hub\_CivicCenter\_Modeling\_LU\_Inputs.xlsx.”

Specific TAZs with Hub and Civic Center updates include: 242, 259, 286, 296, 578, 579, 587, 588, 589, 591, 595, 608, 609, 618, 619, 620, 621, 622, 646, 647, 648, and 683. *Original and adjusted total 2040 baseline allocations for Hub and Civic Center area TAZs:*

Source	HH	CIE	MED	MIPS	RETAIL	PDR	VISITOR
SF Planning Allocations	15400	7985	1080	27309	5999	1997	619
Updated Hub and Civic Center Allocations	24,843	8,806	1,485	31,292	6,958	1,629	488

*Adjusted 2040 baseline land use allocations for Hub and Civic Center area TAZs:*

Geography	HH	CIE	MED	MIPS	RETAIL	PDR	VISITOR
TAZ 242	888	70	22	571	316	96	0
TAZ 259	911	971	278	1,539	496	43	7
TAZ 286	475	972	26	1,428	326	13	4
TAZ 296	2,336	209	52	696	142	27	269
TAZ 578	1,913	2,025	40	1,055	229	37	20
TAZ 579	1,210	325	78	1,595	221	247	0
TAZ 587	579	257	39	391	245	10	0
TAZ 588	745	243	90	477	290	18	17
TAZ 589	614	27	9	558	437	263	0
TAZ 591	1,156	99	0	3,238	344	85	4
TAZ 595	469	176	9	184	166	226	0
TAZ 608	3,138	435	0	2,079	225	0	0
TAZ 609	898	543	99	1,200	431	147	0
TAZ 618	147	508	0	257	578	15	4
TAZ 619	963	288	127	784	669	68	24
TAZ 620	1,031	110	6	749	108	0	113
TAZ 621	2,722	102	127	1,930	435	0	0
TAZ 622	446	68	53	419	164	130	4
TAZ 646	0	4	25	1,942	47	18	0
TAZ 647	2,145	532	119	2,469	396	13	4

TAZ 648	297	430	48	4,589	387	4	0
TAZ 683	1,761	413	236	3,140	304	169	19

*Adjusted 2040 baseline land use allocations for San Francisco and the entire Bay Area:*

<b>Geography</b>	<b>HH</b>	<b>CIE</b>	<b>MED</b>	<b>MIPS</b>	<b>RETAIL</b>	<b>PDR</b>	<b>VISITOR</b>
San Francisco	457,478	88,881	53,067	447,974	129,553	70,744	27,431
Bay Area	3,318,350	679,597	345,811	1,864,431	578,135	923,514	171,117

Land use inputs are saved on a server at SFCTA at:

Y:\champ\landuse\p2011\SCS.JobsHousingConnection.Winter2017update\hub\_land\_use

## **TRANSPORTATION NETWORKS**

This section discusses 2040 Baseline assumptions for transit, and assumptions for other San Francisco and regional road, and toll policy projects. The 2040 Baseline Scenario includes all transportation projects assumed in the 2020 Baseline Scenario, plus additional transportation projects expected to be implemented between 2020 and 2040.

### **ROAD NETWORK**

Local street network assumptions in the Hub and Civic Center areas reflect the diagrams presented as Figures 1-4.

Figure 1: Civic Center Streets, East-West, 2040 Baseline

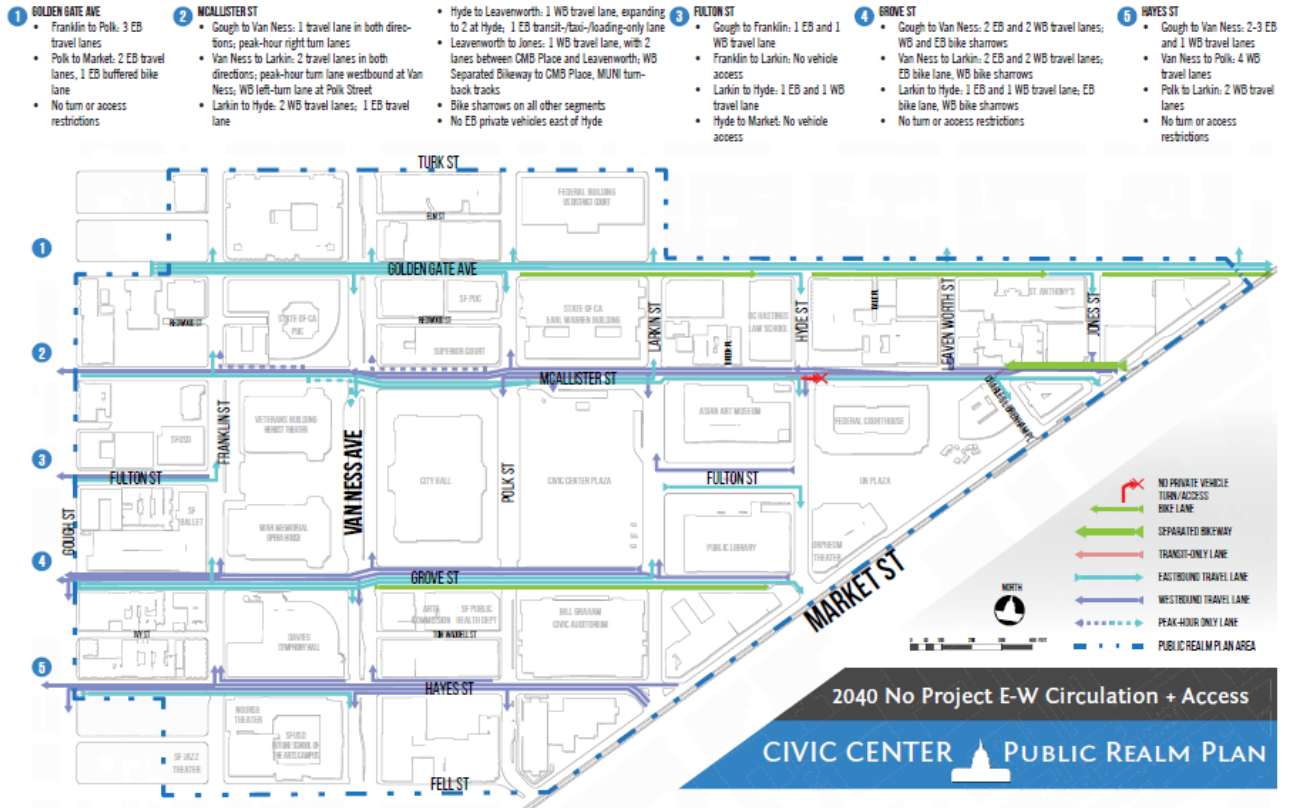


Figure 2: Civic Center Streets, North-South, 2040 Baseline

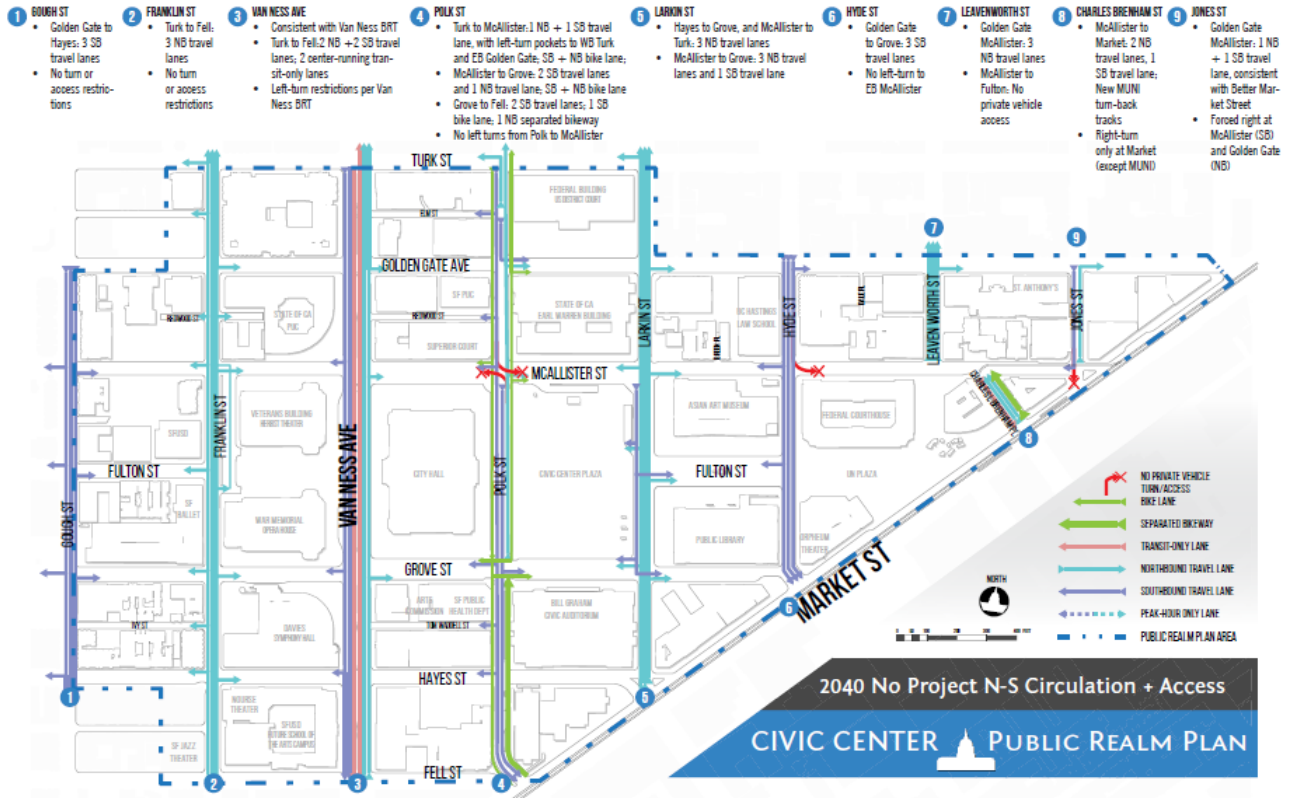
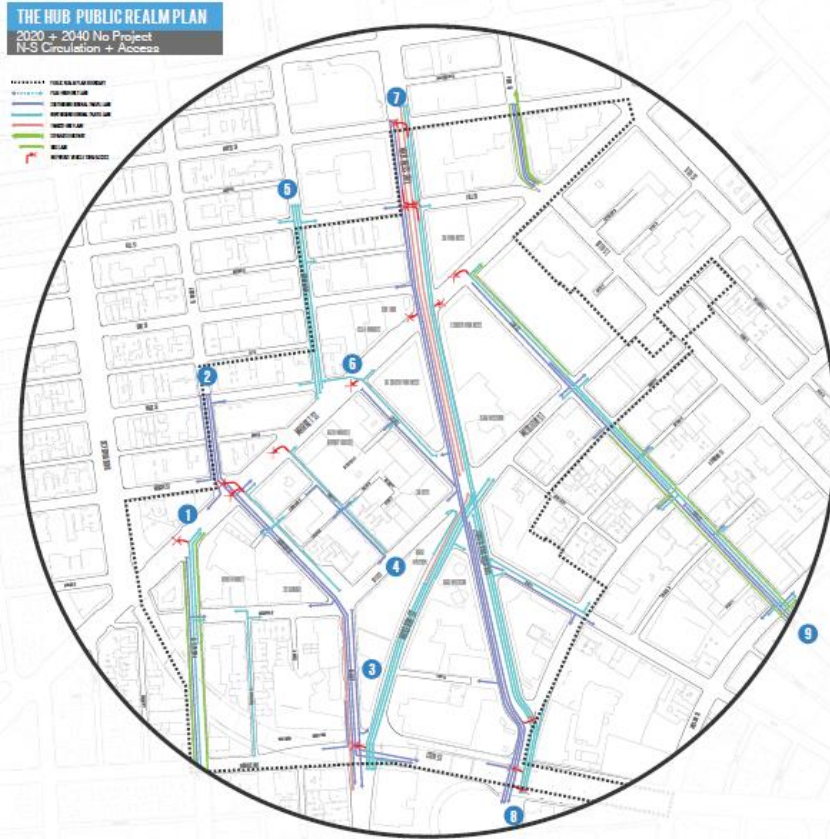


Figure 3: Hub Streets, North-South, 2040 Baseline



2020 + 2040 NO PROJECT N-S CIRCULATION AND ACCESS

- 1 VALENCIA STREET**
  - Market to McCoppin: 1 SB travel lane, 2 NB travel lanes, 1 NB + 1 SB bike lane, at Market, 2 NB lanes are right-turn-only to EB Market
  - McCoppin to 15th St: 1 SB + 1 NB travel lanes, 1 NB + 1 SB bike lane
  - No turns from Valencia to McCoppin west of Valencia
- 2 BROADWAY STREET**
  - Page to Haight: 4 SB travel lanes
  - Haight/Market to Otis: 2 SB travel lanes, 1 NB travel lane
  - At Market, NB lane is right-turn-only to EB Market
- 3 OTIS STREET + MISSION STREET (COMPLETED)**
  - Otis St. Gough/McCoppin to Duboce: 1 transit-only lane, 3 lanes SB + 1 right-turn-only peak-hour lane at Duboce
  - Mission, South Van Ness to Duboce/13th: 3 lanes NB, expanding to 5 lanes at South Van Ness, including 1 U-turn lane, 1 transit-only lane (onto Van Ness) lane, 1 left turn (onto South Van Ness) lane, 1 left turn and through lane, and 1 right turn (onto South Van Ness) and through lane
- 4 BRADY STREET**
  - Market to Stevenson: 1 NB travel lane, right-turn-only to Market EB
  - Stevenson to Otis: 1 NB + 1 SB travel lane
- 5 FRANKLIN STREET**
  - Page to Market: 3 NB travel lanes
  - No left or right turn onto Oak Street
- 6 12TH STREET**
  - Market to S Van Ness, + S Van Ness to Howard: 1 NB + 1 SB travel lanes
  - At Market, NB lane allowed to turn left Page/Franklin, but left onto WB Market is not permitted
  - At South Van Ness, SB lane straight onto South Van Ness or right-turn to Otis only
- 7 VAN NESS AVENUE**
  - Consistent with Van Ness BRT, including no left turns permitted to Hayes or Fell Streets
  - Hayes to Market: 2 NB + 2 SB travel lanes, 1 NB + SB center-running transit-only lane
- 8 SOUTH VAN NESS AVENUE**
  - Market to 13th St: 3 SB travel lanes + left-turn pocket to SB 12th St, 3 NB travel lanes
  - No turns from SB SVN to Howard; No left turns to 13th Street
- 9 11TH STREET**
  - Market to Mission St: 1 NB travel lane, 1 SB travel lane with left-turn pocket to EB Mission St; NB bike lane
  - Mission to Howard St: 2 NB travel lanes with dedicated LT to WB Mission; 1 SB travel lane, NB + SB bike lanes between Minna and Howard
  - Howard to Folsom St: 1 NB travel lanes; 2 SB travel lanes with dedicated LT to EB Folsom; NB + SB bike lanes

Figure 4: Hub Streets, East-West, 2040 Baseline

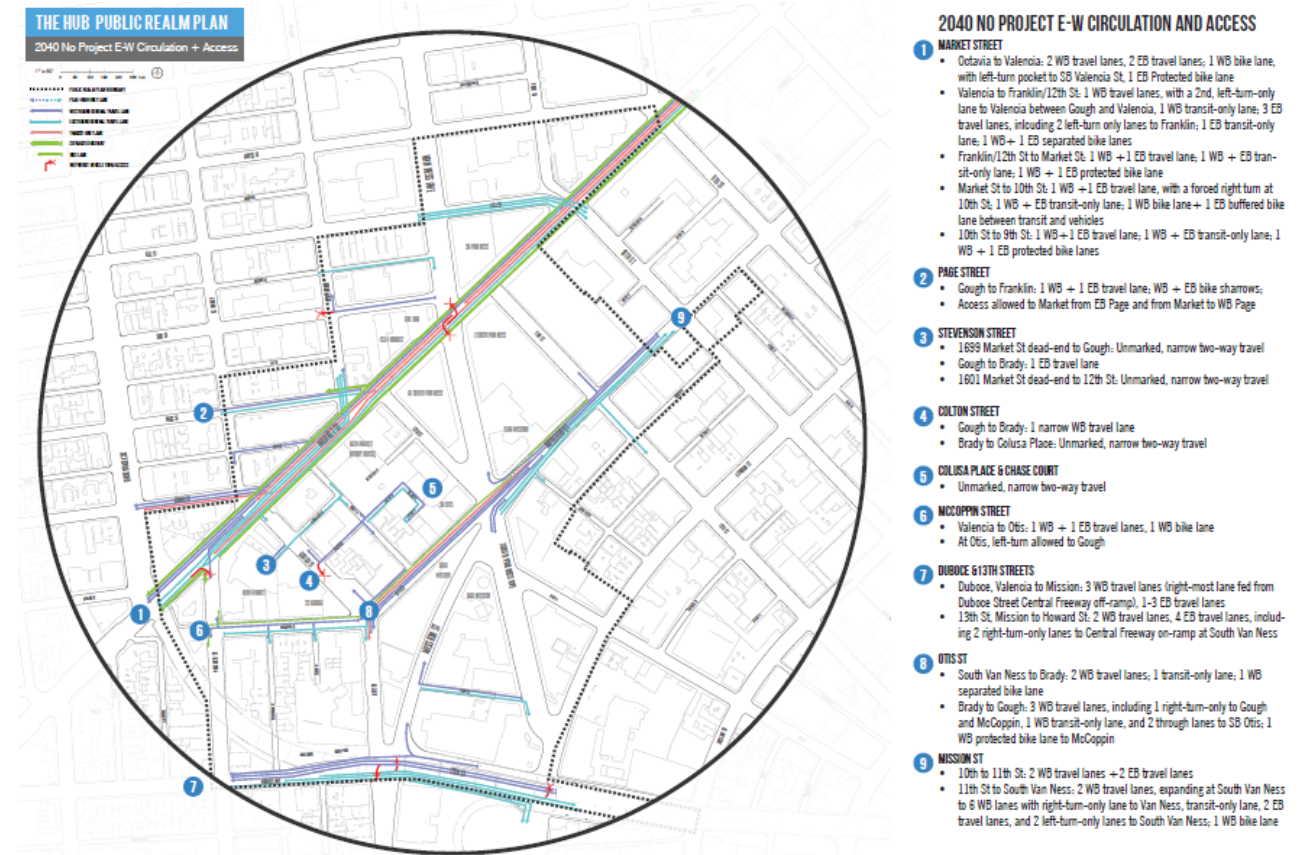


Table 1 presents San Francisco street and road projects anticipated for completion between 2020 and 2040. SF-CHAMP also assumes regional roadway project implementation in accordance with the most recent Regional Transportation Plan.

Table I: Roadway Projects in San Francisco Completed Between 2020 and 2040

Project	Description
Safer Market Street	<ul style="list-style-type: none"> <li>No turns allowed onto Market Street between 8th and 3rd Streets with the exception of southbound Jones Street onto westbound Market Street.</li> <li>Streets, such as Mason or O'Farrell, will have required turns onto Turk and Grant respectively.</li> <li>No left turn onto Market Street from southbound Hyde Street.</li> <li>Commercial vehicles, transit, bicycles, and taxis would be exempt from these proposed turn restrictions.</li> <li>The following turn restriction would apply to all vehicles: No right turn onto Grant Ave from Market Street.</li> </ul>

<b>Sixth Street</b>	Between Market Street and Howard Street, convert four travel lanes to two travel lanes; add a new bicycle lane in each direction with sidewalks widened by 3 to 6 feet (3 to 4 feet at block corners and 6 feet along the block). Traffic signal cycle lengths would be increased from 60 to 90 seconds, and the offsets would be adjusted.
<b>Polk Street</b>	Between McAllister Street and Union Street, various changes will happen depending on location, including road diets, turn restrictions, and bicycle facilities.
<b>Annie Street</b>	<ul style="list-style-type: none"> <li>• The existing mini-plaza at the intersection of Annie St and Market St will be expanded to Stevenson Street</li> <li>• Between Mission Street and Ambrose Bierce Alley, Annie Street would be closed to vehicular traffic and transformed into a new pedestrian plaza</li> <li>• The remainder of Annie St between the two plazas would retain vehicular traffic but be redesigned as a single-surface shared street</li> </ul>
<b>Treasure Island</b>	Reconstruct Treasure Island street network per full build-out plan for Treasure Island
<b>Transit Center District Plan</b>	Road diets, transit facilities, and bike facilities consistent with the Transit Center District Plan
<b>5<sup>th</sup> Street Bike Lanes (Bike Plan)</b> <i>BikePlan\5thStreet</i>	Bike lanes on 5th Street between Market and Townsend
<b>16<sup>th</sup> Street</b>	<ul style="list-style-type: none"> <li>• Between Church and Bryant streets, create a side running transit-only lane in the westbound direction through lane conversion.</li> <li>• Between Bryant and Mississippi streets, create center-lane transit only lanes in both directions through lane conversion.</li> <li>• Between 7<sup>th</sup>/Mississippi and Third streets, create side running transit-only lane in both directions through lane conversion.</li> <li>• Along the length of the corridor, add traffic signals, add left turn restrictions, and add some left turn pockets.</li> </ul>
<b>Move Bike Lane from 16<sup>th</sup> to 17<sup>th</sup> (Bike Plan)</b> <i>MoveBikeLaneFrom16thTo17th</i>	Move Bike Lane from 16th Street to 17th Street between Kansas and Mississippi
<b>Harrison/Bryant (Central SoMa)</b> <i>CentralCorridor\Harrison_Bryant</i>	Harrison between 3rd and 6th, Bryant between 2nd and 6th, 4 travel lanes and 1 transit lane during Peak hours, 3 travel lanes and 2 parking lanes off-peak



<b>Howard/Folsom One-Way (Central SoMa)</b> <i>CentralCorridor\Howard_Folsom_OneWay</i>	Howard: lane reduction to 2 travel lanes between 3 <sup>rd</sup> St and 11 <sup>th</sup> St., and two-way protected bike lane; Folsom: 3 travel lanes 11 <sup>th</sup> to 9 <sup>th</sup> and 4th to 2 <sup>nd</sup> , 2 travel lanes 9 <sup>th</sup> to 4th, bus lane from 9 <sup>th</sup> to 4 <sup>th</sup> , two-way protected bike lane from 11 <sup>th</sup> to 8 <sup>th</sup> , and eastbound protected bike lane from 8 <sup>th</sup> to 2 <sup>nd</sup> .
<b>3<sup>rd</sup>/4<sup>th</sup> (Central SoMa)</b> <i>CentralCorridor\Third_4th_st</i>	3rd St from King St to Market St, 4th from Market St to Harrison St, 3 auto lanes, 1 bike lane, 1 bus lane
<b>Treasure Island Ramps</b> <i>TI_Ramps</i>	Reconstruction and realignment of Treasure Island freeway ramps according to TI-TIP.
<b>Masonic Boulevard Option</b> <i>Fix_Masonic</i>	The Boulevard Option on Masonic between Geary and Fell, reducing travel lanes to 2 in both directions and eliminating additional peak-period lanes.
<b>19th Avenue Corridor</b>	Tier 4C projects from the 19th Avenue Corridor Study: <ul style="list-style-type: none"> <li>• 19th Ave / Holloway Ave – add a fourth southbound lane</li> <li>• 19th Ave / Crespi Dr – fourth southbound lane will be extended and converted into a through-right into Crespi</li> <li>• 19th Ave / Junipero Serra Blvd – add a fourth lane for southbound right-turn onto Junipero Serra</li> </ul>
<b>Harney Way Rebuild</b> <i>HarneyRebuild</i>	Harney expansion to 3-lanes WB, 2-lanes EB for 4 links north of the 101 interchange, plus BRT lanes & TSP North/East of Alana
<b>Palou Transit Lane and Transit Signal Priority</b> <i>TransitLaneTSP_Palou</i>	Transit Signal Priority and transit-only lane on Palou between Phelps and Fitch.
<b>Geneva Transit Preferential Treatment</b>	This section is the Geneva Four-Lane Option: two general-purpose lanes and one transit lane in each direction. (TEP transit treatment west of Santos: one general-purpose lane and one side-running transit lane.)
<b>Geneva Extension</b>	<ul style="list-style-type: none"> <li>• Geneva will be extended over Tunnel Ave and the Recology site, with connections to US 101 ramps.</li> <li>• Two general-purpose lanes in each direction; three during the PM peak period.</li> <li>• Transit-only lanes</li> <li>• Class II bicycle facility</li> <li>• Two pedestrian bridges will connect Bayshore/Sunnydale and Bayshore/MacDonald with Tunnel Ave</li> </ul>
<b>Mission Transit Lane (TEP)</b>	Side-running transit lanes on Mission between 11th to 16th St. Note: this project is included as a subset within the MUNI Travel Time Reduction Program (Project-level Expanded) project
<b>Candlestick Point / Hunters Point Shipyard Street Grid Rebuild</b> <i>Candlestick_HuntersPoint</i>	Rebuild of the street grid per the Candlestick Point / Hunters Point Shipyard Transportation Plan using the no-stadium variant. Includes separated transitways or center-running transit lane corridor for the 28L.
<b>Candlestick Interchange Rebuild</b>	<ul style="list-style-type: none"> <li>• Geneva will extend under the US 101 to Harney Way</li> <li>• Between the Geneva Extension and Alana, two general-</li> </ul>

	<ul style="list-style-type: none"> <li>purpose lanes and one transit-only lane in each direction.</li> <li>Between Alana and Harney, three general-purpose travel lanes in each direction</li> <li>Alana becomes transit-only between Harney and Geneva</li> <li>On/off ramps will be single-lane with no transit treatment</li> </ul>
<b>Yosemite Slough Bridge</b> <i>Yosemite_Slough</i>	Transit, bike, and pedestrian bridge connecting Candlestick Point and Hunters Point Shipyard
<b>Valencia Eastbound Right Turn Restriction</b>	Right turns prohibited on EB Valencia at Market Street.
<b>Safer Taylor Project</b>	Remove one traffic lane from Market to Sutter. Prior to project this street has three lanes. Other possible changes excluded.
<b>Better Market Street</b>	Implement a variant of Alt 1B. This variant closes Market St to traffic, except taxis and buses, between Franklin and 10 <sup>th</sup> St.
<b>FCMS HOV2 Scenario</b>	Adds HOV facility on I-280 and US-101 between 4 <sup>th</sup> and King in San Francisco and I-380 in San Mateo.

## REGIONAL TRANSIT NETWORK

Between 2020 and 2040, Caltrain, SMART, BART and WETA will each provide expanded services to new stations and terminals. Table 2: Regional Transit Agency Projects lists these projects.

Table 2: Regional Transit Agency Projects Completed Between 2020 and 2040

Project	Description
<b>Caltrain DTX</b>	Caltrain Electrification and Downtown Extension
<b>Caltrain Electrification</b> <i>Caltrain_Electrification</i>	Service increase resulting from Caltrain Electrification project.
<b>SamTrans Caltrain Shuttle Frequency</b> <i>Samtrans_ShuttleFreq</i>	Double the frequency of Samtrans' Caltrain shuttle.
<b>WETA Expansion Phase 2</b> <i>WETA_Expansion_Phase2</i>	New ferry lines: Berkeley-SF, Hercules-SF, Redwood City-SF, Richmond-SF.
<b>BART Irvington Station</b> <i>BART_Irvington</i>	Add Irvington station between Fremont and Warm Springs
<b>BART: Silicon Valley Phase 2</b>	BART extended from Berryessa to Alum Rock, Downtown San Jose, Diridon, and Santa Clara
<b>SMART: Larkspur to San Rafael</b>	SMART - Extend SMART from San Rafael to Larkspur
<b>SMART: Santa Rosa to Cloverdale</b>	SMART - Extend SMART from Santa Rosa to Cloverdale

## MUNI NETWORK

The MUNI transit network has several planned service expansions and improvements scheduled for the period between 2020 and 2040. Table 3: MUNI Transit Projects summarizes projects assumed in the SF-CHAMP 2040 Baseline Scenario.

Table 3: MUNI Transit Projects to be Completed Between 2020 and 2040

Project	Description
<b>19<sup>th</sup> Avenue Corridor (M Ocean View split service)</b>	Tier 4C Transit projects from the 19 <sup>th</sup> Avenue Corridor Study: <ul style="list-style-type: none"> <li>• M Ocean View realignment <ul style="list-style-type: none"> <li>○ Diverts into Parkmerced at 19<sup>th</sup> Ave / Holloway Ave</li> <li>○ Relocate SFSU station into Parkmerced</li> <li>○ Two new Parkmerced stations</li> <li>○ Split tracks in Parkmerced and split end-of-line service between Parkmerced and Balboa Park BART</li> </ul> </li> </ul>
<b>Travel Time Reduction Program (Programmatic Expanded)</b> <i>Muni_TTRP\ProgrammaticExpanded</i>	Muni TEP: Travel Time Reduction Program, Expanded level (programmatic)
<b>Travel Time Reduction Program (Project-level Expanded)</b> <i>Muni_TTRP\ProjectLevelExpanded</i>	Muni TEP: Travel Time Reduction Program, Expanded level (project-level)
<b>Treasure Island</b>	Increased line 25 service, new line 109, and ferry service to the Ferry Building
<b>AC Transit Treasure Island Service</b> <i>AC_TI</i>	AC Transit Service to Treasure Island
<b>Geary Bus Rapid Transit</b> <i>Muni_GearyBRT\LPA</i>	Geary Side-Running BRT west of 25th Avenue and east of Stanyan, and Center-Running BRT between 25th and Stanyan.
<b>Candlestick Point Express</b> <i>Muni_CPX</i>	Express bus service between Downtown/SoMa and Candlestick Point
<b>Hunters Point Express</b> <i>Muni_HPX</i>	Express bus service between Downtown/SoMa and Hunters Point.
<b>Candlestick Point/Hunters Point Shipyard Muni Extensions</b> <i>Muni_CSP_HP_LineExtensions</i>	Extensions of 24-Divisadero, 23-Monterey, 44-O'Shaughnessy, 48-Quintara, and 29-Sunset into Candlestick Point and Hunters Point Shipyard neighborhoods
<b>Parkmerced Shuttles</b> <i>Parkmerced_Shuttle</i>	Free shuttle service between Parkmerced and Daly City BART, and between Parkmerced and nearby shopping centers.
<b>Muni F to Fort Mason</b>	Extend F Line to Fort Mason
<b>T-Third Extension to Caltrain</b>	The T-Third will be extended from Sunnydale to Bayshore Caltrain Station
<b>16<sup>th</sup> St BRT</b>	Realignment of the 22-Fillmore along 16 <sup>th</sup> St to 3rd St
<b>AC Transit San Pablo Ave BRT</b>	Adds BRT service along San Pablo Ave from Oakland to Richmond.
<b>WETA Expansion Phase 2</b>	Add ferry service to Contra Costa cities, Alameda Point, Berkeley, and North Bay cities. Expand ferry service to Central Bay and Richmond
<b>Golden Gate Ferry Expansion</b>	Add additional service to Larkspur
<b>Golden Gate Transit Expansion</b>	Add additional regional buses
<b>BART Metro</b>	Modifies service plans and increases service frequency. BART

	moves towards offering two types of service: “Metro Core” (dense, urban locations with frequent stops) and “Metro Commute” (long-range commutes, fewer stops)
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**TOLLS**

SF-CHAMP assumes that Bay Area bridge tolls increase in line with inflation over the long term. For future year scenarios, SF-CHAMP tolls are assessed at values that are constant in real terms. 2040 toll assumptions are the same in real terms as 2020 toll assumptions.

**TRAVEL DEMAND MEMORANDUM**

**ATTACHMENT C: DETAILED TRAVEL DEMAND  
CALCULATIONS**

# HUB AREA PLAN

Model Output Summaries - New Trips, Mode Split, and Internalization

New Trips

		Person Trips				Total Vehicle Trips	Mode Split				
		Auto	Transit	Other			Auto	Transit	Other	Total	
<b>2020 Baseline</b>											
<b>Daily</b>						<b>Daily</b>					
Daily	Baseline	92,093	40,129	87,654	219,875	80,209	Baseline	42%	18%	40%	100%
Daily	Baseline plus Plan	121,686	54,740	134,416	310,841	103,190	Baseline plus Plan	39%	18%	43%	100%
	<i>Change from Existing</i>	<i>29,593</i>	<i>14,611</i>	<i>46,762</i>	<i>90,966</i>	<i>22,981</i>	<i>Change from Existing</i>	<i>-3%</i>	<i>0%</i>	<i>3%</i>	<i>0%</i>
		<i>32.1%</i>	<i>36.4%</i>	<i>53.3%</i>	<i>41.4%</i>	<i>28.7%</i>					
<b>AM Peak Hour</b>											
AM	Baseline	12,074	9,400	11,916	33,391	10,703	Baseline	36%	28%	36%	100%
AM	Baseline plus Plan	16,003	12,736	18,530	47,270	13,854	Baseline plus Plan	34%	27%	39%	100%
	<i>Change from Existing</i>	<i>3,929</i>	<i>3,336</i>	<i>6,614</i>	<i>13,879</i>	<i>3,152</i>	<i>Change from Existing</i>	<i>-2%</i>	<i>-1%</i>	<i>3%</i>	<i>0%</i>
		<i>32.5%</i>	<i>35.5%</i>	<i>55.5%</i>	<i>41.6%</i>	<i>29.4%</i>					
<b>PM Peak Hour</b>											
PM	Baseline	18,333	11,423	19,575	49,331	15,529	Baseline	37%	23%	40%	100%
PM	Baseline plus Plan	24,826	15,360	31,058	71,243	20,438	Baseline plus Plan	35%	22%	44%	101%
	<i>Change from Existing</i>	<i>6,493</i>	<i>3,937</i>	<i>11,483</i>	<i>21,912</i>	<i>4,909</i>	<i>Change from Existing</i>	<i>-2%</i>	<i>-1%</i>	<i>4%</i>	<i>1%</i>
		<i>35.4%</i>	<i>34.5%</i>	<i>58.7%</i>	<i>44.4%</i>	<i>31.6%</i>					
<b>2040 Cumulative</b>											
<b>AM Peak Hour</b>						<b>AM Peak Hour</b>					
AM	2040 Cumulative No Project	17,513	12,819	17,632	47,964	14,984	2040 Cumulative No Project	37%	27%	37%	101%
AM	2040 Cumulative Plus Plan	20,096	14,704	21,447	56,246	16,989	2040 Cumulative Plus Plan	36%	26%	38%	100%
	<i>Change from Existing</i>	<i>2,583</i>	<i>1,884</i>	<i>3,815</i>	<i>8,282</i>	<i>2,006</i>	<i>Change from Existing</i>	<i>-1%</i>	<i>-1%</i>	<i>1%</i>	<i>-1%</i>
		<i>14.7%</i>	<i>14.7%</i>	<i>21.6%</i>	<i>17.3%</i>	<i>13.4%</i>					
<b>PM Peak Hour</b>						<b>PM Peak Hour</b>					
PM	2040 Cumulative No Project	27,090	15,802	29,667	72,558	21,889	2040 Cumulative No Project	37%	22%	41%	100%
PM	2040 Cumulative Plus Plan	31,258	17,972	36,127	85,357	24,968	2040 Cumulative Plus Plan	37%	21%	42%	100%
	<i>Change from Existing</i>	<i>4,168</i>	<i>2,171</i>	<i>6,460</i>	<i>12,799</i>	<i>3,080</i>	<i>Change from Existing</i>	<i>0%</i>	<i>-1%</i>	<i>1%</i>	<i>0%</i>
		<i>15.4%</i>	<i>13.7%</i>	<i>21.8%</i>	<i>17.6%</i>	<i>14.1%</i>					
<b>Daily</b>						<b>Daily</b>					
Daily	Baseline	132,059	55,810	129,718	317,587	110,454	Baseline	42%	18%	41%	101%
Daily	Baseline plus Plan	151,196	63,601	156,142	370,939	125,090	Baseline plus Plan	41%	17%	42%	100%
	<i>Change from Existing</i>	<i>19,137</i>	<i>7,791</i>	<i>26,424</i>	<i>53,352</i>	<i>14,636</i>	<i>Change from Existing</i>	<i>-1%</i>	<i>-1%</i>	<i>1%</i>	<i>-1%</i>
		<i>14.5%</i>	<i>14.0%</i>	<i>20.4%</i>	<i>16.8%</i>	<i>13.3%</i>					

Model Output Summaries - New Trips, Mode Split, and Internalization

All Trip Ends

Duplicate Internal Trips

**Person Trips**  
Auto Transit Other Total Vehicle Trips  
**2020 Baseline**

**Person Trips**                      **Vehicle Trips**  
Auto\_Persc Transit Other Total Auto

**Daily**

Daily	Baseline	93,724	40,420	94,650	228,794	81,630
Daily	Baseline plus Plan	124,468	55,355	150,437	330,261	105,549
	<i>Change from Existing</i>	<i>30,744</i>	<i>14,936</i>	<i>55,788</i>	<i>101,467</i>	<i>23,919</i>

1,631	291	6,996	8,918	1,421
2,782	616	16,022	19,420	2,359
1,151	325	9,026	10,501	938

AM	Baseline	12,281	9,460	12,805	34,546	10,887
AM	Baseline plus Plan	16,350	12,859	20,592	49,801	14,154
	<i>Change from Existing</i>	<i>4,068</i>	<i>3,399</i>	<i>7,788</i>	<i>15,255</i>	<i>3,267</i>

207	60	888	1,156	184
346	123	2,062	2,531	300
139	63	1,174	1,376	116

**PM Peak Hour**

PM	Baseline	18,639	11,508	21,130	51,277	15,788
PM	Baseline plus Plan	25,367	15,535	34,812	75,714	20,883
	<i>Change from Existing</i>	<i>6,728</i>	<i>4,027</i>	<i>13,682</i>	<i>24,437</i>	<i>5,095</i>

306	85	1,556	1,946	259
541	175	3,755	4,470	445
235	90	2,199	2,524	186

**2040 Cumulative**

**AM Peak Hour**

AM	2040 Cumulative No Project	17,879	12,928	19,283	50,090	15,297
AM	2040 Cumulative Plus Plan	20,563	14,836	23,813	59,212	17,384
	<i>Change from Existing</i>	<i>2,684</i>	<i>1,908</i>	<i>4,531</i>	<i>9,122</i>	<i>2,087</i>

366	109	1,651	2,126	313
467	133	2,366	2,966	395
101	24	715	840	82

**PM Peak Hour**

PM	2040 Cumulative No Project	27,663	15,944	32,552	76,158	22,351
PM	2040 Cumulative Plus Plan	32,045	18,168	40,335	90,548	25,597
	<i>Change from Existing</i>	<i>4,383</i>	<i>2,224</i>	<i>7,783</i>	<i>14,389</i>	<i>3,246</i>

573	143	2,885	3,600	463
787	196	4,208	5,191	629
215	53	1,323	1,591	166

**Daily**

Daily	Baseline	134,966	56,332	142,376	333,673	112,885
Daily	Baseline plus Plan	154,994	64,275	174,178	393,448	128,232
	<i>Change from Existing</i>	<i>20,029</i>	<i>7,944</i>	<i>31,802</i>	<i>59,775</i>	<i>15,347</i>

2,906	522	12,658	16,086	2,431
3,798	675	18,036	22,509	3,142
892	153	5,378	6,423	712



## **30 VAN NESS TRAVEL DEMAND**

OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

Person Trips by Mode

Auto Split	2,284
Taxi TNC Split	702
Public Transit	3,418
Walk	5,448
Bike	427

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes termMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes termMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	Daily Work Trips	85.7	20.1	156.5	14.0	130.4	26.2	15.5	12.8	-	113.6	106.4	56.3	737	102.1	23.8	106.7	7.8	102.6	50.8	19.2	13.8	-	99.2	124.9	53.7	704
	Daily Non-Work Trips	109.2	13.9	88.1	35.4	21.1	9.7	8.1	2.4	-	32.3	38.7	7.2	366	142.3	31.7	90.8	56.1	11.1	11.9	8.7	25.1	-	36.5	55.1	7.2	477
Taxi / TNC Person Trips	Daily Work Trips	25.5	7.1	45.4	4.7	39.0	8.6	5.2	3.9	-	36.1	35.5	18.8	230	30.8	7.0	31.9	2.9	30.0	16.8	6.4	4.7	-	32.1	42.1	17.6	222
	Daily Non-Work Trips	33.2	4.1	24.8	9.6	8.6	2.6	2.8	1.0	-	10.7	13.3	2.6	113	40.6	8.2	25.3	15.5	4.5	3.5	2.7	6.7	-	10.4	16.6	2.6	137
Transit Person Trips	Daily Work Trips	151.0	15.8	84.8	77.8	60.2	28.4	13.7	42.9	-	207.9	447.5	44.8	1,175	147.4	24.7	107.5	54.8	65.6	11.7	20.5	43.8	-	195.3	382.4	61.9	1,115
	Daily Non-Work Trips	254.0	9.5	82.5	19.2	31.2	13.9	45.5	13.0	2.0	23.6	106.7	5.7	607	171.7	22.1	88.1	30.8	29.9	3.4	41.6	11.4	2.0	20.3	93.6	6.5	521
Auto VehicleTrips*	Daily Work Trips	46.6	11.7	109.8	11.4	123.3	23.6	13.8	8.4	-	102.9	93.2	45.3	590	63.7	19.6	66.9	5.8	98.9	48.2	18.5	8.8	-	88.0	99.2	46.7	564
	Daily Non-Work Trips	60.6	9.4	59.8	21.0	10.8	5.2	2.7	1.4	-	18.1	20.4	4.6	214	82.7	23.9	55.8	36.5	5.3	6.2	4.1	23.3	-	24.9	23.4	5.0	291
Taxi / TNC Vehicle Trips*	Daily Work Trips	15.3	4.3	27.2	2.8	23.4	5.1	3.1	2.3	-	21.6	21.3	11.2	138	18.4	4.2	19.1	1.7	17.9	10.0	3.9	2.8	-	19.2	25.2	10.6	133
	Daily Non-Work Trips	19.9	2.5	14.9	5.8	5.1	1.6	1.7	0.6	-	6.4	7.9	1.6	68	24.3	4.9	15.1	9.3	2.7	2.1	1.6	4.0	-	6.3	9.9	1.6	82

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,3.5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes termMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes termMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	87	20	156	14	130	26	15	13	0	114	106	56	737	100	24	107	8	103	51	19	14	0	99	125	54	704
	PM Non-Work Trips	110	14	88	35	21	10	8	2	0	32	39	7	366	142	32	91	56	11	12	9	25	0	37	55	7	477
Taxi / TNC Person Trips	PM Work Trips	25	7	45	5	39	9	5	4	0	36	36	19	230	30	7	32	3	30	17	6	5	0	32	42	18	222
	PM Non-Work Trips	31	4	25	10	9	3	3	1	0	11	13	3	113	40	8	25	15	5	4	3	7	0	10	17	3	137
Transit Person Trips	PM Work Trips	151	16	85	78	60	28	14	43	0	208	447	45	1,175	146	25	108	55	66	12	20	44	0	195	382	62	1,115
	PM Non-Work Trips	253	9	83	19	31	14	46	13	2	24	107	6	607	171	22	88	31	30	3	42	11	2	20	94	7	521
Auto VehicleTrips*	PM Work Trips	47	12	110	11	123	24	14	8	0	103	93	45	590	62	20	67	6	99	48	19	9	0	88	99	47	564
	PM Non-Work Trips	61	9	60	21	11	5	3	1	0	18	20	5	214	83	24	56	37	5	6	4	23	0	25	23	5	291
Taxi / TNC Vehicle Trips*	PM Work Trips	17	4	27	3	23	5	3	2	0	22	21	11	138	18	4	19	2	18	10	4	3	0	19	25	11	133
	PM Non-Work Trips	19	2	15	6	5	2	2	1	0	6	8	2	68	24	5	15	9	3	2	2	4	0	6	10	2	82

		OUT												IN													
Total Vehicle Trips	PM Peak	108	21	170	32	134	29	17	9	0	121	113	50	804	145	44	123	43	104	54	23	32	0	113	122	52	855
Total Transit Trips	PM Peak	404	25	168	97	91	42	60	56	2	232	554	51	1782	317	47	196	86	96	15	62	55	2	215	476	69	1636

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Auto Person Trips	Daily Work Trips	39.9	-	75.3	3.2	49.4	1.0	1.5	4.7	-	27.6	6.7	-	209	38.2	13.8	43.7	-	48.4	1.0	-	-	-	19.3	1.0	3.7	169
	Daily Non-Work Trips	64.5	9.1	66.5	28.9	-	8.1	2.9	-	-	14.2	4.8	1.1	200	101.7	28.3	69.5	44.6	-	8.1	4.9	21.3	-	26.8	32.6	1.1	339
Taxi / TNC Person Trips	Daily Work Trips	9.7	-	18.2	0.8	12.0	0.2	0.4	1.1	-	6.7	1.6	-	51	9.2	3.3	10.6	-	11.7	0.2	-	-	-	4.7	0.3	0.9	41
	Daily Non-Work Trips	15.6	2.2	16.1	7.0	-	2.0	0.7	-	-	3.4	1.2	0.3	48	24.6	6.8	16.8	10.8	-	2.0	1.2	5.2	-	6.5	7.9	0.3	82
Transit Person Trips	Daily Work Trips	84.8	11.5	6.8	14.0	2.4	-	-	22.2	-	75.8	95.4	-	313	85.5	11.5	19.2	-	-	-	-	11.6	-	75.8	23.0	-	227
	Daily Non-Work Trips	192.7	-	33.8	7.8	6.2	1.3	28.0	4.5	-	10.0	27.8	-	312	77.1	-	52.9	-	18.3	1.3	25.5	4.5	-	2.2	2.4	-	184
Auto Vehicle Trips*	Daily Work Trips	17.2	-	44.7	1.6	49.4	1.0	1.5	4.7	-	21.0	6.7	-	148	16.5	11.6	23.3	-	48.4	1.0	-	-	-	12.8	1.0	3.7	118
	Daily Non-Work Trips	41.3	5.1	47.2	15.9	-	4.0	0.8	-	-	8.6	2.4	1.1	126	66.1	22.0	42.0	25.8	-	4.0	1.8	20.6	-	20.5	9.3	1.1	213
Taxi / TNC Vehicle Trips*	Daily Work Trips	5.8	-	10.9	0.5	7.2	0.1	0.2	0.7	-	4.0	1.0	-	30	5.5	2.0	6.3	-	7.0	0.1	-	-	-	2.8	0.2	0.5	24
	Daily Non-Work Trips	9.3	1.3	9.6	4.2	-	1.2	0.4	-	-	2.1	0.7	0.2	29	14.7	4.1	10.1	6.5	-	1.2	0.7	3.1	-	3.9	4.7	0.2	49

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2, 3, 5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

STEP 1: INPUTS

Land Use	Res
Amount	822
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

STEP 2: PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	4.5
Total Daily Person Trips	3699
PM Person Trip Rate	0.4
Total PM Person Trips	328.8

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	25%	917
Taxi TNC Split	6%	222
Public Transit	28%	1036
Walk	38%	1395
Bike	3%	107

CHTS Trips for District

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Drive Alone	Daily Work Trips	503	-	880	-	3,064	61	93	290	-	898	413	-	392	581	183	-	-	3,000	61	-	-	-	-	387	64	230
	Daily Non-Work Trips	1,458	61	1,441	-	-	-	-	-	-	183	-	69	1,846	973	628	200	-	-	-	-	-	1,263	-	880	-	69
Shared Ride 2	Daily Work Trips	-	-	3,790	200	-	-	-	-	-	813	-	-	309	276	2,527	-	-	-	-	-	-	-	-	813	-	-
	Daily Non-Work Trips	1,249	505	1,216	884	-	500	-	-	-	696	299	-	4,192	781	2,328	1,386	-	-	500	122	-	-	782	-	-	
Shared Ride 3	Daily Work Trips	1,976	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-	-	
	Daily Non-Work Trips	936	-	-	-	-	-	183	-	-	-	-	-	-	-	-	-	-	-	-	183	61	-	-	2,025	-	
Taxi	Daily Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	-	-	-	-	-	269	-	1,356	1,181	-	-	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	4,209	572	336	693	120	-	-	1,101	-	3,763	4,740	-	4,244	572	955	-	-	-	-	-	-	578	-	3,763	1,144	-
	Daily Non-Work Trips	9,567	-	1,678	386	309	64	1,389	222	-	498	1,380	-	3,829	-	2,627	-	-	910	64	1,267	222	-	107	120	-	

CHTS Summarized Trips

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Vehicle Drive Trips	Daily Work Trips	1,067	-	2,775	100	3,064	61	93	290	-	1,304	413	-	1,023	720	1,447	-	-	3,000	61	-	-	-	-	793	64	230
	Daily Non-Work Trips	2,563	313	2,929	986	-	250	52	-	-	531	150	69	4,103	1,363	2,604	1,601	-	-	250	113	1,281	-	1,271	578	69	
Vehicle Person Trips	Daily Work Trips	2,478	-	4,670	200	3,064	61	93	290	-	1,710	413	-	2,368	858	2,710	-	-	3,000	61	-	-	-	1,199	64	230	
	Daily Non-Work Trips	3,998	566	4,126	1,792	-	500	183	-	-	880	299	69	6,306	1,754	4,311	2,768	-	-	500	305	1,324	-	1,662	2,025	69	
Vehicle Occupancy	Daily Work Trips	2.32	-	1.68	2.00	1.00	1.00	1.00	1.00	-	1.31	1.00	-	2.31	1.19	1.87	-	-	1.00	1.00	-	-	-	-	1.51	1.00	1.00
	Daily Non-Work Trips	1.56	1.81	1.41	1.82	-	2.00	3.50	-	-	1.66	2.00	1.00	1.54	1.29	1.66	1.73	-	-	2.00	2.69	1.03	-	1.31	3.50	1.00	
Transit Trips	Daily Work Trips	4,209	572	336	693	120	-	-	1,101	-	3,763	4,740	-	4,244	572	955	-	-	-	-	-	-	578	-	3,763	1,144	-
	Daily Non-Work Trips	9,567	-	1,678	386	309	64	1,389	222	-	498	1,380	-	3,829	-	2,627	-	-	910	64	1,267	222	-	107	120	-	

CHTS Trip Shares

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Vehicle Drive Trips	Daily Work Trips	3%	0%	7%	0%	8%	0%	0%	1%	0%	3%	1%	0%	3%	2%	4%	4%	0%	8%	0%	0%	0%	0%	2%	0%	1%	
	Daily Non-Work Trips	7%	1%	8%	3%	0%	1%	0%	0%	0%	1%	0%	0%	11%	4%	7%	4%	0%	0%	1%	0%	0%	3%	0%	3%	2%	
Vehicle Person Trips	Daily Work Trips	4%	0%	8%	0%	5%	0%	0%	1%	0%	3%	1%	0%	4%	2%	5%	0%	5%	0%	0%	0%	0%	2%	0%	0%	0%	
	Daily Non-Work Trips	7%	1%	7%	3%	0%	1%	0%	0%	0%	2%	1%	0%	11%	3%	8%	5%	0%	1%	1%	2%	0%	3%	4%	0%	0%	
Transit Trips	Daily Work Trips	8%	1%	1%	1%	0%	0%	0%	2%	0%	7%	9%	0%	8%	1%	2%	0%	0%	0%	0%	0%	1%	0%	7%	2%	0%	
	Daily Non-Work Trips	19%	0%	3%	1%	1%	0%	3%	0%	0%	1%	3%	0%	7%	0%	5%	0%	2%	0%	2%	0%	0%	0%	0%	0%	0%	

CHTS Trips for Place Type

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West TownMarket	Mission/ Potrero	OuterMission North/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Drive Alone	Daily Work Trips	3,135	600	2,963	933	4,260	264	3,321	801	-	2,884	1,683	703	3,125	1,903	4,575	709	3,969	144	-	-	-	-	1,658	1,083	1,032	
	Daily Non-Work Trips	4,253	122	8,747	667	564	362	3,599	1,170	-	2,109	717	558	2,842	2,115	10,569	573	143	1,724	5,018	1,954	-	-	3,699	1,741	619	
Shared Ride 2	Daily Work Trips	183	-	3,912	200	174	-	-	-	-	1,461	-	-	370	349	3,088	61	174	-	-	-	-	270	-	813	-	-
	Daily Non-Work Trips	2,449	505	3,760	1,006	1,120	500	252	257	-	2,894	299	735	4,592	1,294	6,517	1,748	764	500	941	527	-	1,598	-	735		
Shared Ride 3	Daily Work Trips	1,976	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-	-	
	Daily Non-Work Trips	1,119	-	2,802	-	532	-	183	540	-	-	224	-	893	-	2,629	-	471	-	183	601	-	-	-	2,249	-	
Taxi	Daily Work Trips	3,000	465	187	-	-	-	-	137	-	317	-	-	3,000	-	187	-	-	-	-	-	-	-	-	317	-	
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	242	-	-	-	-	1,116	-	1,936	1,181	-	-	-	-	-	-	-	-	-	
Transit	Daily Work Trips	9,775	1,451	1,750	3,270	184	-	348	1,197	-	4,571	6,679	-	6,516	1,434	1,374	-	64	-	-	-	-	674	-	4,632	3,083	-
	Daily Non-Work Trips	16,395	1,467	11,120	3,332	370	64	3,270	426	-	786	2,239															

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	4%	1%	4%	1%	3%	0%	3%	1%	0%	3%	1%	1%	4%	2%	5%	1%	3%	0%	0%	1%	0%	2%	1%	1%
	Daily Non-Work Trips	5%	0%	9%	1%	1%	0%	3%	1%	0%	3%	1%	1%	5%	2%	12%	2%	1%	2%	4%	2%	0%	3%	2%	1%
Vehicle Person Trips	Daily Work Trips	5%	1%	4%	1%	3%	0%	2%	1%	0%	3%	1%	0%	5%	1%	5%	0%	2%	0%	0%	1%	0%	2%	1%	1%
	Daily Non-Work Trips	5%	0%	10%	2%	1%	1%	2%	1%	0%	3%	1%	1%	6%	2%	13%	2%	1%	1%	4%	2%	0%	3%	2%	1%
Transit Trips	Daily Work Trips	8%	1%	1%	3%	0%	0%	0%	1%	0%	4%	6%	0%	5%	1%	1%	0%	0%	0%	0%	1%	0%	4%	3%	0%
	Daily Non-Work Trips	14%	1%	9%	3%	0%	0%	3%	0%	0%	1%	2%	0%	8%	1%	11%	3%	1%	0%	2%	0%	0%	0%	1%	0%

CHTS Trips for City

		Outbound										Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	Daily Work Trips	12,707	1,970	8,467	5,591	11,333	5,912	7,371	5,112	-	14,968	10,641	1,484	11,148	3,315	9,636	3,107	9,346	5,302	3,982	5,252	143	13,999	8,447	2,240
	Daily Non-Work Trips	9,162	3,474	25,699	8,837	16,494	2,972	9,917	15,970	-	8,979	3,927	1,865	8,019	3,932	26,104	5,699	21,405	7,278	11,644	16,503	-	11,421	4,897	4,228
Shared Ride 2	Daily Work Trips	1,892	553	4,757	810	394	-	309	199	-	1,810	1,033	-	2,044	1,082	5,238	122	272	-	-	270	-	4,648	1,087	-
	Daily Non-Work Trips	4,887	2,204	23,337	4,763	6,830	10,078	12,393	18,384	-	14,252	3,634	3,824	9,184	1,596	25,085	20,065	9,715	1,082	12,417	23,786	-	18,489	228	1,400
Shared Ride 3	Daily Work Trips	2,218	-	807	-	61	-	-	-	-	-	-	152	-	-	-	-	-	-	-	132	-	-	152	-
	Daily Non-Work Trips	5,015	-	29,654	6,402	15,063	7,846	2,657	32,271	-	9,834	224	-	4,570	1,925	30,089	7,173	11,083	8,017	1,304	25,568	-	4,444	2,249	910
Taxi	Daily Work Trips	3,000	465	187	-	-	-	-	137	-	2,008	-	-	3,078	-	187	-	-	-	-	137	-	401	-	-
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	242	-	394	-	-	1,116	-	1,936	1,181	-	-	-	-	-	394	-	-
Transit	Daily Work Trips	27,082	13,176	6,961	5,266	3,056	365	1,593	2,886	-	8,492	12,713	-	23,952	11,253	2,746	1,926	2,898	365	1,334	1,537	-	8,646	9,855	-
	Daily Non-Work Trips	24,323	4,346	16,636	4,779	13,019	316	3,826	3,616	-	2,671	2,818	-	15,196	2,652	19,937	13,327	4,166	2,580	4,031	4,551	-	2,034	1,581	-

CHTS Summarized Trips

Vehicle Drive Trips	Daily Work Trips	16,084	2,525	11,189	5,996	11,547	5,912	7,526	5,294	-	17,075	11,201	1,484	14,576	3,856	12,367	3,168	9,482	5,302	3,982	5,507	143	16,563	9,034	2,240
	Daily Non-Work Trips	13,251	4,576	46,720	13,591	24,213	10,253	16,873	34,527	-	19,151	5,808	3,777	14,585	5,280	48,402	18,489	29,429	10,110	18,225	35,701	-	22,171	5,654	5,188
Vehicle Person Trips	Daily Work Trips	19,818	2,988	14,219	6,401	11,788	5,912	7,681	5,448	-	18,785	11,826	1,484	18,241	4,397	15,061	3,229	9,618	5,302	3,982	5,791	143	19,048	9,686	2,240
	Daily Non-Work Trips	19,420	5,678	80,160	20,910	38,387	20,897	24,967	66,866	-	33,460	7,785	5,689	22,889	7,452	83,213	34,119	42,203	16,377	25,365	65,857	-	34,748	7,374	6,538
Vehicle Occupancy	Daily Work Trips	1.23	1.18	1.27	1.07	1.02	1.00	1.02	1.03	-	1.10	1.06	1.00	1.25	1.14	1.22	1.02	1.01	1.00	1.00	1.05	1.00	1.15	1.07	1.00
	Daily Non-Work Trips	1.47	1.24	1.72	1.54	1.59	2.04	1.48	1.94	-	1.75	1.34	1.51	1.57	1.41	1.72	1.85	1.43	1.62	1.39	1.84	-	1.57	1.30	1.26
Transit Trips	Daily Work Trips	27,082	13,176	6,961	5,266	3,056	365	1,593	2,886	-	8,492	12,713	-	23,952	11,253	2,746	1,926	2,898	365	1,334	1,537	-	8,646	9,855	-
	Daily Non-Work Trips	24,323	4,346	16,636	4,779	13,019	316	3,826	3,616	-	2,671	2,818	-	15,196	2,652	19,937	13,327	4,166	2,580	4,031	4,551	-	2,034	1,581	-

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	3%	0%	2%	1%	2%	1%	1%	1%	0%	3%	2%	0%	2%	1%	2%	1%	2%	1%	1%	1%	0%	3%	2%	0%
	Daily Non-Work Trips	2%	1%	8%	2%	4%	2%	3%	6%	0%	3%	1%	1%	2%	1%	8%	3%	5%	2%	3%	6%	0%	4%	1%	1%
Vehicle Person Trips	Daily Work Trips	2%	0%	2%	1%	1%	1%	1%	1%	0%	2%	1%	0%	2%	1%	2%	0%	1%	1%	0%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	2%	1%	9%	2%	4%	2%	3%	8%	0%	4%	1%	1%	3%	1%	10%	4%	5%	2%	3%	8%	0%	4%	1%	1%
Transit Trips	Daily Work Trips	9%	5%	2%	2%	1%	0%	1%	1%	0%	3%	4%	0%	8%	4%	1%	1%	1%	0%	0%	1%	0%	3%	3%	0%
	Daily Non-Work Trips	8%	1%	6%	2%	4%	0%	1%	1%	0%	1%	1%	0%	5%	1%	7%	5%	1%	1%	1%	2%	0%	1%	1%	0%

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

STEP 1: INPUTS

Land Use	Off
Amount	350
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

STEP 2: PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	15.7
Total Daily Person Trips	5495
PM Person Trip Rate	1.4
Total PM Person Trips	490

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	18%	1011
Taxi TNC Split	6%	335
Public Transit	29%	1583
Walk	42%	2324
Bike	4%	203

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	OuterMission/Hillside	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	OuterMission/Hillside	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	Daily Work Trips	37.1	14.0	77.1	6.6	78.6	25.0	11.9	6.8	-	73.6	88.4	54.8	474	58.8	5.7	56.7	3.7	50.3	49.6	18.2	11.8	-	67.9	113.7	47.9	484
	Daily Non-Work Trips	7.6	-	1.0	-	-	-	-	-	-	1.3	22.5	2.1	34	7.6	-	2.9	-	-	-	-	-	-	-	6.0	2.1	19
Taxi / TNC Person Trips	Daily Work Trips	12.3	4.6	25.6	2.2	26.1	8.3	3.9	2.3	-	24.4	29.3	18.2	157	19.5	1.9	18.8	1.2	16.7	16.5	6.0	3.9	-	22.5	37.7	15.9	161
	Daily Non-Work Trips	2.5	-	0.3	-	-	-	-	-	-	0.4	7.5	0.7	11	2.5	-	1.0	-	-	-	-	-	-	-	2.0	0.7	6
Transit Person Trips	Daily Work Trips	48.0	3.3	59.2	61.5	50.4	28.4	13.7	20.2	-	122.6	336.1	41.9	785	37.3	9.5	72.0	48.4	56.6	11.7	18.8	31.6	-	103.8	336.1	54.0	780
	Daily Non-Work Trips	-	-	0.6	-	-	-	-	-	-	-	-	-	1	-	-	0.6	-	-	-	-	-	-	-	15.5	0.7	17
Auto Vehicle Trips*	Daily Work Trips	21.3	7.7	60.9	6.2	71.5	22.5	11.3	2.9	-	70.3	77.7	44.0	396	42.7	5.7	38.0	3.7	47.3	47.1	17.5	7.8	-	64.3	89.1	41.1	404
	Daily Non-Work Trips	2.7	-	1.0	-	-	-	-	-	-	1.0	13.3	2.1	20	2.7	-	2.6	-	-	-	-	-	-	-	6.0	2.1	13
Taxi / TNC Vehicle Trips*	Daily Work Trips	7.4	2.8	15.3	1.3	15.6	5.0	2.4	1.3	-	14.6	17.5	10.9	94	11.7	1.1	11.2	0.7	10.0	9.9	3.6	2.3	-	13.5	22.6	9.5	96
	Daily Non-Work Trips	1.5	-	0.2	-	-	-	-	-	-	0.3	4.5	0.4	7	1.5	-	0.6	-	-	-	-	-	-	-	1.2	0.4	4

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

CHTS Trips for District		Outbound												Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Drive Alone	Daily Work Trips	1,194	130	3,703	578	6,187	1,914	1,021	-	-	6,592	7,048	3,645	3,405	544	1,273	352	4,260	4,282	1,623	479	-	5,986	7,576	3,493	
	Daily Non-Work Trips	-	-	95	-	-	-	-	-	-	61	487	201	-	-	221	-	-	-	-	-	-	-	-	582	201
Shared Ride 2	Daily Work Trips	431	-	487	-	1,376	491	124	411	-	154	71	569	279	-	1,177	-	579	491	124	411	-	215	166	673	
	Daily Non-Work Trips	-	-	-	-	-	-	-	-	-	61	1,456	-	-	-	61	-	-	-	-	-	-	-	-	-	-
Shared Ride 3	Daily Work Trips	1,667	380	61	61	-	-	-	243	-	335	1,383	1,052	1,976	-	-	-	-	-	-	243	-	335	3,193	442	
	Daily Non-Work Trips	573	-	-	-	-	-	-	-	-	-	221	-	573	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	Daily Work Trips	277	832	3,163	-	-	-	-	-	-	-	-	-	-	-	3,000	-	-	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	155	-	-	-	-	-	-	-	-	-	-	-	155	-	-	-	-	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	5,075	351	6,249	6,498	5,327	2,996	1,448	2,132	-	12,952	35,496	4,430	3,938	1,003	7,609	5,107	5,983	1,235	1,987	3,337	-	10,960	35,503	5,706	
	Daily Non-Work Trips	-	-	61	-	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	-	-	-	-	1,635	73

CHTS Summarized Trips		Outbound												Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Vehicle Drive Trips	Daily Work Trips	2,052	737	5,859	595	6,875	2,160	1,083	275	-	6,765	7,479	4,231	4,109	544	3,658	352	4,550	4,528	1,685	754	-	6,189	8,572	3,956	
	Daily Non-Work Trips	257	-	95	-	-	-	-	-	-	92	1,278	201	257	-	251	-	-	-	-	-	-	-	-	582	201
Vehicle Person Trips	Daily Work Trips	3,569	1,342	7,415	639	7,563	2,405	1,145	653	-	7,081	8,502	5,267	5,660	544	5,450	352	4,839	4,773	1,747	1,132	-	6,536	10,936	4,609	
	Daily Non-Work Trips	728	-	95	-	-	-	-	-	-	122	2,164	201	728	-	282	-	-	-	-	-	-	-	-	582	201
Vehicle Occupancy	Daily Work Trips	1.74	1.82	1.27	1.07	1.10	1.11	1.06	2.38	-	1.05	1.14	1.24	1.38	1.00	1.49	1.00	1.06	1.05	1.04	1.50	-	1.06	1.28	1.16	
	Daily Non-Work Trips	2.84	-	1.00	-	-	-	-	-	-	1.33	1.69	1.00	2.84	-	1.12	-	-	-	-	-	-	-	-	1.00	1.00
Transit Trips	Daily Work Trips	5,075	351	6,249	6,498	5,327	2,996	1,448	2,132	-	12,952	35,496	4,430	3,938	1,003	7,609	5,107	5,983	1,235	1,987	3,337	-	10,960	35,503	5,706	
	Daily Non-Work Trips	-	-	61	-	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	-	-	-	-	1,635	73

CHTS Trip Shares		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	Daily Work Trips	3%	1%	7%	1%	9%	3%	1%	0%	0%	8%	9%	5%	5%	1%	5%	0%	6%	6%	2%	1%	0%	8%	11%	5%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Vehicle Person Trips	Daily Work Trips	4%	1%	8%	1%	8%	2%	1%	1%	0%	7%	9%	5%	6%	1%	6%	0%	5%	5%	2%	1%	0%	7%	11%	5%
	Daily Non-Work Trips	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Transit Trips	Daily Work Trips	3%	0%	4%	4%	3%	2%	1%	1%	0%	8%	21%	3%	2%	1%	5%	3%	4%	1%	1%	2%	0%	7%	21%	3%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%

CHTS Trips for Place Type		Outbound												Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Drive Alone	Daily Work Trips	3,354	986	8,255	1,242	7,641	2,231	4,707	2,912	-	15,440	13,047	6,664	6,224	2,659	7,419	1,406	5,613	4,763	4,623	1,716	-	14,679	10,704	5,925	
	Daily Non-Work Trips	-	-	95	61	187	-	-	-	-	561	487	420	-	-	221	61	-	-	-	500	-	-	582	359	
Shared Ride 2	Daily Work Trips	3,362	385	1,096	2,670	1,929	795	1,320	1,735	-	375	2,564	1,213	4,474	505	2,602	-	1,701	620	481	1,604	-	346	782	1,257	
	Daily Non-Work Trips	-	-	-	350	-	-	350	-	-	61	1,456	-	-	-	61	350	-	187	-	350	72	-	-	-	
Shared Ride 3	Daily Work Trips	2,998	380	61	61	-	-	-	243	-	569	1,768	1,052	3,307	-	-	-	807	-	-	243	-	335	5,651	442	
	Daily Non-Work Trips	573	-	-	-	-	-	-	-	-	-	221	-	573	-	-	-	-	-	-	-	-	-	-	-	
Taxi	Daily Work Trips	277	952	3,300	-	-	-	-	-	-	-	-	-	-	119	3,068	-	-	-	-	-	-	-	-	-	
	Daily Non-Work Trips	155	-	-	-	-	-	-	-	-	-	-	-	155	-	-	-	-	-	-	-	-	-	-	-	
Transit	Daily Work Trips	8,649	351	7,825	9,564	6,131	2,996	4,198	8,459	-	17,010	47,102	6,369	6,544	1,877	9,138	9,872	8,467	2,168	4,014	9,735	-	12,460	50,253	7,818	
	Daily Non-Work Trips	345	-	122	-	-	-	-	-	-	-	-	-	345	-	61	-	-	-	-	61	-	-	-	2,000	73

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	Daily Work Trips	6,058	1,857	10,796	2,595	8,606	2,629	5,367	3,848	-	15,790	14,834	7,572	9,405	2,983	10,557	1,406	6,694	5,073	4,863	2,587	-	14,948	12,710	6,680
	Daily Non-Work Trips	257	-	95	236	187	-	175	-	-	592	1,278	420	257	-	251	236	94	-	175	536	-	-	582	359
Vehicle Person Trips	Daily Work Trips	9,992	2,703	12,712	3,973	9,570	3,026	6,027	4,889	-	16,383	17,379	8,930	14,004	3,284	13,089	1,406	8,121	5,383	5,104	3,563	-	15,361	17,138	7,624
	Daily Non-Work Trips	728	-	95	411	187	-	350	-	-	622	2,164	420	728	-	282	411	187	-	350	572	-	-	582	359
Vehicle Occupancy	Daily Work Trips	1.65	1.46	1.18	1.53	1.11	1.15	1.12	1.27	-	1.04	1.17	1.18	1.49	1.10	1.24	1.00	1.21	1.06	1.05	1.38	-	1.03	1.35	1.14
	Daily Non																								

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	4%	1%	7%	2%	5%	2%	3%	2%	0%	10%	9%	5%	6%	2%	6%	1%	4%	3%	3%	2%	0%	9%	8%	4%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vehicle Person Trips	Daily Work Trips	5%	1%	6%	2%	5%	2%	3%	2%	0%	8%	9%	5%	7%	2%	7%	1%	4%	3%	3%	2%	0%	8%	9%	4%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transit Trips	Daily Work Trips	4%	0%	3%	4%	3%	1%	2%	3%	0%	7%	19%	3%	3%	1%	4%	4%	3%	1%	2%	4%	0%	5%	21%	3%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%

CHTS Trips for City

		Outbound										Inbound														
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Drive Alone	Daily Work Trips	6,704	1,415	19,663	6,822	15,429	3,196	8,108	8,648	-	30,621	18,397	9,488	3,196	10,891	3,102	18,076	6,452	14,055	6,534	8,337	10,239	144	30,213	14,135	9,096
	Daily Non-Work Trips	-	-	95	61	187	-	-	-	-	951	708	496	-	-	-	221	61	-	-	-	500	-	390	802	435
Shared Ride 2	Daily Work Trips	5,469	385	1,683	4,038	2,051	1,943	1,690	3,725	-	1,282	3,753	1,412	-	5,141	505	2,602	183	2,022	803	1,912	2,052	-	2,033	1,284	1,257
	Daily Non-Work Trips	-	662	-	350	-	-	350	427	-	61	1,456	-	-	-	-	61	350	187	-	350	1,161	-	61	-	-
Shared Ride 3	Daily Work Trips	3,059	380	61	61	132	-	-	243	-	1,519	4,472	1,285	-	3,368	246	-	61	807	-	-	375	-	335	9,416	675
	Daily Non-Work Trips	573	-	-	-	-	-	-	-	-	-	221	-	-	573	-	-	-	-	-	-	-	-	-	-	-
Taxi	Daily Work Trips	277	1,472	3,960	107	-	-	-	137	-	-	-	-	-	-	119	3,205	107	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	155	-	-	-	-	-	-	-	-	-	-	-	-	155	-	-	-	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	9,378	351	8,813	11,353	7,775	3,222	4,603	10,386	-	17,218	50,910	7,457	-	8,712	1,877	11,112	10,968	10,121	2,950	4,419	11,967	-	14,309	53,397	8,160
	Daily Non-Work Trips	409	-	122	-	-	-	-	198	-	-	-	-	-	409	-	61	-	-	-	-	259	-	-	2,000	73

CHTS Summarized Trips

Vehicle Drive Trips	Daily Work Trips	10,479	2,597	22,894	8,922	16,492	4,168	8,953	10,662	-	31,696	21,551	10,561	14,424	3,496	21,297	6,625	15,296	6,936	9,293	11,372	144	31,325	17,467	9,917	
	Daily Non-Work Trips	257	331	95	236	187	-	175	214	-	982	1,499	496	257	-	251	236	94	-	175	1,080	-	421	802	435	
Vehicle Person Trips	Daily Work Trips	15,510	3,652	25,368	11,028	17,612	5,139	9,798	12,753	-	33,422	26,622	12,185	19,401	3,973	23,884	6,803	16,884	7,337	10,249	12,665	144	32,582	24,835	11,028	
	Daily Non-Work Trips	728	662	95	411	187	-	350	427	-	1,012	2,385	496	728	-	282	411	187	-	350	1,661	-	451	802	435	
Vehicle Occupancy	Daily Work Trips	1.48	1.41	1.11	1.24	1.07	1.23	1.09	1.20	-	1.05	1.24	1.15	1.34	1.14	1.12	1.03	1.10	1.06	1.10	1.11	1.00	1.04	1.42	1.11	
	Daily Non-Work Trips	2.84	2.00	1.00	1.74	1.00	-	2.00	2.00	-	1.03	1.59	1.00	2.84	-	1.12	1.74	2.00	-	2.00	1.54	-	1.07	1.00	1.00	
Transit Trips	Daily Work Trips	9,378	351	8,813	11,353	7,775	3,222	4,603	10,386	-	17,218	50,910	7,457	-	8,712	1,877	11,112	10,968	10,121	2,950	4,419	11,967	-	14,309	53,397	8,160
	Daily Non-Work Trips	409	-	122	-	-	-	-	198	-	-	-	-	-	409	-	61	-	-	-	-	259	-	-	2,000	73

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	3%	1%	8%	3%	5%	1%	3%	3%	0%	10%	7%	3%	5%	1%	7%	2%	5%	2%	3%	4%	0%	10%	6%	3%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vehicle Person Trips	Daily Work Trips	4%	1%	7%	3%	5%	1%	3%	4%	0%	9%	8%	3%	5%	1%	7%	2%	5%	2%	3%	4%	0%	9%	7%	3%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transit Trips	Daily Work Trips	3%	0%	3%	4%	3%	1%	2%	4%	0%	6%	19%	3%	3%	1%	4%	4%	4%	1%	2%	4%	0%	5%	20%	3%
	Daily Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

		Outbound													Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Auto Person Trips	Daily Work Trips	8.7	6.1	4.1	4.1	2.4	0.2	2.1	1.3	-	12.4	11.3	1.5	54	5.1	4.3	6.3	4.1	3.9	0.2	1.0	2.1	-	12.0	10.1	2.1	51
	Daily Non-Work Trips	37.2	4.7	20.7	6.5	21.1	1.6	5.2	2.4	-	16.8	11.4	4.0	132	33.0	3.4	18.4	11.5	11.1	3.8	3.8	3.8	-	9.7	16.5	4.0	119
Taxi / TNC Person Trips	Daily Work Trips	3.5	2.5	1.7	1.7	1.0	0.1	0.9	0.5	-	5.0	4.6	0.6	22	2.1	1.8	2.6	1.7	1.6	0.1	0.4	0.8	-	4.9	4.1	0.8	21
	Daily Non-Work Trips	15.1	1.9	8.4	2.6	8.6	0.6	2.1	1.0	-	6.9	4.6	1.6	54	13.5	1.4	7.5	4.7	4.5	1.6	1.6	1.5	-	4.0	6.7	1.6	48
Transit Person Trips	Daily Work Trips	18.2	1.0	18.9	2.3	7.3	-	-	0.5	-	9.5	15.9	2.9	77	24.6	3.7	16.3	6.4	9.0	-	1.7	0.5	-	15.7	23.3	7.8	109
	Daily Non-Work Trips	61.4	9.5	48.2	11.4	25.0	12.6	-	17.6	8.5	2.0	13.6	79.0	294	94.6	22.1	34.6	30.8	11.5	2.2	16.1	6.9	2.0	18.1	75.7	5.8	320
Auto Vehicle Trips*	Daily Work Trips	8.1	4.1	4.1	3.6	2.4	0.2	1.0	0.9	-	11.6	8.8	1.3	46	4.5	2.3	5.5	2.2	3.3	0.2	1.0	1.0	-	10.9	9.0	1.9	42
	Daily Non-Work Trips	16.7	4.3	11.6	5.1	10.8	1.1	1.8	1.4	-	8.6	4.7	1.4	68	13.9	2.0	11.2	10.7	5.3	2.1	2.2	2.6	-	4.4	8.0	1.8	64
Taxi / TNC Vehicle Trips*	Daily Work Trips	2.1	1.5	1.0	1.0	0.6	0.0	0.5	0.3	-	3.0	2.8	0.4	13	1.2	1.1	1.5	1.0	1.0	0.0	0.2	0.5	-	2.9	2.5	0.5	12
	Daily Non-Work Trips	9.1	1.2	5.0	1.6	5.1	0.4	1.3	0.6	-	4.1	2.8	1.0	32	8.1	0.8	4.5	2.8	2.7	0.9	0.9	0.9	-	2.4	4.0	1.0	29

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

STEP 1: INPUTS

Land Use	Ret
Amount	21
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

STEP 2: PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	150
Total Daily Person Trips	3150
PM Person Trip Rate	13.5
Total PM Person Trips	283.5

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	11%	356
Taxi TNC Split	5%	145
Public Transit	25%	800
Walk	55%	1729
Bike	4%	117

CHTS Trips for District		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	Daily Work Trips	4,118	1,673	2,291	1,744	1,346	94	309	252	-	5,987	4,319	628	2,017	764	2,641	133	1,448	94	562	290	-	5,520	4,741	928
	Daily Non-Work Trips	2,409	2,187	3,113	2,175	2,428	391	-	411	-	1,927	435	-	2,021	658	3,936	5,549	1,096	391	850	1,064	-	978	1,540	385
Shared Ride 2	Daily Work Trips	279	405	-	232	-	-	-	467	-	891	131	217	122	298	807	2,107	720	-	-	-	-	891	61	217
	Daily Non-Work Trips	6,925	276	3,140	815	4,172	491	870	411	-	3,423	2,380	714	3,982	380	2,380	806	1,966	1,403	124	533	-	1,042	3,406	507
Shared Ride 3	Daily Work Trips	-	1,331	-	165	-	-	850	-	-	-	-	1,827	-	1,331	61	61	-	-	-	850	-	224	821	-
	Daily Non-Work Trips	10,854	61	4,353	326	5,099	-	1,999	485	-	3,983	3,501	1,514	11,790	852	3,882	-	3,086	325	1,146	485	-	3,385	4,181	1,331
Taxi	Daily Work Trips	400	-	-	139	-	-	-	-	-	-	-	-	678	-	-	-	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	444	100	847	273	-	-	-	-	-	-	-	-	530	-	-	-	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	3,147	168	3,258	403	1,263	-	-	90	-	1,640	2,751	497	4,249	631	2,808	1,106	1,550	-	287	90	-	2,712	4,018	1,352
	Daily Non-Work Trips	10,592	1,632	8,314	1,975	4,310	2,176	3,032	1,469	345	2,340	13,631	986	16,331	3,814	5,969	5,316	1,991	372	2,775	1,195	345	3,130	13,072	1,007

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	Daily Work Trips	4,497	2,256	2,291	1,991	1,346	94	552	486	-	6,432	4,906	737	2,484	1,294	3,062	1,204	1,808	94	562	532	-	6,030	5,006	1,036
	Daily Non-Work Trips	9,238	2,403	6,434	2,839	5,971	637	1,006	755	-	4,777	2,626	790	7,698	1,091	6,235	5,952	2,961	1,186	1,239	1,469	-	2,467	4,438	1,019
Vehicle Person Trips	Daily Work Trips	4,798	3,409	2,291	2,280	1,346	94	1,159	720	-	6,877	6,276	846	2,817	2,394	3,509	2,301	2,167	94	562	1,139	-	6,635	5,623	1,145
	Daily Non-Work Trips	20,632	2,625	11,453	3,588	11,699	883	2,869	1,306	-	9,333	6,317	2,229	18,324	1,890	10,198	6,355	6,149	2,119	2,120	2,082	-	5,406	9,127	2,223
Vehicle Occupancy	Daily Work Trips	1.07	1.51	1.00	1.15	1.00	1.00	2.10	1.48	-	1.07	1.28	1.15	1.13	1.85	1.15	1.91	1.20	1.00	1.00	2.14	-	1.10	1.12	1.10
	Daily Non-Work Trips	2.23	1.09	1.78	1.26	1.96	1.39	2.85	1.73	-	1.95	2.41	2.82	2.38	1.73	1.64	1.07	2.08	1.79	1.71	1.42	-	2.19	2.06	2.18
Transit Trips	Daily Work Trips	3,147	168	3,258	403	1,263	-	-	90	-	1,640	2,751	497	4,249	631	2,808	1,106	1,550	-	287	90	-	2,712	4,018	1,352
	Daily Non-Work Trips	10,592	1,632	8,314	1,975	4,310	2,176	3,032	1,469	345	2,340	13,631	986	16,331	3,814	5,969	5,316	1,991	372	2,775	1,195	345	3,130	13,072	1,007

CHTS Trip Shares		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	Daily Work Trips	4%	2%	2%	2%	1%	0%	0%	0%	0%	5%	4%	1%	2%	1%	3%	1%	0%	0%	0%	0%	5%	4%	1%	
	Daily Non-Work Trips	8%	2%	5%	2%	5%	1%	1%	1%	0%	0%	4%	2%	6%	1%	5%	2%	2%	1%	1%	1%	0%	2%	4%	1%
Vehicle Person Trips	Daily Work Trips	2%	2%	1%	1%	1%	0%	1%	0%	0%	3%	3%	0%	1%	1%	2%	1%	1%	0%	0%	1%	0%	3%	3%	1%
	Daily Non-Work Trips	10%	1%	6%	2%	6%	0%	1%	1%	0%	5%	3%	1%	9%	1%	5%	3%	3%	1%	1%	1%	0%	3%	5%	1%
Transit Trips	Daily Work Trips	2%	0%	2%	0%	1%	0%	0%	0%	0%	1%	2%	0%	3%	0%	2%	1%	1%	0%	0%	0%	0%	2%	3%	1%
	Daily Non-Work Trips	8%	1%	6%	1%	3%	2%	2%	1%	0%	2%	10%	1%	12%	3%	4%	4%	1%	0%	2%	1%	0%	2%	9%	1%

CHTS Trips for Place Type		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	Daily Work Trips	5,313	4,711	24,339	5,466	1,959	798	5,090	1,337	-	10,192	6,203	1,801	5,142	3,051	19,557	2,142	4,313	1,558	7,612	1,520	-	9,064	8,706	2,077
	Daily Non-Work Trips	6,030	4,926	22,056	4,622	9,436	1,337	8,047	3,831	-	12,506	3,275	3,952	7,921	3,195	19,365	9,833	8,993	863	9,047	4,967	-	6,716	3,768	2,605
Shared Ride 2	Daily Work Trips	2,250	2,131	2,827	487	142	1,362	1,789	467	-	891	350	297	548	3,529	2,044	2,331	1,310	-	247	-	-	891	259	297
	Daily Non-Work Trips	11,655	3,513	15,213	7,745	8,107	3,237	13,384	8,638	-	10,233	4,763	1,273	8,719	1,070	14,841	2,815	7,345	3,643	12,739	8,266	-	9,142	5,982	1,745
Shared Ride 3	Daily Work Trips	61	1,331	850	296	911	-	850	116	-	-	-	2,182	132	61	1,331	911	122	-	850	850	-	224	1,225	193
	Daily Non-Work Trips	15,405	61	35,061	4,286	20,229	325	14,641	1,692	-	8,105	7,334	2,384	15,250	1,349	34,762	2,918	16,303	325	15,710	6,720	-	8,297	8,959	3,207
Taxi	Daily Work Trips	400	73	-	139	-	-	-	-	-	-	-	-	1,510	-	-	-	521	-	-	-	-	-	61	-
	Daily Non-Work Trips	1,800	100	1,427	273	-	-	897	71	-	-	61	-	2,100	-	-	-	-	-	196	242	-	-	61	-
Transit	Daily Work Trips	7,585	402	3,745	1,628	1,920	-	228	579	-	2,725	4,250	497	10,305	697	3,648	3,566	2,576	1,362	519	774	-	3,146	5,873	1,352
	Daily Non-Work Trips	15,891	3,878	28,042	6,205	5,571	3,153	8,716	4,798	345	3,362	18,867	1,508	21,671	6,554	23,731	7,137	4,380	3,629	5,615	4,069	345	3,685	17,776	1,508

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10</		

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	1%	1%	6%	1%	1%	0%	1%	0%	0%	2%	2%	0%	1%	1%	5%	1%	1%	0%	2%	0%	0%	2%	2%	0%
	Daily Non-Work Trips	4%	1%	9%	2%	4%	1%	4%	2%	0%	4%	2%	1%	4%	1%	8%	3%	4%	1%	4%	2%	0%	3%	2%	1%
Vehicle Person Trips	Daily Work Trips	1%	1%	4%	1%	0%	0%	1%	0%	0%	2%	1%	0%	1%	1%	3%	1%	1%	0%	1%	0%	0%	1%	1%	0%
	Daily Non-Work Trips	5%	1%	10%	2%	5%	1%	5%	2%	0%	4%	2%	1%	5%	1%	10%	2%	5%	1%	5%	3%	0%	3%	3%	1%
Transit Trips	Daily Work Trips	3%	0%	1%	1%	1%	0%	0%	0%	0%	1%	2%	0%	4%	0%	1%	1%	1%	0%	0%	0%	0%	1%	2%	1%
	Daily Non-Work Trips	6%	2%	11%	2%	2%	1%	3%	2%	0%	1%	7%	1%	8%	3%	9%	3%	2%	1%	2%	2%	0%	1%	7%	1%

CHTS Trips for City

		Outbound										Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	Daily Work Trips	8,972	6,467	27,888	10,155	4,164	3,977	8,244	5,269	467	20,252	8,229	3,488	9,405	5,789	25,255	7,838	7,207	3,832	10,439	5,227	-	23,502	10,586	3,442
	Daily Non-Work Trips	11,535	8,684	31,256	11,022	41,422	10,982	18,327	19,912	-	30,942	7,291	6,535	8,149	4,578	29,107	16,746	38,495	5,444	18,588	23,596	-	24,481	5,819	5,328
Shared Ride 2	Daily Work Trips	2,866	2,259	5,081	3,119	766	1,578	1,789	3,722	-	2,314	472	1,628	1,508	5,855	6,602	6,328	1,856	1,270	557	4,216	-	2,251	435	1,628
	Daily Non-Work Trips	16,057	6,966	23,233	22,431	44,145	9,284	31,479	69,538	-	27,102	10,658	4,099	12,270	8,327	25,518	8,135	39,955	14,815	32,124	61,611	-	23,113	13,840	3,797
Shared Ride 3	Daily Work Trips	911	1,392	1,699	296	911	-	850	1,947	-	116	2,182	218	1,015	1,331	1,821	122	850	-	850	1,699	-	340	1,225	193
	Daily Non-Work Trips	16,796	2,960	43,254	13,546	51,407	12,232	18,501	45,060	-	27,146	12,532	3,621	19,665	1,524	39,539	10,184	59,517	12,636	21,585	48,723	-	30,994	13,793	4,073
Taxi	Daily Work Trips	400	73	-	245	-	-	-	-	-	84	-	61	1,571	-	-	627	-	-	-	-	-	815	61	61
	Daily Non-Work Trips	2,981	100	1,865	273	-	-	897	313	-	-	1,014	-	3,282	-	1,139	-	-	-	196	484	-	-	229	-
Transit	Daily Work Trips	10,809	3,267	5,487	7,487	2,103	99	228	969	-	3,382	4,331	497	12,771	2,454	7,357	6,325	6,721	1,461	712	774	-	4,239	8,809	1,352
	Daily Non-Work Trips	22,356	4,568	37,496	15,206	15,938	6,415	10,176	10,684	345	6,202	24,966	2,791	31,917	7,205	36,131	12,914	17,166	5,390	7,033	9,503	345	8,219	24,119	1,850

CHTS Summarized Trips

Vehicle Drive Trips	Daily Work Trips	10,905	8,038	30,914	11,946	4,807	4,766	9,381	7,686	467	21,493	9,089	4,401	11,390	9,097	29,076	11,412	8,378	4,467	10,960	7,820	-	25,213	11,191	4,348
	Daily Non-Work Trips	26,147	13,072	56,347	26,271	78,182	19,119	39,890	67,743	-	52,248	16,808	9,619	21,868	9,177	53,845	23,723	75,478	16,462	40,935	68,612	-	44,892	16,817	8,390
Vehicle Person Trips	Daily Work Trips	13,149	10,192	34,668	13,816	5,841	5,555	10,882	10,937	467	22,766	10,884	5,395	13,499	12,975	33,678	14,915	9,912	5,102	11,845	11,142	-	26,908	12,308	5,324
	Daily Non-Work Trips	47,368	18,710	99,608	47,272	136,973	32,499	69,204	134,824	-	85,190	31,495	14,256	43,367	14,428	95,303	35,065	137,968	32,895	72,494	134,413	-	78,587	33,681	13,198
Vehicle Occupancy	Daily Work Trips	1.21	1.27	1.12	1.16	1.21	1.17	1.16	1.42	1.00	1.06	1.20	1.23	1.19	1.43	1.16	1.31	1.18	1.14	1.08	1.42	-	1.07	1.10	1.22
	Daily Non-Work Trips	1.81	1.43	1.77	1.80	1.75	1.70	1.73	1.99	-	1.63	1.87	1.48	1.98	1.57	1.77	1.48	1.83	2.00	1.77	1.96	-	1.75	2.00	1.57
Transit Trips	Daily Work Trips	10,809	3,267	5,487	7,487	2,103	99	228	969	-	3,382	4,331	497	12,771	2,454	7,357	6,325	6,721	1,461	712	774	-	4,239	8,809	1,352
	Daily Non-Work Trips	22,356	4,568	37,496	15,206	15,938	6,415	10,176	10,684	345	6,202	24,966	2,791	31,917	7,205	36,131	12,914	17,166	5,390	7,033	9,503	345	8,219	24,119	1,850

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	1%	1%	3%	1%	0%	0%	1%	1%	0%	2%	1%	0%	1%	1%	3%	1%	1%	0%	1%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	3%	1%	5%	3%	7%	2%	4%	6%	0%	5%	2%	1%	2%	1%	5%	2%	7%	2%	4%	7%	0%	4%	2%	1%
Vehicle Person Trips	Daily Work Trips	1%	1%	2%	1%	0%	0%	1%	1%	0%	1%	1%	0%	1%	1%	2%	1%	1%	0%	1%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	3%	1%	6%	3%	8%	2%	4%	8%	0%	5%	2%	1%	3%	1%	6%	2%	8%	2%	4%	8%	0%	5%	2%	1%
Transit Trips	Daily Work Trips	3%	1%	1%	2%	1%	0%	0%	0%	0%	1%	1%	0%	3%	1%	2%	2%	2%	0%	0%	0%	0%	1%	2%	0%
	Daily Non-Work Trips	5%	1%	9%	4%	4%	2%	2%	3%	0%	2%	6%	1%	8%	2%	9%	3%	4%	1%	2%	2%	0%	2%	6%	0%



OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

Person Trips by Mode

Auto Person Trips	204
Taxi TNC Person Trips	63
Public Transit	305
Walk	487
Bike	38

		Outbound												Inbound														
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total	
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		
Auto Person Trips	PM Work Trips	10.1	1.2	15.4	2.3	17.2	3.2	1.9	0.8	-	13.7	20.1	9.9	96	13.4	2.1	0.4	0.5	3.7	-	-	0.1	-	-	4.6	0.6	0.0	25
	PM Non-Work Trips	13.3	1.7	4.0	1.4	1.8	3.1	1.4	0.4	-	2.2	0.5	0.7	30	25.7	1.9	6.3	1.2	0.6	2.9	1.5	7.5	-	0.4	3.9	0.2	52	
Taxi / TNC Person Trips	PM Work Trips	3.2	0.4	4.5	0.8	5.7	1.1	0.6	0.3	-	4.7	6.7	3.3	31	3.7	0.6	0.2	0.2	1.2	-	-	0.1	-	1.2	0.2	0.0	7	
	PM Non-Work Trips	4.1	0.5	1.3	0.6	0.7	0.8	0.4	0.2	-	0.9	0.2	0.3	10	6.9	0.5	1.6	0.5	0.2	0.7	0.5	1.9	-	0.1	1.0	0.1	14	
Transit Person Trips	PM Work Trips	7.8	0.7	11.7	11.3	6.1	2.5	2.0	2.5	-	21.3	65.7	9.4	141	2.9	0.8	4.5	0.1	3.9	-	0.6	0.1	-	-	2.2	1.1	16	
	PM Non-Work Trips	18.9	0.6	19.3	5.3	1.4	0.2	9.3	2.1	-	4.2	16.5	0.7	78	24.2	1.7	11.7	2.7	8.3	0.6	12.0	2.1	0.4	3.9	2.2	-	70	
Auto VehicleTrips*	PM Work Trips	5.2	0.4	11.8	2.1	17.2	3.2	1.9	0.3	-	13.5	16.9	8.6	81	6.2	0.9	0.4	0.2	3.7	-	-	0.1	-	2.3	0.6	0.0	14	
	PM Non-Work Trips	8.1	1.1	3.1	1.1	0.6	1.6	0.4	0.1	-	1.4	0.1	0.2	18	13.4	0.9	3.8	1.2	0.4	1.5	0.8	7.2	-	0.2	1.2	0.1	31	
Taxi / TNC Vehicle Trips*	PM Work Trips	1.9	0.2	2.7	0.5	3.4	0.6	0.4	0.2	-	2.8	4.0	2.0	19	2.2	0.4	0.1	0.1	0.7	-	-	0.0	-	0.7	0.1	0.0	4	
	PM Non-Work Trips	2.4	0.3	0.8	0.3	0.4	0.5	0.2	0.1	-	0.5	0.1	0.2	6	4.1	0.3	1.0	0.3	0.1	0.4	0.3	1.1	-	0.1	0.6	0.1	8	

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	11	1	15	2	17	3	2	1	0	14	20	10	96	13	2	0	0	4	0	0	0	0	5	1	0	25
	PM Non-Work Trips	13	2	4	1	2	3	1	0	0	2	1	1	30	26	2	6	1	1	3	2	7	0	0	4	0	52
Taxi / TNC Person Trips	PM Work Trips	2	0	5	1	6	1	1	0	0	5	7	3	31	4	1	0	0	1	0	0	0	0	1	0	0	7
	PM Non-Work Trips	5	0	1	1	1	1	0	0	0	1	0	0	10	6	1	2	0	0	1	1	2	0	0	1	0	14
Transit Person Trips	PM Work Trips	9	1	12	11	6	2	2	2	0	21	66	9	141	2	1	5	0	4	0	1	0	0	2	1	0	16
	PM Non-Work Trips	19	1	19	5	1	0	9	2	0	4	17	1	78	24	2	12	3	8	1	12	2	0	4	2	0	70
Auto VehicleTrips*	PM Work Trips	6	0	12	2	17	3	2	0	0	13	17	9	81	6	1	0	0	4	0	0	0	0	2	1	0	14
	PM Non-Work Trips	9	1	3	1	1	2	0	0	0	1	0	0	18	14	1	4	1	0	2	1	7	0	0	1	0	31
Taxi / TNC Vehicle Trips*	PM Work Trips	3	0	3	0	3	1	0	0	0	3	4	2	19	2	0	0	0	1	0	0	0	0	1	0	0	4
	PM Non-Work Trips	4	0	1	0	0	0	0	0	0	1	0	0	6	5	0	1	0	0	0	0	1	0	0	1	0	8
Total Vehicle Trips	PM Peak	22	1	19	3	21	6	2	0	0	18	21	11	<b>124</b>	27	2	5	1	5	2	1	8	0	3	3	0	<b>57</b>
Total Transit Trips	PM Peak	28	2	31	16	7	2	11	4	0	25	83	10	<b>219</b>	26	3	17	3	12	1	13	2	0	4	4	1	<b>86</b>

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

STEP 1: INPUTS

Land Use	Res
Amount	822
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

		Outbound												Total	Inbound												Total		
		1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12			
Auto Person Trips	PM Work Trips	1.7	-	6.9	-	-	-	-	-	-	-	-	-	-	9	9.1	1.5	-	-	-	-	-	-	-	-	4.4	-	-	15
	PM Non-Work Trips	8.3	1.2	2.2	-	-	2.7	1.0	-	-	-	-	-	-	15	21.5	1.5	5.6	-	-	-	2.7	0.7	7.2	-	-	3.4	43	
Taxi / TNC Person Trips	PM Work Trips	0.4	-	1.7	-	-	-	-	-	-	-	-	-	-	2	2.2	0.4	-	-	-	-	-	-	-	-	1.1	-	4	
	PM Non-Work Trips	2.0	0.3	0.5	-	-	0.7	0.2	-	-	-	-	-	-	4	5.2	0.4	1.4	-	-	-	0.7	0.2	1.7	-	-	0.8	10	
Transit Person Trips	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	PM Non-Work Trips	10.9	-	12.8	3.4	-	-	6.6	2.0	-	3.5	6.1	-	-	45	17.0	-	6.9	-	8.1	0.6	11.3	2.0	-	-	1.0	-	47	
Auto Vehicle Trips*	PM Work Trips	0.5	-	3.4	-	-	-	-	-	-	-	-	-	-	4	2.6	0.8	-	-	-	-	-	-	-	-	2.2	-	6	
	PM Non-Work Trips	5.9	0.6	2.2	-	-	1.4	0.3	-	-	-	-	-	-	10	11.6	0.8	3.4	-	-	-	1.4	0.3	7.0	-	-	1.0	25	
Taxi / TNC Vehicle Trips*	PM Work Trips	0.2	-	1.0	-	-	-	-	-	-	-	-	-	-	1	1.3	0.2	-	-	-	-	-	-	-	-	0.6	-	2	
	PM Non-Work Trips	1.2	0.2	0.3	-	-	0.4	0.1	-	-	-	-	-	-	2	3.1	0.2	0.8	-	-	-	0.4	0.1	1.0	-	-	0.5	6	

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

STEP 2: PM PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	4.5
Total Daily Person Trips	3699
PM Person Trip Rate	0.4
Total PM Person Trips	328.8

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	25%	82
Taxi TNC Split	6%	20
Public Transit	28%	92
Walk	38%	124
Bike	3%	10

CHTS Trips for District		Outbound												Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Drive Alone	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	PM Non-Work Trips	916	-	409	-	-	-	-	-	-	-	-	-	-	334	-	211	-	-	-	-	-	-	-	-	1,263
Shared Ride 2	PM Work Trips	-	-	1,263	-	-	-	-	-	-	-	-	-	-	-	276	-	-	-	-	-	-	-	-	813	-
	PM Non-Work Trips	-	223	-	-	-	500	-	-	-	-	-	-	-	3,617	276	825	-	-	-	500	122	-	-	-	-
Shared Ride 3	PM Work Trips	309	-	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	617	-	-	-	-	-	183	-	-	-	-	-	-	-	-	-	-	-	-	-	61	-	-	632	-
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	1,228	-	1,445	386	-	-	737	222	-	391	684	-	-	1,914	-	772	-	910	64	1,267	222	-	-	107	-

CHTS Summarized Trips		Outbound												Inbound												
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Vehicle Drive Trips	PM Work Trips	88	-	632	-	-	-	-	-	-	-	-	-	-	476	138	-	-	-	-	-	-	-	-	406	-
	PM Non-Work Trips	1,092	111	409	-	-	250	52	-	-	-	-	-	-	2,143	138	623	-	-	250	61	1,281	-	181	-	
Vehicle Person Trips	PM Work Trips	309	-	1,263	-	-	-	-	-	-	-	-	-	-	1,667	276	-	-	-	-	-	-	-	813	-	
	PM Non-Work Trips	1,533	223	409	-	-	500	183	-	-	-	-	-	-	3,952	276	1,036	-	-	500	122	1,324	-	632	-	
Vehicle Occupancy	PM Work Trips	3.50	-	2.00	-	-	-	-	-	-	-	-	-	-	3.50	2.00	-	-	-	-	-	-	-	2.00	-	
	PM Non-Work Trips	1.40	2.00	1.00	-	-	2.00	3.50	-	-	-	-	-	-	1.84	2.00	1.66	-	-	2.00	2.00	1.03	-	3.50	-	
Transit Trips	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	PM Non-Work Trips	1,228	-	1,445	386	-	-	737	222	-	391	684	-	-	1,914	-	772	-	910	64	1,267	222	-	-	107	

CHTS Trip Shares		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	PM Work Trips	1%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	2%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%
	PM Non-Work Trips	13%	1%	5%	0%	0%	3%	1%	0%	0%	0%	0%	0%	26%	2%	7%	0%	0%	3%	1%	15%	0%	0%	2%	0%
Vehicle Person Trips	PM Work Trips	2%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	2%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%
	PM Non-Work Trips	10%	1%	3%	0%	0%	3%	1%	0%	0%	0%	0%	0%	26%	2%	7%	0%	0%	3%	1%	9%	0%	0%	4%	0%
Transit Trips	PM Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	12%	0%	14%	4%	0%	0%	7%	2%	0%	4%	7%	0%	18%	0%	7%	0%	9%	1%	12%	2%	0%	1%	0%	0%

CHTS Trips for Place Type		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	66	-	256	-	-	-	-	-	-	-	-	-	1,720	1,191	3,640	331	106	83	-	-	-	937	577	802
	PM Non-Work Trips	1,518	-	1,751	-	143	362	130	61	-	772	-	-	678	61	3,107	-	143	-	66	1,476	-	1,624	994	368
Shared Ride 2	PM Work Trips	-	-	1,263	-	-	-	-	-	-	-	-	-	-	276	-	-	-	-	-	-	-	813	-	-
	PM Non-Work Trips	278	223	343	-	947	500	130	196	-	770	-	735	3,617	276	2,676	-	642	500	496	-	-	600	-	-
Shared Ride 3	PM Work Trips	309	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	617	-	244	-	471	-	183	183	-	-	224	-	-	-	1,641	-	471	-	-	601	-	-	856	-
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	61	-	61	-	-	-	-	-	-	-	-	-	1,920	863	322	-	64	-	-	-	-	807	1,670	-
	PM Non-Work Trips	4,326	1,467	1,689	3,271	-	-	1,336	222	-	391	1,251	-	5,483	61	6,848	590	1,011	64	1,584	344	-	394	-	-

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	PM Work Trips	154	-	888	-	-	-	-	-	-	-	-	-	2,197	1,329	3,640	331	106	83	-	-	-	1,343	577	802
	PM Non-Work Trips	1,833	111	1,992	-	751	612	247	211	-	1,157	64	368	2,487	199	4,914	-	598	250	314	1,647	-	1,924	1,238	368
Vehicle Person Trips	PM Work Trips	374	-	1,520	-	-	-	-	-	-	-	-	-	3,388	1,468	3,640	331	106	83	-	-	-	1,749	577	802
	PM Non-Work Trips	2,412	223	2,337	-	1,561	862	443	440	-	1,542	224	735	4,296	337	7,424	-	1,256	500	562	2,076	-	2,224	1,850	368
Vehicle Occupancy	PM Work Trips	2.43	-	1.71	-	-	-	-	-	-	-	-	-	1.54	1.10	1.00	1.00	1.00	1.00	-	-	-	1.30	1.00	1.00
	PM Non-Work Trips	1.32	2.00	1.17	-	2.08	1.41	1.79	2.08	-	1.33	3.50	2.00	1.73	1.69	1.51	-	2.10	2.00	1.79	1.26	-	1.16	1.49	1.00
Transit Trips	PM Work Trips	61	-	61	-	-	-	-	-	-	-	-	-	1,920	863	322	-	64	-	-	-	-	807	1,670	-
	PM Non-Work Trips	4,326	1,467	1,689	3,271	-	-	1,336	222	-	391	1,251	-	5,483	61	6,848	590	1,011	64	1,584	344	-	394	-	-

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	4%	11%	1%	0%	0%	0%	0%	4%	2%	2%
	PM Non-Work Trips	6%	0%	6%	0%	2%	2%	1%	1%	0%	4%	0%	1%	8%	1%	15%	0%	2%	1%	1%	5%	0%	6%	4%	1%
Vehicle Person Trips	PM Work Trips	1%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	3%	8%	1%	0%	0%	0%	0%	4%	1%	2%	
	PM Non-Work Trips	5%	0%	5%	0%	3%	2%	1%	1%	0%	3%	0%	2%	9%	1%	16%	0%	3%	1%	1%	5%	0%	5%	4%	1%
Transit Trips	PM Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	2%	1%	0%	0%	0%	0%	0%	2%	5%	0%	
	PM Non-Work Trips	12%	4%	5%	9%	0%	0%	4%	1%	0%	1%	3%	0%	15%	0%	19%	2%	3%	0%	4%	1%	0%	1%	0%	0%

CHTS Trips for City

		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	1,319	180	256	93	-	-	-	-	-	863	-	-	5,267	2,413	4,469	1,398	2,385	3,681	67	4,086	143	10,580	5,530	1,738
	PM Non-Work Trips	3,817	354	8,779	4,529	2,535	896	1,601	2,105	-	2,096	1,160	-	3,124	426	7,437	2,081	5,585	2,438	1,429	5,138	-	3,974	1,164	1,545
Shared Ride 2	PM Work Trips	-	-	1,329	-	-	-	-	-	-	-	-	-	457	829	65	-	99	-	-	-	-	813	-	-
	PM Non-Work Trips	787	223	3,188	504	1,697	2,318	1,625	5,777	-	6,070	578	1,342	5,005	456	11,023	9,792	5,132	1,082	1,661	16,313	-	1,693	-	199
Shared Ride 3	PM Work Trips	309	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	838	-	1,225	61	1,831	5,220	798	625	-	-	224	-	3,351	1,925	6,677	2,347	8,493	3,301	604	19,940	-	241	856	910
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	726	1,885	550	-	-	-	-	61	-	-	-	-	11,081	8,338	1,037	633	2,793	304	1,334	576	-	4,702	7,358	-
	PM Non-Work Trips	4,905	1,795	3,380	4,367	298	-	1,336	222	-	1,673	1,353	-	7,115	738	8,304	790	1,789	395	2,125	2,989	-	753	140	-

CHTS Summarized Trips

Vehicle Drive Trips	PM Work Trips	1,407	180	921	93	-	-	-	-	-	863	-	-	5,972	2,828	4,501	1,398	2,434	3,681	67	4,086	143	10,986	5,530	1,738
	PM Non-Work Trips	4,450	465	10,724	4,799	3,906	3,546	2,642	5,172	-	5,131	1,513	671	6,584	1,204	14,856	7,647	10,578	3,922	2,432	18,991	-	4,890	1,408	1,904
Vehicle Person Trips	PM Work Trips	1,627	180	1,585	93	-	-	-	-	-	863	-	-	7,392	3,243	4,534	1,398	2,483	3,681	67	4,086	143	11,392	5,530	1,738
	PM Non-Work Trips	5,442	577	13,192	5,095	6,063	8,434	4,025	8,507	-	8,166	1,962	1,342	11,480	2,807	25,138	14,220	19,210	6,821	3,694	41,391	-	5,908	2,020	2,654
Vehicle Occupancy	PM Work Trips	1.16	1.00	1.72	1.00	-	-	-	-	-	1.00	-	-	1.24	1.15	1.01	1.00	1.02	1.00	1.00	1.00	1.00	1.04	1.00	1.00
	PM Non-Work Trips	1.22	1.24	1.23	1.06	1.55	2.38	1.52	1.64	-	1.59	1.30	2.00	1.74	2.33	1.69	1.86	1.82	1.74	1.52	2.18	-	1.21	1.43	1.39
Transit Trips	PM Work Trips	726	1,885	550	-	-	-	-	61	-	-	-	-	11,081	8,338	1,037	633	2,793	304	1,334	576	-	4,702	7,358	-
	PM Non-Work Trips	4,905	1,795	3,380	4,367	298	-	1,336	222	-	1,673	1,353	-	7,115	738	8,304	790	1,789	395	2,125	2,989	-	753	140	-

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	1%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	4%	2%	3%	1%	1%	2%	0%	2%	0%	7%	3%	1%
	PM Non-Work Trips	3%	0%	7%	3%	2%	2%	2%	3%	0%	3%	1%	0%	4%	1%	9%	5%	6%	2%	1%	12%	0%	3%	1%	1%
Vehicle Person Trips	PM Work Trips	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	2%	1%	1%	1%	0%	2%	0%	5%	2%	1%
	PM Non-Work Trips	2%	0%	5%	2%	2%	3%	2%	3%	0%	3%	1%	1%	5%	1%	10%	6%	8%	3%	1%	17%	0%	2%	1%	1%
Transit Trips	PM Work Trips	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	10%	1%	1%	3%	0%	2%	1%	0%	5%	9%	0%
	PM Non-Work Trips	6%	2%	4%	5%	0%	0%	2%	0%	0%	2%	2%	0%	8%	1%	10%	1%	2%	0%	2%	3%	0%	1%	0%	0%

**STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT**

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	7.7	1.2	7.7	1.7	17.2	3.2	1.9	0.7	-	11.7	19.5	9.8	82	3.8	-	-	-	3.6	-	-	-	-	-	0.3	-	8
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi / TNC Person Trips	PM Work Trips	2.6	0.4	2.6	0.6	5.7	1.1	0.6	0.2	-	3.9	6.5	3.3	27	1.3	-	-	-	1.2	-	-	-	-	-	0.1	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit Person Trips	PM Work Trips	5.7	0.7	10.5	10.8	5.6	2.5	2.0	2.5	-	20.9	63.6	8.7	133	0.1	0.1	3.0	0.1	3.5	-	0.6	-	-	-	0.3	-	8
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Auto Vehicle Trips*	PM Work Trips	4.1	0.3	7.6	1.6	17.2	3.2	1.9	0.2	-	11.7	16.5	8.5	73	3.1	-	-	-	3.6	-	-	-	-	-	0.3	-	7
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi / TNC Vehicle Trips*	PM Work Trips	1.5	0.2	1.5	0.3	3.4	0.6	0.4	0.1	-	2.3	3.9	2.0	16	0.8	-	-	-	0.7	-	-	-	-	-	0.1	-	2
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

**STEP 1: INPUTS**

Land Use	Off
Amount	350
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

**STEP 2: PM PERSON TRIP GEN (UPDATED 2018) - PLACETYPE**

Daily Person Trip Rate	15.7
Total Daily Person Trips	5495
PM Person Trip Rate	1.4
Total PM Person Trips	490

**STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE**

Auto Split	18%	90
Taxi TNC Split	6%	30
Public Transit	29%	141
Walk	42%	207
Bike	4%	18

**CHTS Trips for District**

		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	865	-	2,468	491	5,653	1,056	626	-	-	3,856	5,031	2,617	937	-	-	-	1,192	-	-	-	-	-	-	89
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 2	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 3	PM Work Trips	1,667	380	61	61	-	-	-	243	-	-	1,383	610	309	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	2,836	351	5,246	5,398	2,824	1,235	983	1,231	-	10,450	31,851	4,369	61	61	1,525	61	1,761	-	276	-	-	-	128	
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**CHTS Summarized Trips**

Vehicle Drive Trips	PM Work Trips	1,341	109	2,485	509	5,653	1,056	626	69	-	3,856	5,426	2,792	1,025	-	-	-	1,192	-	-	-	-	-	89	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Person Trips	PM Work Trips	2,532	380	2,529	552	5,653	1,056	626	243	-	3,856	6,414	3,227	1,245	-	-	-	1,192	-	-	-	-	-	89	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Occupancy	PM Work Trips	1.89	3.50	1.02	1.09	1.00	1.00	1.00	3.50	-	1.00	1.18	1.16	1.22	-	-	-	1.00	-	-	-	-	-	1.00	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit Trips	PM Work Trips	2,836	351	5,246	5,398	2,824	1,235	983	1,231	-	10,450	31,851	4,369	61	61	1,525	61	1,761	-	276	-	-	-	128	
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**CHTS Trip Shares**

Vehicle Drive Trips	PM Work Trips	5%	0%	9%	2%	22%	4%	2%	0%	0%	15%	21%	11%	4%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vehicle Person Trips	PM Work Trips	9%	1%	9%	2%	19%	4%	2%	1%	0%	13%	22%	11%	4%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transit Trips	PM Work Trips	4%	0%	7%	8%	4%	2%	1%	2%	0%	15%	45%	6%	0%	0%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

**CHTS Trips for Place Type**

		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	2,182	159	4,705	655	6,949	1,373	894	2,730	-	12,031	9,141	5,455	1,095	-	263	180	1,192	163	-	-	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 2	PM Work Trips	-	385	500	2,490	-	-	296	1,324	-	132	1,152	301	1,263	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 3	PM Work Trips	1,667	380	61	61	-	-	-	243	-	-	1,383	610	309	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	5,254	351	6,658	5,520	3,628	1,235	3,502	7,498	-	14,444	38,496	5,956	413	61	1,525	1,694	1,761	-	276	-	-	-	128	
	PM Non-Work Trips	345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365

**CHTS Summarized Trips**

Vehicle Drive Trips	PM Work Trips	2,658	460	4,973	1,917	6,949	1,373	1,042	3,461	-	12,097	10,112	5,780	1,815	-	263	180	1,192	163	-	-	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Person Trips	PM Work Trips	3,849	924	5,267	3,206	6,949	1,373	1,190	4,297	-	12,163	11,676	6,366	2,667	-	263	180	1,192	163	-	-	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Occupancy	PM Work Trips	1.45	2.01	1.06	1.67	1.00	1.00	1.14	1.24	-	1.01	1.15	1.10	1.47	-	1.00	1.00	1.00	1.00	-	-	-	-	1.00	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit Trips	PM Work Trips	5,254	351	6,658	5,520	3,628	1,235	3,502	7,498	-	14,444	38,496	5,956	413	61	1,525	1,694	1,761	-	276	-	-	-	128	
	PM Non-Work Trips	345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365

CHTS Trip Shares																								
Vehicle Drive Trips	PM Work Trips	5%	1%	9%	3%	12%	2%	2%	6%	0%	22%	18%	10%	3%	0%	0%	0%	2%	0%	0%	0%	0%	3%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vehicle Person Trips	PM Work Trips	6%	1%	8%	5%	11%	2%	2%	7%	0%	19%	18%	10%	4%	0%	0%	0%	2%	0%	0%	0%	0%	2%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transit Trips	PM Work Trips	5%	0%	7%	6%	4%	1%	4%	8%	0%	15%	39%	6%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

CHTS Trips for City																									
		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	2,471	385	8,592	1,825	12,665	2,169	4,084	6,628	-	22,817	11,318	8,073	2,148	-	329	660	1,192	285	-	72	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 2	PM Work Trips	1,054	385	724	3,676	-	155	296	1,324	-	322	1,287	301	1,263	-	-	61	-	-	863	87	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shared Ride 3	PM Work Trips	1,667	380	61	61	132	-	-	243	-	-	4,087	842	309	-	-	-	-	-	-	132	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	5,921	351	7,582	6,213	3,689	1,461	3,714	8,132	-	14,551	41,373	7,044	474	61	1,525	1,755	1,761	-	276	-	-	-	128	-
	PM Non-Work Trips	345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365

CHTS Summarized Trips																									
Vehicle Drive Trips	PM Work Trips	3,474	686	8,972	3,680	12,702	2,246	4,232	7,359	-	22,978	13,129	8,464	2,868	-	329	691	1,192	285	431	153	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Person Trips	PM Work Trips	5,192	1,150	9,378	5,561	12,797	2,324	4,380	8,195	-	23,139	16,692	9,216	3,720	-	329	721	1,192	285	863	291	-	-	1,564	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicle Occupancy	PM Work Trips	1.49	1.68	1.05	1.51	1.01	1.03	1.03	1.11	-	1.01	1.27	1.09	1.30	-	1.00	1.04	1.00	1.00	2.00	1.90	-	-	1.00	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit Trips	PM Work Trips	5,921	351	7,582	6,213	3,689	1,461	3,714	8,132	-	14,551	41,373	7,044	474	61	1,525	1,755	1,761	-	276	-	-	-	128	-
	PM Non-Work Trips	345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365

CHTS Trip Shares																								
Vehicle Drive Trips	PM Work Trips	4%	1%	9%	4%	13%	2%	4%	8%	0%	24%	14%	9%	3%	0%	0%	1%	1%	0%	0%	0%	0%	2%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vehicle Person Trips	PM Work Trips	5%	1%	9%	5%	12%	2%	4%	8%	0%	22%	16%	9%	3%	0%	0%	1%	1%	0%	1%	0%	0%	1%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Transit Trips	PM Work Trips	6%	0%	7%	6%	3%	1%	3%	8%	0%	14%	39%	7%	0%	0%	1%	2%	2%	0%	0%	0%	0%	0%	0%
	PM Non-Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

STEP 1: INPUTS

Land Use	Ret
Amount	21
TAZ	647
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

STEP 2: PM PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	150
Total Daily Person Trips	3150
PM Person Trip Rate	13.5
Total PM Person Trips	283.5

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	11%	32
Taxi TNC Split	5%	13
Public Transit	25%	72
Walk	55%	156
Bike	4%	10

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	0.7	0.1	0.8	0.6	-	-	-	0.1	-	1.9	0.6	0.1	5	0.6	0.6	0.4	0.5	0.0	-	-	0.1	-	0.2	0.3	0.0	3
	PM Non-Work Trips	5.0	0.5	1.8	1.4	1.8	0.4	0.4	0.4	-	2.2	0.5	0.7	15	4.2	0.4	0.6	1.2	0.6	0.2	0.9	0.3	-	0.4	0.5	0.2	9
Taxi / TNC Person Trips	PM Work Trips	0.3	0.0	0.3	0.2	-	-	-	0.0	-	0.8	0.2	0.0	2	0.2	0.2	0.2	0.2	0.0	-	-	0.1	-	0.1	0.1	0.0	4
	PM Non-Work Trips	2.0	0.2	0.7	0.6	0.7	0.2	0.2	0.2	-	0.9	0.2	0.3	6	1.7	0.2	0.3	0.5	0.2	0.1	0.4	0.1	-	0.1	0.2	0.1	4
Transit Person Trips	PM Work Trips	2.1	-	1.3	0.5	0.5	-	-	-	-	0.4	2.0	0.6	7	2.7	0.7	1.5	-	0.4	-	-	0.1	-	-	1.9	1.1	8
	PM Non-Work Trips	8.0	0.6	6.4	1.9	1.4	0.2	2.7	0.1	-	0.7	10.5	0.7	33	7.1	1.7	4.8	2.7	0.2	-	0.7	0.1	0.4	3.0	2.2	-	23
Auto Vehicle Trips*	PM Work Trips	0.7	0.1	0.8	0.5	-	-	-	0.1	-	1.7	0.4	0.1	4	0.5	0.2	0.4	0.2	0.0	-	-	0.1	-	0.1	0.3	0.0	2
	PM Non-Work Trips	2.2	0.5	0.9	1.1	0.6	0.3	0.1	0.1	-	1.4	0.1	0.2	8	1.8	0.1	0.4	1.2	0.4	0.2	0.5	0.3	-	0.2	0.3	0.1	5
Taxi / TNC Vehicle Trips*	PM Work Trips	0.2	0.0	0.2	0.1	-	-	-	0.0	-	0.5	0.1	0.0	1	0.1	0.1	0.1	0.1	0.0	-	-	0.0	-	0.1	0.1	0.0	1
	PM Non-Work Trips	1.2	0.1	0.4	0.3	0.4	0.1	0.1	0.1	-	0.5	0.1	0.2	4	1.0	0.1	0.2	0.3	0.1	0.0	0.2	0.1	-	0.1	0.1	0.1	2

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

CHTS Trips for District		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Drive Alone	PM Work Trips	1,386	158	1,898	1,228	-	-	-	252	-	3,636	589	260	994	-	907	-	61	-	-	290	-	189	692	111
	PM Non-Work Trips	592	1,056	1,079	2,175	-	391	-	-	-	1,522	-	-	1,174	61	602	2,721	648	391	850	564	-	-	-	85
Shared Ride 2	PM Work Trips	-	-	-	-	-	-	-	-	-	801	61	-	122	-	-	1,054	-	-	-	-	-	89	-	-
	PM Non-Work Trips	6,261	-	169	754	1,029	491	124	411	-	3,059	-	-	2,644	-	278	61	449	-	122	-	-	620	1,194	395
Shared Ride 3	PM Work Trips	-	-	-	104	-	-	-	-	-	-	760	-	-	1,331	-	-	-	-	-	-	-	224	-	-
	PM Non-Work Trips	4,759	-	2,828	265	3,086	-	852	485	-	579	1,169	1,514	5,949	852	614	-	220	-	1,146	-	-	224	-	-
Taxi	PM Work Trips	200	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	1,666	-	995	403	388	-	-	-	-	330	1,600	497	2,153	570	1,164	-	329	-	-	90	-	-	1,519	855
	PM Non-Work Trips	6,301	501	5,049	1,468	1,069	122	2,127	67	-	586	8,225	550	5,615	1,299	3,785	2,125	140	-	562	67	345	2,349	1,692	-

CHTS Summarized Trips		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Vehicle Drive Trips	PM Work Trips	1,506	158	1,898	1,258	-	-	-	252	-	4,036	836	260	1,175	380	907	527	61	-	-	290	-	298	692	111
	PM Non-Work Trips	5,083	1,056	1,972	2,627	1,396	637	305	344	-	3,217	334	433	4,196	305	916	2,752	935	391	1,177	625	-	374	597	282
Vehicle Person Trips	PM Work Trips	1,587	158	1,898	1,333	-	-	-	252	-	4,437	1,410	260	1,316	1,331	907	1,054	61	-	-	290	-	502	692	111
	PM Non-Work Trips	11,612	1,056	4,077	3,193	4,115	883	976	896	-	5,160	1,169	1,514	9,767	913	1,493	2,782	1,317	391	1,996	686	-	844	1,194	480
Vehicle Occupancy	PM Work Trips	1.05	1.00	1.00	1.06	-	-	-	1.00	-	1.10	1.69	1.00	1.12	3.50	1.00	2.00	1.00	-	-	1.00	-	1.69	1.00	1.00
	PM Non-Work Trips	2.28	1.00	2.07	1.22	2.95	1.39	3.20	2.60	-	1.60	3.50	3.50	2.33	3.00	1.63	1.01	1.41	1.00	1.70	1.10	-	2.26	1.00	1.70
Transit Trips	PM Work Trips	1,666	-	995	403	388	-	-	-	-	330	1,600	497	2,153	570	1,164	-	329	-	-	90	-	-	1,519	855
	PM Non-Work Trips	6,301	501	5,049	1,468	1,069	122	2,127	67	-	586	8,225	550	5,615	1,299	3,785	2,125	140	-	562	67	345	2,349	1,692	-

CHTS Trip Shares		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Vehicle Drive Trips	PM Work Trips	3%	0%	4%	3%	0%	0%	0%	1%	0%	9%	2%	1%	3%	1%	2%	1%	0%	0%	1%	0%	1%	2%	0%	0%
	PM Non-Work Trips	11%	2%	4%	6%	3%	1%	1%	1%	0%	7%	1%	1%	9%	1%	2%	6%	2%	1%	3%	1%	0%	1%	1%	1%
Vehicle Person Trips	PM Work Trips	2%	0%	3%	2%	0%	0%	0%	0%	0%	6%	2%	0%	2%	2%	1%	0%	0%	0%	0%	0%	0%	1%	1%	0%
	PM Non-Work Trips	16%	1%	6%	4%	6%	1%	1%	1%	0%	7%	2%	2%	13%	1%	2%	4%	2%	1%	3%	1%	0%	1%	2%	1%
Transit Trips	PM Work Trips	3%	0%	2%	1%	1%	0%	0%	0%	0%	1%	3%	1%	4%	1%	2%	0%	1%	0%	0%	0%	0%	0%	3%	2%
	PM Non-Work Trips	11%	1%	9%	3%	2%	0%	4%	0%	0%	1%	15%	1%	10%	2%	7%	4%	0%	0%	1%	0%	1%	4%	3%	0%

CHTS Trips for Place Type		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Drive Alone	PM Work Trips	1,675	384	9,868	2,658	204	262	277	373	-	5,300	1,613	657	3,640	181	6,255	407	1,300	381	3,339	584	-	1,215	3,994	398
	PM Non-Work Trips	864	2,738	7,412	2,651	1,320	567	2,287	1,772	-	4,005	495	953	3,469	1,589	5,473	3,530	6,008	391	3,028	1,461	-	1,385	161	247
Shared Ride 2	PM Work Trips	-	-	1,826	194	65	-	1,789	-	-	801	137	80	487	1,808	451	1,278	65	-	-	-	-	89	-	-
	PM Non-Work Trips	7,423	1,507	3,425	5,012	1,706	1,815	9,294	533	-	7,678	2,056	400	3,036	-	3,201	244	636	1,323	2,448	2,187	-	1,104	1,688	569
Shared Ride 3	PM Work Trips	-	-	-	104	61	-	-	-	-	-	882	132	61	1,331	-	-	-	-	-	-	-	224	-	-
	PM Non-Work Trips	5,372	-	6,100	4,066	5,876	325	2,022	1,692	-	2,138	1,801	2,038	8,777	852	2,489	-	1,477	-	2,193	549	-	512	722	1,380
Taxi	PM Work Trips	200	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	3,811	-	1,352	1,314	388	-	-	-	-	1,354	3,023	497	6,349	570	1,810	1,176	329	-	-	579	-	163	1,519	855
	PM Non-Work Trips	8,715	1,651	11,626	2,420	2,086	122	3,807	624	-	1,074	10,500	1,011	9,102	1,360	7,085	2,247	713	-	627	2,165	345	2,349	2,641	61

CHTS Summarized Trips		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West/ SternMarket	Mission/ Potrero	OuterMiss																			

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	1%	0%	7%	2%	0%	0%	1%	0%	0%	4%	1%	1%	3%	1%	4%	1%	1%	0%	2%	0%	0%	1%	3%	0%
	PM Non-Work Trips	4%	2%	7%	4%	3%	1%	5%	2%	0%	6%	1%	1%	5%	1%	5%	3%	5%	1%	3%	2%	0%	1%	1%	1%
Vehicle Person Trips	PM Work Trips	1%	0%	5%	1%	0%	0%	1%	0%	0%	3%	1%	0%	2%	2%	3%	1%	1%	0%	2%	0%	0%	1%	2%	0%
	PM Non-Work Trips	6%	2%	8%	5%	4%	1%	6%	2%	0%	6%	2%	2%	7%	1%	5%	2%	4%	1%	4%	2%	0%	1%	1%	1%
Transit Trips	PM Work Trips	4%	0%	1%	1%	0%	0%	0%	0%	0%	1%	3%	1%	7%	1%	2%	1%	0%	0%	0%	1%	0%	0%	2%	1%
	PM Non-Work Trips	9%	2%	12%	2%	2%	0%	4%	1%	0%	1%	11%	1%	9%	1%	7%	2%	1%	0%	1%	2%	0%	2%	3%	0%

CHTS Trips for City

		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	1,736	986	10,381	5,264	792	845	2,418	670	180	8,643	3,135	2,265	6,665	819	10,189	2,614	2,321	1,303	4,854	1,029	-	6,580	4,219	537
	PM Non-Work Trips	5,002	3,760	8,672	4,354	8,535	5,900	5,672	6,223	-	10,927	2,757	1,410	3,589	2,261	6,832	6,207	13,361	1,214	7,369	4,337	-	11,663	551	801
Shared Ride 2	PM Work Trips	-	-	2,060	2,363	164	-	1,789	863	-	1,046	137	1,411	724	2,582	4,459	4,485	187	-	309	-	-	838	-	-
	PM Non-Work Trips	8,168	2,830	6,551	14,194	26,073	4,065	16,552	13,895	-	14,505	5,607	2,036	4,957	3,461	8,035	3,075	8,518	3,234	10,457	15,781	-	6,464	4,079	1,230
Shared Ride 3	PM Work Trips	-	-	-	104	61	-	-	-	-	116	882	218	165	1,331	-	-	-	-	-	-	-	224	-	-
	PM Non-Work Trips	6,579	-	8,983	12,549	29,721	7,577	3,458	27,081	-	18,312	6,375	3,276	10,033	1,027	4,890	690	14,285	7,725	4,367	12,453	-	12,878	2,440	2,246
Taxi	PM Work Trips	200	-	-	-	-	-	-	-	-	-	-	61	200	-	-	-	-	-	-	-	-	815	-	-
	PM Non-Work Trips	908	-	-	-	-	-	-	-	-	-	-	-	273	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	5,572	-	1,352	7,174	449	99	-	282	-	1,416	3,023	497	8,355	1,933	2,879	1,930	4,253	-	-	579	-	1,256	4,456	855
	PM Non-Work Trips	13,431	2,280	12,963	7,854	4,078	416	4,894	3,184	-	3,731	15,218	1,353	13,547	1,360	12,642	4,912	5,531	-	865	2,746	345	4,109	2,702	61

CHTS Summarized Trips

Vehicle Drive Trips	PM Work Trips	1,856	986	11,411	6,476	891	845	3,312	1,101	180	9,199	3,455	3,070	7,194	2,491	12,419	4,856	2,415	1,303	5,008	1,029	-	7,551	4,219	537
	PM Non-Work Trips	11,510	5,175	14,514	15,036	30,063	10,098	14,936	20,908	-	23,411	7,382	3,364	9,098	4,286	12,247	7,942	21,701	5,038	13,846	15,786	-	18,574	3,287	2,058
Vehicle Person Trips	PM Work Trips	1,936	986	12,441	7,732	1,017	845	4,207	1,533	180	9,805	4,154	3,955	7,754	4,733	14,648	7,099	2,508	1,303	5,163	1,029	-	8,457	4,219	537
	PM Non-Work Trips	20,658	6,590	24,206	31,097	64,329	17,543	25,682	47,199	-	43,743	14,739	6,722	18,852	6,750	19,757	9,972	36,164	12,173	22,194	32,572	-	31,005	7,069	4,278
Vehicle Occupancy	PM Work Trips	1.04	1.00	1.09	1.19	1.14	1.00	1.27	1.39	1.00	1.07	1.20	1.29	1.08	1.90	1.18	1.46	1.04	1.00	1.03	1.00	-	1.12	1.00	1.00
	PM Non-Work Trips	1.79	1.27	1.67	2.07	2.14	1.74	1.72	2.26	-	1.87	2.00	2.00	2.07	1.58	1.61	1.26	1.67	2.42	1.60	2.06	-	1.67	2.15	2.08
Transit Trips	PM Work Trips	5,572	-	1,352	7,174	449	99	-	282	-	1,416	3,023	497	8,355	1,933	2,879	1,930	4,253	-	-	579	-	1,256	4,456	855
	PM Non-Work Trips	13,431	2,280	12,963	7,854	4,078	416	4,894	3,184	-	3,731	15,218	1,353	13,547	1,360	12,642	4,912	5,531	-	865	2,746	345	4,109	2,702	61

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	1%	0%	3%	2%	0%	0%	1%	0%	0%	3%	1%	1%	2%	1%	3%	1%	1%	0%	1%	0%	0%	2%	1%	0%
	PM Non-Work Trips	3%	1%	4%	4%	8%	3%	4%	6%	0%	6%	2%	1%	3%	1%	3%	2%	6%	1%	4%	4%	0%	5%	1%	1%
Vehicle Person Trips	PM Work Trips	0%	0%	2%	1%	0%	0%	1%	0%	0%	2%	1%	1%	1%	1%	2%	1%	0%	0%	1%	0%	0%	1%	1%	0%
	PM Non-Work Trips	3%	1%	4%	5%	11%	3%	4%	8%	0%	7%	2%	1%	3%	1%	3%	2%	6%	2%	4%	5%	0%	5%	1%	1%
Transit Trips	PM Work Trips	3%	0%	1%	4%	0%	0%	0%	0%	0%	1%	2%	0%	5%	1%	2%	1%	3%	0%	0%	0%	0%	1%	3%	1%
	PM Non-Work Trips	8%	1%	8%	5%	2%	0%	3%	2%	0%	2%	9%	1%	8%	1%	8%	3%	3%	0%	1%	2%	0%	2%	2%	0%

# 98 FRANKLIN TRAVEL DEMAND



## School Trip Generation Rate

### Determining AM to PM and AM to Daily Conversion Rate

Land Use		Trip Generation (per student)			Conversion Rate
ITE Name	ITE Code	AM	PM	Daily	PM as a Percent of AM
Elementary School	520	0.45	0.15	1.29	33%
Middle School/Junior High	522	0.54	0.16	1.62	30%
<b>Average</b>		<b>0.50</b>	<b>0.16</b>	<b>1.46</b>	<b>31%</b>
High School	530	0.52	0.14		27%
Private K-12	536	0.91	0.26		29%

School Population at Site	
Students	60
Staff	5

### Determining Student Person Trip Generation Rates Using Data from FAIS

	Student person trips													
	AM peak hour						PM peak hour trips						Daily Trips	
	Mode split for students	Total Trips per Student	Trips In Per Student	Trips Out Per Student	Person Trips In	Person Trips Out	Mode split for students	Total Trips per Student	Trips In Per Student	Trips Out Per Student	Person Trips In	Person Trips Out	Trips In	Trips Out
Auto (One Student)	36%	1	1	0	22	0	17%	1	0	1	0	3	22	10
Auto (2+ Students)	18%	1	1	0	11	0	9%	1	0	1	0	2	11	5
Walk	3%	1	1	0	2	0	5%	1	0	1	0	1	2	3
Transit	41%	1	1	0	25	0	67%	1	0	1	0	13	25	40
Bike	2%	1	1	0	1	0	2%	1	0	1	0	0	1	1
<b>Total</b>	<b>100%</b>				<b>60</b>	<b>0</b>	<b>100%</b>				<b>0</b>	<b>19</b>	<b>60</b>	<b>60</b>

#### Notes:

1. Observed student mode split from school travel demand data. Assumed 67% solo, 33% 2+ for auto.
2. AM to PM conversion rate taken from ITE assessment due to lack of PM data

Determining Staff Person Trip Generation Rates Using Data from FAIS

Staff Person Trips							Future AM	Future PM
	AM peak hour			PM Peak Hour			Trips In	Trips Out
	AM Mode split <sup>2</sup>	Percent In Peak	Trips In	PM Mode split <sup>2</sup>	Percent In Peak	Trips Out		
Auto	30%	50%	1	32%	50%	1	1	1
Walk	16%	50%	0	14%	50%	0	0	0
Bike	18%	50%	0	18%	50%	0	0	0
Transit	36%	50%	1	36%	50%	1	1	1

Notes:

1. Observed staff trip rates from school travel demand data.
2. Staff mode split provided by FAIS.

Total Vehicle Trips

Mode / Population	Total Vehicle Trips						
	AVO	Future AM		Future PM		Future Daily	
		Trips In	Trips Out	Trips In	Trips Out	Trips In	Trips Out
Student Auto (One Student)	1.0	22	22	3	3	32	32
Student Auto (2+ Students)	2.5	4	4	1	1	6	6
Employee Auto	1.0	1	0	0	1	2	2
<b>Total Vehicle Trips</b>		<b>27</b>	<b>26</b>	<b>4</b>	<b>5</b>	<b>40</b>	<b>40</b>

Table 8 : Proposed Project Conditions – 98 Franklin Trip Generation by Mode and Land Use

Land Use	Net Increase in Land Use	Person Trips by Mode					Vehicle Trips		Transit Trips	
		Vehicle	Transit	Other <sup>1</sup>	Walk	Total	In	Out	In	Out
<b>Daily</b>										
School	5 Staff	3	4	2	1	10	2	2	2	2
School	60 Students	48	65	2	5	120	40	40	25	40
<i>Total</i>		51	69	4	6	130	42	42	27	42
<b>PM Peak Hour</b>										
School	5 Staff	1	1	0	0	2	0	1	0	1
School	60 Students	5	13	0	1	19	4	5	0	13
<i>Total</i>		6	14	0	1	21	4	6	0	14

OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

Person Trips by Mode

Auto Split	571
Taxi TNC Split	147
Public Transit	704
Walk	1,044
Bike	78

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	Daily Work Trips	23.9	0.9	43.2	2.4	28.3	0.6	1.2	2.8	-	17.4	5.4	0.2	126	22.3	8.5	25.6	0.6	27.9	0.6	0.1	0.3	-	12.7	2.1	2.4	103
	Daily Non-Work Trips	42.0	5.9	40.7	17.3	3.1	4.8	2.4	0.3	-	10.5	4.4	1.2	133	62.4	16.5	42.0	26.9	1.6	5.1	3.3	12.6	-	16.6	20.9	1.2	209
Taxi / TNC Person Trips	Daily Work Trips	6.0	0.4	10.6	0.7	6.9	0.1	0.3	0.7	-	4.5	1.6	0.1	32	5.5	2.2	6.4	0.2	6.9	0.1	0.1	0.1	-	3.4	0.8	0.6	26
	Daily Non-Work Trips	11.1	1.5	10.3	4.3	1.3	1.2	0.7	0.1	-	3.0	1.3	0.4	35	15.9	4.1	10.6	6.8	0.7	1.3	0.9	3.1	-	4.3	5.5	0.4	54
Transit Person Trips	Daily Work Trips	50.6	6.7	6.6	8.2	2.4	-	-	12.6	-	44.3	56.3	0.4	188	52.0	7.1	13.3	0.9	1.3	-	0.2	6.7	-	45.2	16.5	1.2	144
	Daily Non-Work Trips	118.0	1.4	26.2	6.1	7.2	2.6	18.4	3.8	0.3	7.7	27.4	0.8	220	57.6	3.3	35.0	4.5	12.1	1.0	16.8	3.6	0.3	3.9	12.5	0.9	151
Auto VehicleTrips*	Daily Work Trips	10.9	0.6	25.9	1.4	28.3	0.6	1.0	2.8	-	13.6	5.1	0.2	90	10.0	6.9	14.0	0.3	27.8	0.6	0.1	0.1	-	8.8	1.9	2.4	73
	Daily Non-Work Trips	25.8	3.5	28.4	9.7	1.6	2.5	0.7	0.2	-	6.1	2.1	0.8	81	39.5	12.7	25.4	16.2	0.8	2.6	1.4	12.1	-	12.2	6.5	0.9	130
Taxi / TNC Vehicle Trips*	Daily Work Trips	3.6	0.2	6.3	0.4	4.1	0.1	0.2	0.4	-	2.7	1.0	0.1	19	3.3	1.3	3.8	0.1	4.1	0.1	0.0	0.1	-	2.0	0.4	0.4	16
	Daily Non-Work Trips	6.6	0.9	6.2	2.6	0.8	0.7	0.4	0.1	-	1.8	0.8	0.2	21	9.5	2.4	6.4	4.1	0.4	0.8	0.5	1.9	-	2.5	3.3	0.2	32

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot fero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	25	1	43	2	28	1	1	3	0	17	5	0	126	22	8	26	1	28	1	0	0	0	13	2	2	103
	PM Non-Work Trips	43	6	41	17	3	5	2	0	0	11	4	1	133	62	16	42	27	2	5	3	13	0	17	21	1	209
Taxi / TNC Person Trips	PM Work Trips	5	0	11	1	7	0	0	1	0	5	2	0	32	6	2	6	0	7	0	0	0	0	3	1	1	26
	PM Non-Work Trips	12	2	10	4	1	1	1	0	0	3	1	0	35	17	4	11	7	1	1	1	3	0	4	5	0	54
Transit Person Trips	PM Work Trips	51	7	7	8	2	0	0	13	0	44	56	0	188	53	7	13	1	1	0	0	7	0	45	16	1	144
	PM Non-Work Trips	119	1	26	6	7	3	18	4	0	8	27	1	220	56	3	35	5	12	1	17	4	0	4	13	1	151
Auto VehicleTrips*	PM Work Trips	10	1	26	1	28	1	1	3	0	14	5	0	90	10	7	14	0	28	1	0	0	0	9	2	2	73
	PM Non-Work Trips	26	3	28	10	2	2	1	0	0	6	2	1	81	40	13	25	16	1	3	1	12	0	12	6	1	130
Taxi / TNC Vehicle Trips*	PM Work Trips	5	0	6	0	4	0	0	0	0	3	1	0	19	5	1	4	0	4	0	0	0	0	2	0	0	16
	PM Non-Work Trips	6	1	6	3	1	1	0	0	0	2	1	0	21	10	2	6	4	0	1	1	2	0	3	3	0	32

		OUT													IN												
Total Vehicle Trips	PM Peak	36	4	54	11	30	3	2	3	0	20	7	1	171	50	20	39	16	29	4	1	12	0	21	8	3	203
Total Transit Trips	PM Peak	170	8	33	14	9	3	18	17	0	52	83	1	408	109	10	48	6	13	1	17	11	0	49	29	2	295

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total	Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Total
Auto Person Trips	Daily Work Trips	22.6	-	42.6	1.8	27.9	0.6	0.9	2.6	-	15.6	3.8	-	118	21.6	7.8	24.7	-	27.4	0.6	-	-	-	10.9	0.6	2.1	96
	Daily Non-Work Trips	36.5	5.2	37.6	16.3	-	4.6	1.7	-	-	8.0	2.7	0.6	113	57.5	16.0	39.3	25.2	-	4.6	2.8	12.1	-	15.2	18.5	0.6	192
Taxi / TNC Person Trips	Daily Work Trips	5.5	-	10.3	0.4	6.8	0.1	0.2	0.6	-	3.8	0.9	-	29	5.2	1.9	6.0	-	6.6	0.1	-	-	-	2.6	0.1	0.5	23
	Daily Non-Work Trips	8.8	1.2	9.1	4.0	-	1.1	0.4	-	-	1.9	0.7	0.2	27	13.9	3.9	9.5	6.1	-	1.1	0.7	2.9	-	3.7	4.5	0.2	46
Transit Person Trips	Daily Work Trips	48.0	6.5	3.8	7.9	1.4	-	-	12.5	-	42.9	54.0	-	177	48.3	6.5	10.9	-	-	-	6.6	-	-	42.9	13.0	-	128
	Daily Non-Work Trips	109.0	-	19.1	4.4	3.5	0.7	15.8	2.5	-	5.7	15.7	-	177	43.6	-	29.9	-	10.4	0.7	14.4	2.5	-	1.2	1.4	-	104
Auto Vehicle Trips*	Daily Work Trips	9.7	-	25.3	0.9	27.9	0.6	0.9	2.6	-	11.9	3.8	-	84	9.3	6.6	13.2	-	27.4	0.6	-	-	-	7.2	0.6	2.1	67
	Daily Non-Work Trips	23.4	2.9	26.7	9.0	-	2.3	0.5	-	-	4.8	1.4	0.6	72	37.4	12.4	23.7	14.6	-	2.3	1.0	11.7	-	11.6	5.3	0.6	121
Taxi / TNC Vehicle Trips*	Daily Work Trips	3.3	-	6.2	0.3	4.0	0.1	0.1	0.4	-	2.3	0.5	-	17	3.1	1.1	3.6	-	4.0	0.1	-	-	-	1.6	0.1	0.3	14
	Daily Non-Work Trips	5.3	0.7	5.5	2.4	-	0.7	0.2	-	-	1.2	0.4	0.1	16	8.3	2.3	5.7	3.7	-	0.7	0.4	1.7	-	2.2	2.7	0.1	28

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

STEP 1: INPUTS

Land Use	Res
Amount	465
TAZ	588
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

STEP 2: PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	4.5
Total Daily Person Trips	2093
PM Person Trip Rate	0.4
Total PM Person Trips	186

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	25%	519
Taxi TNC Split	6%	126
Public Transit	28%	586
Walk	38%	789
Bike	3%	61

CHTS Trips for District		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Drive Alone	Daily Work Trips	503	-	880	-	3,064	61	93	290	-	898	413	-	392	581	183	-	3,000	61	-	-	-	387	64	230
	Daily Non-Work Trips	1,458	61	1,441	-	-	-	-	-	-	183	-	69	1,846	973	628	200	-	-	-	1,263	-	880	-	69
Shared Ride 2	Daily Work Trips	-	-	3,790	200	-	-	-	-	-	813	-	-	309	276	2,527	-	-	-	-	-	-	813	-	-
	Daily Non-Work Trips	1,249	505	1,216	884	-	500	-	-	-	696	299	-	4,192	781	2,328	1,386	-	500	122	-	-	782	-	-
Shared Ride 3	Daily Work Trips	1,976	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	936	-	-	-	-	-	183	-	-	-	-	-	-	-	-	-	-	-	183	61	-	-	2,025	-
Taxi	Daily Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	-	-	-	-	-	269	-	1,356	1,181	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	4,209	572	336	693	120	-	-	1,101	-	3,763	4,740	-	4,244	572	955	-	-	-	-	578	-	3,763	1,144	-
	Daily Non-Work Trips	9,567	-	1,678	386	309	64	1,389	222	-	498	1,380	-	3,829	-	2,627	-	910	64	1,267	222	-	107	120	-

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Vehicle Drive Trips	Daily Work Trips	1,067	-	2,775	100	3,064	61	93	290	-	1,304	413	-	1,023	720	1,447	-	3,000	61	-	-	-	793	64	230
	Daily Non-Work Trips	2,563	313	2,929	986	-	250	52	-	-	531	150	69	4,103	1,363	2,604	1,601	-	250	113	1,281	-	1,271	578	69
Vehicle Person Trips	Daily Work Trips	2,478	-	4,670	200	3,064	61	93	290	-	1,710	413	-	2,368	858	2,710	-	3,000	61	-	-	-	1,199	64	230
	Daily Non-Work Trips	3,998	566	4,126	1,792	-	500	183	-	-	880	299	69	6,306	1,754	4,311	2,768	-	500	305	1,324	-	1,662	2,025	69
Vehicle Occupancy	Daily Work Trips	2.32	-	1.68	2.00	1.00	1.00	1.00	1.00	-	1.31	1.00	-	2.31	1.19	1.87	-	1.00	1.00	-	-	-	1.51	1.00	1.00
	Daily Non-Work Trips	1.56	1.81	1.41	1.82	-	2.00	3.50	-	-	1.66	2.00	1.00	1.54	1.29	1.66	1.73	-	2.00	2.69	1.03	-	1.31	3.50	1.00
Transit Trips	Daily Work Trips	4,209	572	336	693	120	-	-	1,101	-	3,763	4,740	-	4,244	572	955	-	-	-	-	578	-	3,763	1,144	-
	Daily Non-Work Trips	9,567	-	1,678	386	309	64	1,389	222	-	498	1,380	-	3,829	-	2,627	-	910	64	1,267	222	-	107	120	-

CHTS Trip Shares		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Vehicle Drive Trips	Daily Work Trips	3%	0%	7%	0%	8%	0%	0%	1%	0%	3%	1%	0%	3%	2%	4%	0%	8%	0%	0%	0%	0%	2%	0%	1%
	Daily Non-Work Trips	7%	1%	8%	3%	0%	1%	0%	0%	0%	1%	0%	0%	11%	4%	7%	4%	0%	1%	0%	3%	0%	3%	2%	0%
Vehicle Person Trips	Daily Work Trips	4%	0%	8%	0%	5%	0%	0%	1%	0%	3%	1%	0%	4%	2%	5%	0%	5%	0%	0%	0%	0%	2%	0%	0%
	Daily Non-Work Trips	7%	1%	7%	3%	0%	1%	0%	0%	0%	2%	1%	0%	11%	3%	8%	5%	0%	1%	2%	0%	3%	4%	0%	0%
Transit Trips	Daily Work Trips	8%	1%	1%	1%	0%	0%	0%	2%	0%	7%	9%	0%	8%	1%	2%	0%	0%	0%	1%	0%	7%	2%	0%	0%
	Daily Non-Work Trips	19%	0%	3%	1%	1%	0%	3%	0%	0%	1%	3%	0%	7%	0%	5%	0%	2%	0%	2%	0%	0%	0%	0%	0%

CHTS Trips for Place Type		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay
Drive Alone	Daily Work Trips	3,135	600	2,963	933	4,260	264	3,321	801	-	2,884	1,683	703	3,125	1,903	4,575	709	3,969	144	-	512	-	1,658	1,083	1,032
	Daily Non-Work Trips	4,253	122	8,747	667	564	362	3,599	1,170	-	2,109	717	558	2,842	2,115	10,569	573	143	1,724	5,018	1,954	-	3,699	1,741	619
Shared Ride 2	Daily Work Trips	183	-	3,912	200	174	-	-	-	-	1,461	-	-	370	349	3,088	61	174	-	-	270	-	813	-	-
	Daily Non-Work Trips	2,449	505	3,760	1,006	1,120	500	252	257	-	2,894	299	735	4,592	1,294	6,517	1,748	764	500	941	527	-	1,598	-	735
Shared Ride 3	Daily Work Trips	1,976	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	Daily Non-Work Trips	1,119	-	2,802	-	532	-	183	540	-	-	224	-	893	-	2,629	-	471	-	183	601	-	-	2,249	-
Taxi	Daily Work Trips	3,000	465	187	-	-	-	-	137	-	317	-	-	3,000	-	187	-	-	-	137	-	-	317	-	-
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	242	-	-	-	-	1,116	-	1,936	1,181	-	-	-	-	-	-	-	-
Transit	Daily Work Trips	9,775	1,451	1,750	3,270	184	-	348	1,197	-	4,571	6,679	-	6,516	1,434	1,374	-	64	-	-	674	-	4,632	3,083	-
	Daily Non-Work Trips	16,395	1,467	11,120	3,332	370	64	3,270	426	-	786	2,239	-	9,829	1,589	13,480	3,475	1,011	64	2,866	344	-	394	895	-

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		Downtown/ North Beach	SoMa	Marina/West Market	Mission/Potrero	Outer Mission/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	D											

CHTS Trip Shares																									
Vehicle Drive Trips	Daily Work Trips	4%	1%	4%	1%	3%	0%	3%	1%	0%	3%	1%	1%	4%	2%	5%	1%	3%	0%	0%	1%	0%	2%	1%	1%
	Daily Non-Work Trips	5%	0%	9%	1%	1%	0%	3%	1%	0%	3%	1%	1%	5%	2%	12%	2%	1%	2%	4%	2%	0%	3%	2%	1%
Vehicle Person Trips	Daily Work Trips	5%	1%	4%	1%	3%	0%	2%	1%	0%	3%	1%	0%	5%	1%	5%	0%	2%	0%	0%	1%	0%	2%	1%	1%
	Daily Non-Work Trips	5%	0%	10%	2%	1%	1%	2%	1%	0%	3%	1%	1%	6%	2%	13%	2%	1%	1%	4%	2%	0%	3%	2%	1%
Transit Trips	Daily Work Trips	8%	1%	1%	3%	0%	0%	0%	1%	0%	4%	6%	0%	5%	1%	1%	0%	0%	0%	0%	1%	0%	4%	3%	0%
	Daily Non-Work Trips	14%	1%	9%	3%	0%	0%	3%	0%	0%	1%	2%	0%	8%	1%	11%	3%	1%	0%	2%	0%	0%	0%	1%	0%

CHTS Trips for City																									
		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	Daily Work Trips	12,707	1,970	8,467	5,591	11,333	5,912	7,371	5,112	-	14,968	10,641	1,484	11,148	3,315	9,636	3,107	9,346	5,302	3,982	5,252	143	13,999	8,447	2,240
	Daily Non-Work Trips	9,162	3,474	25,699	8,837	16,494	2,972	9,917	15,970	-	8,979	3,927	1,865	8,019	3,932	26,104	5,699	21,405	7,278	11,644	16,503	-	11,421	4,897	4,228
Shared Ride 2	Daily Work Trips	1,892	553	4,757	810	394	-	309	199	-	1,810	1,033	-	2,044	1,082	5,238	122	272	-	-	270	-	4,648	1,087	-
	Daily Non-Work Trips	4,887	2,204	23,337	4,763	6,830	10,078	12,393	18,384	-	14,252	3,634	3,824	9,184	1,596	25,085	20,065	9,715	1,082	12,417	23,786	-	18,489	228	1,400
Shared Ride 3	Daily Work Trips	2,218	-	807	-	61	-	-	-	-	-	152	-	1,971	-	-	-	-	-	-	132	-	-	152	-
	Daily Non-Work Trips	5,015	-	29,654	6,402	15,063	7,846	2,657	32,271	-	9,834	224	-	4,570	1,925	30,089	7,173	11,083	8,017	1,304	25,568	-	4,444	2,249	910
Taxi	Daily Work Trips	3,000	465	187	-	-	-	-	137	-	2,008	-	-	3,078	-	187	-	-	-	-	137	-	401	-	-
	Daily Non-Work Trips	355	-	1,470	908	-	-	-	242	-	394	-	-	1,116	-	1,936	1,181	-	-	-	-	-	394	-	-
Transit	Daily Work Trips	27,082	13,176	6,961	5,266	3,056	365	1,593	2,886	-	8,492	12,713	-	23,952	11,253	2,746	1,926	2,898	365	1,334	1,537	-	8,646	9,855	-
	Daily Non-Work Trips	24,323	4,346	16,636	4,779	13,019	316	3,826	3,616	-	2,671	2,818	-	15,196	2,652	19,937	13,327	4,166	2,580	4,031	4,551	-	2,034	1,581	-

CHTS Summarized Trips																									
Vehicle Drive Trips	Daily Work Trips	16,084	2,525	11,189	5,996	11,547	5,912	7,526	5,294	-	17,075	11,201	1,484	14,576	3,856	12,367	3,168	9,482	5,302	3,982	5,507	143	16,563	9,034	2,240
	Daily Non-Work Trips	13,251	4,576	46,720	13,591	24,213	10,253	16,873	34,527	-	19,151	5,808	3,777	14,585	5,280	48,402	18,489	29,429	10,110	18,225	35,701	-	22,171	5,654	5,188
Vehicle Person Trips	Daily Work Trips	19,818	2,988	14,219	6,401	11,788	5,912	7,681	5,448	-	18,785	11,826	1,484	18,241	4,397	15,061	3,229	9,618	5,302	3,982	5,791	143	19,048	9,686	2,240
	Daily Non-Work Trips	19,420	5,678	80,160	20,910	38,387	20,897	24,967	66,866	-	33,460	7,785	5,689	22,889	7,452	83,213	34,119	42,203	16,377	25,365	65,857	-	34,748	7,374	6,538
Vehicle Occupancy	Daily Work Trips	1.23	1.18	1.27	1.07	1.02	1.00	1.02	1.03	-	1.10	1.06	1.00	1.25	1.14	1.22	1.02	1.01	1.00	1.00	1.05	1.00	1.15	1.07	1.00
	Daily Non-Work Trips	1.47	1.24	1.72	1.54	1.59	2.04	1.48	1.94	-	1.75	1.34	1.51	1.57	1.41	1.72	1.85	1.43	1.62	1.39	1.84	-	1.57	1.30	1.26
Transit Trips	Daily Work Trips	27,082	13,176	6,961	5,266	3,056	365	1,593	2,886	-	8,492	12,713	-	23,952	11,253	2,746	1,926	2,898	365	1,334	1,537	-	8,646	9,855	-
	Daily Non-Work Trips	24,323	4,346	16,636	4,779	13,019	316	3,826	3,616	-	2,671	2,818	-	15,196	2,652	19,937	13,327	4,166	2,580	4,031	4,551	-	2,034	1,581	-

CHTS Trip Shares																									
Vehicle Drive Trips	Daily Work Trips	3%	0%	2%	1%	2%	1%	1%	1%	0%	3%	2%	0%	2%	1%	2%	1%	2%	1%	1%	1%	0%	3%	2%	0%
	Daily Non-Work Trips	2%	1%	8%	2%	4%	2%	3%	6%	0%	3%	1%	1%	2%	1%	8%	3%	5%	2%	3%	6%	0%	4%	1%	1%
Vehicle Person Trips	Daily Work Trips	2%	0%	2%	1%	1%	1%	1%	1%	0%	2%	1%	0%	2%	1%	2%	0%	1%	1%	0%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	2%	1%	9%	2%	4%	2%	3%	8%	0%	4%	1%	1%	3%	1%	10%	4%	5%	2%	3%	8%	0%	4%	1%	1%
Transit Trips	Daily Work Trips	9%	5%	2%	2%	1%	0%	1%	1%	0%	3%	4%	0%	8%	4%	1%	1%	1%	0%	1%	0%	3%	3%	3%	0%
	Daily Non-Work Trips	8%	1%	6%	2%	4%	0%	1%	1%	0%	1%	1%	0%	5%	1%	7%	5%	1%	1%	1%	2%	0%	1%	1%	0%

**STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT**

**STEP 1: INPUTS**

Land Use	Ret
Amount	3.1
TAZ	588
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	1
District Number	1
District Name	Downtown

		Outbound													Total	Inbound													Total
		1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12			
		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay			
Auto Person Trips	Daily Work Trips	1.3	0.9	0.6	0.6	0.4	0.0	0.3	0.2	-	1.8	1.7	0.2	8	0.7	0.6	0.9	0.6	0.6	0.0	0.1	0.3	-	1.8	1.5	0.3	8		
	Daily Non-Work Trips	5.5	0.7	3.0	1.0	3.1	0.2	0.8	0.3	-	2.5	1.7	0.6	19	4.9	0.5	2.7	1.7	1.6	0.6	0.6	0.6	-	1.4	2.4	0.6	18		
Taxi / TNC Person Trips	Daily Work Trips	0.5	0.4	0.2	0.2	0.1	0.0	0.1	0.1	-	0.7	0.7	0.1	3	0.3	0.3	0.3	0.4	0.2	0.2	0.0	0.1	0.1	-	0.7	0.6	0.1	3	
	Daily Non-Work Trips	2.2	0.3	1.2	0.4	1.3	0.1	0.3	0.1	-	1.0	0.7	0.2	8	2.0	0.2	1.1	0.7	0.7	0.2	0.2	-	-	0.6	1.0	0.2	7		
Transit Person Trips	Daily Work Trips	2.7	0.1	2.8	0.3	1.1	-	-	0.1	-	1.4	2.4	0.4	11	3.6	0.5	2.4	0.9	1.3	-	0.2	0.1	-	2.3	3.4	1.2	16		
	Daily Non-Work Trips	9.1	1.4	7.1	1.7	3.7	1.9	2.6	1.3	0.3	2.0	11.7	0.8	43	14.0	3.3	5.1	4.5	1.7	0.3	2.4	1.0	0.3	2.7	11.2	0.9	47		
Auto Vehicle Trips*	Daily Work Trips	1.2	0.6	0.6	0.5	0.4	0.0	0.1	0.1	-	1.7	1.3	0.2	7	0.7	0.3	0.8	0.3	0.5	0.0	0.1	0.1	-	1.6	1.3	0.3	6		
	Daily Non-Work Trips	2.5	0.6	1.7	0.8	1.6	0.2	0.3	0.2	-	1.3	0.7	0.2	10	2.0	0.3	1.7	1.6	0.8	0.3	0.3	0.4	-	0.7	1.2	0.3	10		
Taxi / TNC Vehicle Trips*	Daily Work Trips	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.0	-	0.4	0.4	0.1	2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	-	0.4	0.4	0.1	2		
	Daily Non-Work Trips	1.3	0.2	0.7	0.2	0.8	0.1	0.2	0.1	-	0.6	0.4	0.1	5	1.2	0.1	0.7	0.4	0.4	0.1	0.1	0.1	-	0.4	0.6	0.1	4		

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

**STEP 2: PERSON TRIP GEN (UPDATED 2018) - PLACETYPE**

Daily Person Trip Rate	150
Total Daily Person Trips	465
PM Person Trip Rate	13.5
Total PM Person Trips	41.85

**STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE**

Auto Split	11%	53
Taxi TNC Split	5%	21
Public Transit	25%	118
Walk	55%	255
Bike	4%	17

**CHTS Trips for District**

		Outbound												Total	Inbound												Total
		1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12	
		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Drive Alone	Daily Work Trips	4,118	1,673	2,291	1,744	1,346	94	309	252	-	5,987	4,319	628	2,017	764	2,641	133	1,448	94	562	290	-	5,520	4,741	928		
	Daily Non-Work Trips	2,409	2,187	3,113	2,175	2,428	391	-	411	-	1,927	435	-	2,021	658	3,936	5,549	1,096	391	850	1,064	-	978	1,540	385		
Shared Ride 2	Daily Work Trips	279	405	-	232	-	-	-	467	-	891	131	217	122	298	807	2,107	720	-	-	-	-	891	61	217		
	Daily Non-Work Trips	6,925	276	3,140	815	4,172	491	870	411	-	3,423	2,380	714	3,982	380	2,380	806	1,966	1,403	124	533	-	1,042	3,406	507		
Shared Ride 3	Daily Work Trips	-	1,331	-	165	-	-	850	-	-	-	1,827	-	-	1,331	61	61	-	-	-	850	-	224	821	-		
	Daily Non-Work Trips	10,854	61	4,353	326	5,099	-	1,999	485	-	3,983	3,501	1,514	11,790	852	3,882	-	3,086	325	1,146	485	-	3,385	4,181	1,331		
Taxi	Daily Work Trips	400	-	-	139	-	-	-	-	-	-	-	-	678	-	-	-	-	-	-	-	-	-	-	-	-	
	Daily Non-Work Trips	444	100	847	273	-	-	-	-	-	-	-	-	530	-	-	-	-	-	-	-	-	-	-	-	-	
Transit	Daily Work Trips	3,147	168	3,258	403	1,263	-	-	90	-	1,640	2,751	497	4,249	631	2,808	1,106	1,550	-	287	90	-	2,712	4,018	1,352		
	Daily Non-Work Trips	10,592	1,632	8,314	1,975	4,310	2,176	3,032	1,469	345	2,340	13,631	986	16,331	3,814	5,969	5,316	1,991	372	2,775	1,195	345	3,130	13,072	1,007		

**CHTS Summarized Trips**

Vehicle Drive Trips	Daily Work Trips	4,497	2,256	2,291	1,991	1,346	94	552	486	-	6,432	4,906	737	2,484	1,294	3,062	1,204	1,808	94	562	532	-	6,030	5,006	1,036
	Daily Non-Work Trips	9,238	2,403	6,434	2,839	5,971	637	1,006	755	-	4,777	2,626	790	7,698	1,091	6,235	5,952	2,961	1,186	1,239	1,469	-	2,467	4,438	1,019
Vehicle Person Trips	Daily Work Trips	4,798	3,409	2,291	2,280	1,346	94	1,159	720	-	6,877	6,276	846	2,817	2,394	3,509	2,301	2,167	94	562	1,139	-	6,635	5,623	1,145
	Daily Non-Work Trips	20,632	2,625	11,453	3,588	11,699	883	2,869	1,306	-	9,333	6,317	2,229	18,324	1,890	10,198	6,355	6,149	2,119	2,120	2,082	-	5,406	9,127	2,223
Vehicle Occupancy	Daily Work Trips	1.07	1.51	1.00	1.15	1.00	1.00	2.10	1.48	-	1.07	1.28	1.15	1.13	1.85	1.15	1.91	1.20	1.00	1.00	2.14	-	1.10	1.12	1.10
	Daily Non-Work Trips	2.23	1.09	1.78	1.26	1.96	1.39	2.85	1.73	-	1.95	2.41	2.82	2.38	1.73	1.64	1.07	2.08	1.79	1.71	1.42	-	2.19	2.06	2.18
Transit Trips	Daily Work Trips	3,147	168	3,258	403	1,263	-	-	90	-	1,640	2,751	497	4,249	631	2,808	1,106	1,550	-	287	90	-	2,712	4,018	1,352
	Daily Non-Work Trips	10,592	1,632	8,314	1,975	4,310	2,176	3,032	1,469	345	2,340	13,631	986	16,331	3,814	5,969	5,316	1,991	372	2,775	1,195	345	3,130	13,072	1,007

**CHTS Trip Shares**

Vehicle Drive Trips	Daily Work Trips	4%	2%	2%	2%	1%	0%	0%	0%	0%	5%	4%	1%	2%	1%	3%	1%	1%	0%	0%	0%	0%	5%	4%	1%
	Daily Non-Work Trips	8%	2%	5%	2%	5%	1%	1%	1%	0%	4%	2%	1%	6%	1%	5%	2%	1%	1%	1%	0%	0%	2%	4%	1%
Vehicle Person Trips	Daily Work Trips	2%	2%	1%	1%	1%	0%	1%	0%	0%	3%	3%	0%	1%	1%	2%	1%	1%	0%	0%	1%	0%	3%	3%	1%
	Daily Non-Work Trips	10%	1%	6%	2%	6%	0%	1%	1%	0%	5%	3%	1%	9%	1%	5%	3%	3%	1%	1%	1%	0%	3%	5%	1%
Transit Trips	Daily Work Trips	2%	0%	2%	0%	1%	0%	0%	0%	0%	1%	2%	0%	3%	0%	2%	1%	1%	0%	0%	0%	0%	2%	3%	1%
	Daily Non-Work Trips	8%	1%	6%	1%	3%	2%	2%	1%	0%	2%	10%	1%	12%	3%	4%	4%	1%	0%	2%	1%	0%	2%	9%	1%

**CHTS Trips for Place Type**

		Outbound												Total	Inbound												Total
		1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12	
		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ North Beach	SoMa	Marina/Western Market	Mission/Potrero	Outer Mission/Hills	Bayside	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Drive Alone	Daily Work Trips	5,313	4,711	24,339	5,466	1,959	798	5,090	1,337	-	10,192	6,203	1,801	5,142	3,051	19,557	2,142	4,313	1,558	7,612	1,520	-	9,064	8,706	2,077		
	Daily Non-Work Trips	6,030	4,926	22,056	4,622	9,436	1,337	8,047	3,831	-	12,506	3,275	3,952	7,921	3,195	19,365	9,833	8,993	863	9,047	4,967	-	6,716	3,768	2,605		
Shared Ride 2	Daily Work Trips	2,250	2,131	2,827	487	142	1,362	1,789	467	-	891	350	297	548	3,529	2,044	2,331	1,310	-	247	-	-	891	259	297		
	Daily Non-Work Trips	11,655	3,513	15,213	7,745	8,107	3,237	13,384	8,638	-	10,233	4,763	1,273	8,719	1,070	14,841	2,815	7,345	3,643	12,739	8,266	-	9,142	5,982	1,745		
Shared Ride 3	Daily Work Trips	61	1,331	850	296	911	-	850	116	-	-	2,182	132	61	1,331	911	122	-	-	850	850	-	224	1,225	193		
	Daily Non-Work Trips	15,405	61	35,061	4,286	20,229	325	14,641	1,692	-	8,105	7,334	2,384	15,250	1,349	34,762	2,918	16,303	325	15,710	6,720	-	8,297	8,959	3,207		
Taxi	Daily Work Trips	400	73	-	139	-	-	-	-	-	-	-	-	1,510	-	-	-	521	-	-	-	-	-	-	61	-	
	Daily Non-Work Trips	1,800	100	1,427	273	-	-	897	71	-	-	61	-	2,100	-	-	-	-	-	196	242	-	-	61	-		
Transit	Daily Work Trips	7,585	402	3,745	1,628	1,920	-	228	579	-	2,725	4,250	497	10,305	697	3,648	3,566	2,576	1,362	519	774	-	3,146	5,873	1,352		
	Daily Non-Work Trips	15,891	3,878	28,042	6,205	5,571	3,153	8,716	4,798	345	3,362	18,867	1,508	21,671	6,554	23,731	7,137	4,380	3,629	5,615	4,069	345	3,685	17,776	1,508		

**CHTS Summarized Trips**

Vehicle Drive Trips	Daily Work Trips	6,695	6,20
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CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	1%	1%	6%	1%	1%	0%	1%	0%	0%	2%	2%	0%	1%	1%	5%	1%	1%	0%	2%	0%	0%	2%	2%	0%
	Daily Non-Work Trips	4%	1%	9%	2%	4%	1%	4%	2%	0%	4%	2%	1%	4%	1%	8%	3%	4%	1%	4%	2%	0%	3%	2%	1%
Vehicle Person Trips	Daily Work Trips	1%	1%	4%	1%	0%	0%	1%	0%	0%	2%	1%	0%	1%	1%	3%	1%	1%	0%	1%	0%	0%	1%	1%	0%
	Daily Non-Work Trips	5%	1%	10%	2%	5%	1%	5%	2%	0%	4%	2%	1%	5%	1%	10%	2%	5%	1%	5%	3%	0%	3%	3%	1%
Transit Trips	Daily Work Trips	3%	0%	1%	1%	1%	0%	0%	0%	0%	1%	2%	0%	4%	0%	1%	1%	1%	0%	0%	0%	0%	1%	2%	1%
	Daily Non-Work Trips	6%	2%	11%	2%	2%	1%	3%	2%	0%	1%	7%	1%	8%	3%	9%	3%	2%	1%	2%	2%	0%	1%	7%	1%

CHTS Trips for City

		Outbound										Inbound															
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
Drive Alone	Daily Work Trips	8,972	6,467	27,888	10,155	4,164	3,977	8,244	5,269	467	20,252	8,229	3,488	3,977	9,405	5,789	25,255	7,838	7,207	3,832	10,439	5,227	-	23,502	10,586	3,442	
	Daily Non-Work Trips	11,535	8,684	31,256	11,022	41,422	10,982	18,327	19,912	-	30,942	7,291	6,535	-	8,149	4,578	29,107	16,746	38,495	5,444	18,588	23,596	-	24,481	5,819	5,328	
Shared Ride 2	Daily Work Trips	2,866	2,259	5,081	3,119	766	1,578	1,789	3,722	-	2,314	472	1,628	-	1,508	5,855	6,602	6,328	1,856	1,270	557	4,216	-	2,251	435	1,628	
	Daily Non-Work Trips	16,057	6,966	23,233	22,431	44,145	9,284	31,479	69,538	-	27,102	10,658	4,099	-	12,270	8,327	25,518	8,135	39,955	14,815	32,124	61,611	-	23,113	13,840	3,797	
Shared Ride 3	Daily Work Trips	911	1,392	1,699	296	911	-	850	1,947	-	116	2,182	218	-	1,015	1,331	1,821	122	850	-	850	1,699	-	340	1,225	193	
	Daily Non-Work Trips	16,796	2,960	43,254	13,546	51,407	12,232	18,501	45,060	-	27,146	12,532	3,621	-	19,665	1,524	39,539	10,184	59,517	12,636	21,585	48,723	-	30,994	13,793	4,073	
Taxi	Daily Work Trips	400	73	-	245	-	-	-	-	-	84	-	61	-	1,571	-	-	627	-	-	-	-	-	-	815	61	61
	Daily Non-Work Trips	2,981	100	1,865	273	-	-	897	313	-	-	-	1,014	-	3,282	-	1,139	-	-	-	196	484	-	-	229	-	
Transit	Daily Work Trips	10,809	3,267	5,487	7,487	2,103	99	228	969	-	3,382	4,331	497	-	12,771	2,454	7,357	6,325	6,721	1,461	712	774	-	4,239	8,809	1,352	
	Daily Non-Work Trips	22,356	4,568	37,496	15,206	15,938	6,415	10,176	10,684	345	6,202	24,966	2,791	-	31,917	7,205	36,131	12,914	17,166	5,390	7,033	9,503	345	8,219	24,119	1,850	

CHTS Summarized Trips

Vehicle Drive Trips	Daily Work Trips	10,905	8,038	30,914	11,946	4,807	4,766	9,381	7,686	467	21,493	9,089	4,401	11,390	9,097	29,076	11,412	8,378	4,467	10,960	7,820	-	25,213	11,191	4,348	
	Daily Non-Work Trips	26,147	13,072	56,347	26,271	78,182	19,119	39,890	67,743	-	52,248	16,808	9,619	-	21,868	9,177	53,845	23,723	75,478	16,462	40,935	68,612	-	44,892	16,817	8,390
Vehicle Person Trips	Daily Work Trips	13,149	10,192	34,668	13,816	5,841	5,555	10,882	10,937	467	22,766	10,884	5,395	13,499	12,975	33,678	14,915	9,912	5,102	11,845	11,142	-	26,908	12,308	5,324	
	Daily Non-Work Trips	47,368	18,710	99,608	47,272	136,973	32,499	69,204	134,824	-	85,190	31,495	14,256	-	43,367	14,428	95,303	35,065	137,968	32,895	72,494	134,413	-	78,587	33,681	13,198
Vehicle Occupancy	Daily Work Trips	1.21	1.27	1.12	1.16	1.21	1.17	1.16	1.42	1.00	1.06	1.20	1.23	-	1.19	1.43	1.16	1.31	1.18	1.14	1.08	1.42	-	1.07	1.10	1.22
	Daily Non-Work Trips	1.81	1.43	1.77	1.80	1.75	1.70	1.73	1.99	-	1.63	1.87	1.48	-	1.98	1.57	1.77	1.48	1.83	2.00	1.77	1.96	-	1.75	2.00	1.57
Transit Trips	Daily Work Trips	10,809	3,267	5,487	7,487	2,103	99	228	969	-	3,382	4,331	497	-	12,771	2,454	7,357	6,325	6,721	1,461	712	774	-	4,239	8,809	1,352
	Daily Non-Work Trips	22,356	4,568	37,496	15,206	15,938	6,415	10,176	10,684	345	6,202	24,966	2,791	-	31,917	7,205	36,131	12,914	17,166	5,390	7,033	9,503	345	8,219	24,119	1,850

CHTS Trip Shares

Vehicle Drive Trips	Daily Work Trips	1%	1%	3%	1%	0%	0%	1%	1%	0%	2%	1%	0%	1%	1%	3%	1%	1%	0%	1%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	3%	1%	5%	3%	7%	2%	4%	6%	0%	5%	2%	1%	2%	2%	5%	2%	7%	2%	4%	7%	0%	4%	2%	1%
Vehicle Person Trips	Daily Work Trips	1%	1%	2%	1%	0%	0%	1%	1%	0%	1%	1%	0%	1%	1%	2%	1%	1%	0%	1%	1%	0%	2%	1%	0%
	Daily Non-Work Trips	3%	1%	6%	3%	8%	2%	4%	8%	0%	5%	2%	1%	3%	1%	6%	2%	8%	2%	4%	8%	0%	5%	2%	1%
Transit Trips	Daily Work Trips	3%	1%	1%	2%	1%	0%	0%	0%	0%	1%	1%	0%	0%	3%	1%	2%	2%	2%	0%	0%	0%	1%	2%	0%
	Daily Non-Work Trips	5%	1%	9%	4%	4%	2%	2%	3%	0%	2%	6%	1%	8%	2%	9%	3%	4%	1%	2%	2%	0%	2%	6%	0%



OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

Person Trips by Mode

Auto Person Trips	57
Taxi TNC Person Trips	12
Public Transit	57
Walk	94
Bike	7

1

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	1.2	0.0	4.2	0.2	-	-	-	0.0	-	0.7	0.2	0.0	7	5.3	1.0	0.1	0.2	0.0	-	-	0.0	-	2.6	0.1	0.0	9
	PM Non-Work Trips	6.4	0.8	1.9	0.5	0.6	1.7	0.7	0.1	-	0.8	0.2	0.2	14	13.6	1.0	3.4	0.4	0.2	1.6	0.7	4.2	-	0.1	2.1	0.1	27
Taxi / TNC Person Trips	PM Work Trips	0.2	0.0	1.0	0.0	-	-	-	0.0	-	0.0	0.0	0.0	1	1.2	0.2	0.0	0.0	0.0	-	-	0.0	-	0.6	0.0	0.0	2
	PM Non-Work Trips	1.2	0.2	0.3	0.0	0.0	0.4	0.1	0.0	-	0.0	0.0	0.0	2	3.0	0.2	0.8	0.0	0.0	0.4	0.1	1.0	-	0.0	0.5	0.0	6
Transit Person Trips	PM Work Trips	0.1	-	0.1	0.0	0.0	-	-	-	-	0.0	0.1	0.0	1	0.2	0.0	0.1	-	0.0	-	-	0.0	-	-	0.1	0.1	1
	PM Non-Work Trips	6.7	0.0	7.7	2.1	0.1	0.0	3.9	1.1	-	2.0	4.2	0.0	28	10.1	0.1	4.2	0.2	4.6	0.3	6.4	1.1	0.0	0.7	0.1	-	28
Auto VehicleTrips*	PM Work Trips	0.5	0.0	2.2	0.2	-	-	-	0.0	-	0.6	0.1	0.0	4	1.6	0.5	0.1	0.1	0.0	-	-	0.0	-	1.3	0.1	0.0	4
	PM Non-Work Trips	4.1	0.5	1.5	0.4	0.2	0.9	0.2	0.1	-	0.5	0.0	0.1	8	7.2	0.5	2.0	0.4	0.1	0.8	0.4	4.0	-	0.1	0.6	0.0	16
Taxi / TNC Vehicle Trips*	PM Work Trips	0.1	0.0	0.6	0.0	-	-	-	0.0	-	0.0	0.0	0.0	1	0.7	0.1	0.0	0.0	0.0	-	-	0.0	-	0.4	0.0	0.0	1
	PM Non-Work Trips	0.7	0.1	0.2	0.0	0.0	0.2	0.1	0.0	-	0.0	0.0	0.0	1	1.8	0.1	0.5	0.0	0.0	0.2	0.1	0.6	-	0.0	0.3	0.0	4

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/Pot rero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	2	0	4	0	0	0	0	0	0	1	0	0	7	5	1	0	0	0	0	0	0	3	0	0	9	
	PM Non-Work Trips	6	1	2	0	1	2	1	0	0	1	0	0	14	14	1	3	0	0	2	1	4	0	0	2	0	27
Taxi / TNC Person Trips	PM Work Trips	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	2	
	PM Non-Work Trips	2	0	0	0	0	0	0	0	0	0	0	0	2	4	0	1	0	0	0	0	1	0	0	0	6	
Transit Person Trips	PM Work Trips	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	
	PM Non-Work Trips	7	0	8	2	0	0	4	1	0	2	4	0	28	11	0	4	0	5	0	6	1	0	1	0	28	
Auto VehicleTrips*	PM Work Trips	1	0	2	0	0	0	0	0	0	1	0	0	4	3	0	0	0	0	0	0	0	1	0	0	4	
	PM Non-Work Trips	5	0	2	0	0	1	0	0	0	0	0	0	8	8	0	2	0	0	1	0	4	0	0	1	16	
Taxi / TNC Vehicle Trips*	PM Work Trips	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	
	PM Non-Work Trips	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	1	0	0	0	4	
Total Vehicle Trips	PM Peak	7	0	5	0	0	1	0	0	0	1	0	0	14	15	0	2	0	0	1	0	5	0	1	1	0	25
Total Transit Trips	PM Peak	8	0	8	2	0	0	4	1	0	2	4	0	29	12	0	4	0	5	0	6	1	0	1	0	0	29

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

STEP 1: INPUTS

Table with 2 columns: Land Use, Amount, TAZ, Distribute By, Taxi/TNC Occupancy, Place Type, District Number, District Name. Values include Res, 465, 588, District, 1.67, 1, 1, Downtown.

STEP 2: PM PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Table with 2 columns: Daily Person Trip Rate, Total Daily Person Trips, PM Person Trip Rate, Total PM Person Trips. Values include 4.5, 2093, 0.4, 186.

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Table with 3 columns: Auto Split, Taxi TNC Split, Public Transit, Walk, Bike. Values include 25%, 6%, 28%, 38%, 3%.

Main table for Step 4 showing OD Person Trips by Trip Purpose and Direction (Outbound/Inbound) for District 1. Columns include trip purpose (e.g., Auto Person Trips), direction, and 12 geographic zones.

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on a AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

Table for CHTS Trips for District showing Outbound and Inbound trips by mode (Drive Alone, Shared Ride 2, Shared Ride 3, Taxi, Transit) and zone.

Table for CHTS Summarized Trips showing #VALUE! for various trip types and zones.

Table for CHTS Trip Shares showing percentages for various trip types and zones.

Table for CHTS Trips for Place Type showing Outbound and Inbound trips by mode and zone.

Table for CHTS Summarized Trips showing #VALUE! for various trip types and place types.

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	4%	11%	1%	0%	0%	0%	0%	4%	2%	2%
	PM Non-Work Trips	6%	0%	6%	0%	2%	2%	1%	1%	0%	4%	0%	1%	8%	1%	15%	0%	2%	1%	1%	5%	0%	6%	4%	1%
Vehicle Person Trips	PM Work Trips	1%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	3%	8%	1%	0%	0%	0%	0%	4%	1%	2%	
	PM Non-Work Trips	5%	0%	5%	0%	3%	2%	1%	1%	0%	3%	0%	2%	9%	1%	16%	0%	3%	1%	1%	5%	0%	5%	4%	1%
Transit Trips	PM Work Trips	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	2%	1%	0%	0%	0%	0%	0%	2%	5%	0%	
	PM Non-Work Trips	12%	4%	5%	9%	0%	0%	4%	1%	0%	1%	3%	0%	15%	0%	19%	2%	3%	0%	4%	1%	0%	1%	0%	0%

CHTS Trips for City

		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	1,319	180	256	93	-	-	-	-	-	863	-	-	5,267	2,413	4,469	1,398	2,385	3,681	67	4,086	143	10,580	5,530	1,738
	PM Non-Work Trips	3,817	354	8,779	4,529	2,535	896	1,601	2,105	-	2,096	1,160	-	3,124	426	7,437	2,081	5,585	2,438	1,429	5,138	-	3,974	1,164	1,545
Shared Ride 2	PM Work Trips	-	-	1,329	-	-	-	-	-	-	-	-	-	457	829	65	-	99	-	-	-	-	813	-	-
	PM Non-Work Trips	787	223	3,188	504	1,697	2,318	1,625	5,777	-	6,070	578	1,342	5,005	456	11,023	9,792	5,132	1,082	1,661	16,313	-	1,693	-	199
Shared Ride 3	PM Work Trips	309	-	-	-	-	-	-	-	-	-	-	-	1,667	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	838	-	1,225	61	1,831	5,220	798	625	-	-	224	-	3,351	1,925	6,677	2,347	8,493	3,301	604	19,940	-	241	856	910
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	726	1,885	550	-	-	-	-	61	-	-	-	-	11,081	8,338	1,037	633	2,793	304	1,334	576	-	4,702	7,358	-
	PM Non-Work Trips	4,905	1,795	3,380	4,367	298	-	1,336	222	-	1,673	1,353	-	7,115	738	8,304	790	1,789	395	2,125	2,989	-	753	140	-

CHTS Summarized Trips

Vehicle Drive Trips	PM Work Trips	1,407	180	921	93	-	-	-	-	-	863	-	-	5,972	2,828	4,501	1,398	2,434	3,681	67	4,086	143	10,986	5,530	1,738
	PM Non-Work Trips	4,450	465	10,724	4,799	3,906	3,546	2,642	5,172	-	5,131	1,513	671	6,584	1,204	14,856	7,647	10,578	3,922	2,432	18,991	-	4,890	1,408	1,904
Vehicle Person Trips	PM Work Trips	1,627	180	1,585	93	-	-	-	-	-	863	-	-	7,392	3,243	4,534	1,398	2,483	3,681	67	4,086	143	11,392	5,530	1,738
	PM Non-Work Trips	5,442	577	13,192	5,095	6,063	8,434	4,025	8,507	-	8,166	1,962	1,342	11,480	2,807	25,138	14,220	19,210	6,821	3,694	41,391	-	5,908	2,020	2,654
Vehicle Occupancy	PM Work Trips	1.16	1.00	1.72	1.00	-	-	-	-	-	1.00	-	-	1.24	1.15	1.01	1.00	1.02	1.00	1.00	1.00	1.00	1.04	1.00	1.00
	PM Non-Work Trips	1.22	1.24	1.23	1.06	1.55	2.38	1.52	1.64	-	1.59	1.30	2.00	1.74	2.33	1.69	1.86	1.82	1.74	1.52	2.18	-	1.21	1.43	1.39
Transit Trips	PM Work Trips	726	1,885	550	-	-	-	-	61	-	-	-	-	11,081	8,338	1,037	633	2,793	304	1,334	576	-	4,702	7,358	-
	PM Non-Work Trips	4,905	1,795	3,380	4,367	298	-	1,336	222	-	1,673	1,353	-	7,115	738	8,304	790	1,789	395	2,125	2,989	-	753	140	-

CHTS Trip Shares

Vehicle Drive Trips	PM Work Trips	1%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	4%	2%	3%	1%	1%	2%	0%	2%	0%	7%	3%	1%
	PM Non-Work Trips	3%	0%	7%	3%	2%	2%	2%	3%	0%	3%	1%	0%	4%	1%	9%	5%	6%	2%	1%	12%	0%	3%	1%	1%
Vehicle Person Trips	PM Work Trips	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	2%	1%	1%	1%	0%	2%	0%	5%	2%	1%
	PM Non-Work Trips	2%	0%	5%	2%	2%	3%	2%	3%	0%	3%	1%	1%	5%	1%	10%	6%	8%	3%	1%	17%	0%	2%	1%	1%
Transit Trips	PM Work Trips	1%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	10%	1%	1%	3%	0%	2%	1%	0%	5%	9%	0%
	PM Non-Work Trips	6%	2%	4%	5%	0%	0%	2%	0%	0%	2%	2%	0%	8%	1%	10%	1%	2%	0%	2%	3%	0%	1%	0%	0%

STEP 4: OD PERSON TRIPS BY TRIP PURPOSE AND DIRECTION - DISTRICT

STEP 1: INPUTS

Land Use	Ret
Amount	3.1
TAZ	588
Distribute By	District
Taxi/TNC Occupancy	1.67
Place Type	2
District Number	1
District Name	Western

		Outbound												Inbound													
		1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	9	10	11	12	Total
		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/ Pot ero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay		Downtown/ NorthBeach	SoMa	Marina/Wes ternMarket	Mission/ Pot ero	OuterMissio n/Hills	Bayshore	Richmond	Sunset	Islands	South Bay	East Bay	North Bay	
Auto Person Trips	PM Work Trips	0.2	0.0	0.3	0.2	-	-	-	0.0	-	0.7	0.2	0.0	2	0.2	0.2	0.1	0.2	0.0	-	-	0.0	-	0.1	0.1	0.0	1
	PM Non-Work Trips	1.7	0.2	0.6	0.5	0.6	0.1	0.1	0.1	-	0.8	0.2	0.2	5	1.4	0.1	0.2	0.4	0.2	0.1	0.3	0.1	-	0.1	0.2	0.1	3
Taxi / TNC Person Trips	PM Work Trips	0.0	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	0
	PM Non-Work Trips	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0
Transit Person Trips	PM Work Trips	0.1	-	0.1	0.0	0.0	-	-	-	0.0	0.1	0.0	1	0.2	0.0	0.1	-	0.0	-	-	0.0	-	-	0.1	0.1	1	
	PM Non-Work Trips	0.5	0.0	0.4	0.1	0.1	0.0	0.2	0.0	-	0.1	0.7	0.0	2	0.5	0.1	0.3	0.2	0.0	-	0.0	0.0	0.0	0.2	0.1	-	2
Auto VehicleTrips*	PM Work Trips	0.2	0.0	0.3	0.2	-	-	-	0.0	-	0.6	0.1	0.0	2	0.2	0.1	0.1	0.1	0.0	-	-	0.0	-	0.0	0.1	0.0	1
	PM Non-Work Trips	0.8	0.2	0.3	0.4	0.2	0.1	0.0	0.1	-	0.5	0.0	0.1	3	0.6	0.0	0.1	0.4	0.1	0.1	0.2	0.1	-	0.1	0.1	0.0	2
Taxi / TNC Vehicle Trips*	PM Work Trips	0.0	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	0
	PM Non-Work Trips	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0

\*Auto vehicle trips based on rolling up of shared ride 2, shared ride 3, and drive alone person trips divided by an AVO of 2,3,5, and 1, respectively; Taxi/TNC Vehicle trips based on an AVO of 1.67 based on Bruce Schaller's TNC Study of NYC

STEP 2: PM PERSON TRIP GEN (UPDATED 2018) - PLACETYPE

Daily Person Trip Rate	150
Total Daily Person Trips	465
PM Person Trip Rate	13.5
Total PM Person Trips	41.85

STEP 3: PM MODE SPLIT (UPDATED 2018) - PLACETYPE

Auto Split	26%	11
Taxi TNC Split	1%	1
Public Transit	12%	5
Walk	58%	24
Bike	3%	1

CHTS Trips for District		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	1,386	158	1,898	1,228	-	-	-	252	-	3,636	589	260	994	-	907	-	61	-	-	290	-	189	692	111
	PM Non-Work Trips	592	1,056	1,079	2,175	-	391	-	-	-	1,522	-	-	1,174	61	602	2,721	648	391	850	564	-	-	-	85
Shared Ride 2	PM Work Trips	-	-	-	-	-	-	-	-	-	801	61	-	122	-	-	1,054	-	-	-	-	-	89	-	-
	PM Non-Work Trips	6,261	-	169	754	1,029	491	124	411	-	3,059	-	-	2,644	-	278	61	449	-	122	-	-	620	1,194	395
Shared Ride 3	PM Work Trips	-	-	-	104	-	-	-	-	-	-	760	-	-	1,331	-	-	-	-	-	-	-	224	-	-
	PM Non-Work Trips	4,759	-	2,828	265	3,086	-	852	485	-	579	1,169	1,514	5,949	852	614	-	220	-	1,146	-	-	224	-	-
Taxi	PM Work Trips	200	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	1,666	-	995	403	388	-	-	-	-	330	1,600	497	2,153	570	1,164	-	329	-	-	90	-	1,519	855	
	PM Non-Work Trips	6,301	501	5,049	1,468	1,069	122	2,127	67	-	586	8,225	550	5,615	1,299	3,785	2,125	140	-	562	67	345	2,349	1,692	

CHTS Summarized Trips		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	PM Work Trips	1,506	158	1,898	1,258	-	-	-	252	-	4,036	836	260	1,175	380	907	527	61	-	-	290	-	298	692	111
	PM Non-Work Trips	5,083	1,056	1,972	2,627	1,396	637	305	344	-	3,217	334	433	4,196	305	916	2,752	935	391	1,177	625	-	374	597	282
Vehicle Person Trips	PM Work Trips	1,587	158	1,898	1,333	-	-	-	252	-	4,437	1,410	260	1,316	1,331	907	1,054	61	-	-	290	-	502	692	111
	PM Non-Work Trips	11,612	1,056	4,077	3,193	4,115	883	976	896	-	5,160	1,169	1,514	9,767	913	1,493	2,782	1,317	391	1,996	686	-	844	1,194	480
Vehicle Occupancy	PM Work Trips	1.05	1.00	1.00	1.06	-	-	-	1.00	-	1.10	1.69	1.00	1.12	3.50	1.00	2.00	1.00	-	-	1.00	-	1.69	1.00	1.00
	PM Non-Work Trips	2.28	1.00	2.07	1.22	2.95	1.39	3.20	2.60	-	1.60	3.50	3.50	2.33	3.00	1.63	1.01	1.41	1.00	1.70	1.10	-	2.26	2.00	1.70
Transit Trips	PM Work Trips	1,666	-	995	403	388	-	-	-	-	330	1,600	497	2,153	570	1,164	-	329	-	-	90	-	1,519	855	
	PM Non-Work Trips	6,301	501	5,049	1,468	1,069	122	2,127	67	-	586	8,225	550	5,615	1,299	3,785	2,125	140	-	562	67	345	2,349	1,692	

CHTS Trip Shares		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	PM Work Trips	3%	0%	4%	3%	0%	0%	0%	1%	0%	9%	2%	1%	3%	1%	2%	1%	0%	0%	1%	0%	1%	2%	0%	0%
	PM Non-Work Trips	11%	2%	4%	6%	3%	1%	1%	1%	0%	7%	1%	1%	9%	1%	2%	6%	2%	1%	3%	1%	0%	1%	1%	1%
Vehicle Person Trips	PM Work Trips	2%	0%	3%	2%	0%	0%	0%	0%	0%	6%	2%	0%	2%	2%	1%	1%	0%	0%	0%	0%	1%	1%	0%	0%
	PM Non-Work Trips	16%	1%	6%	4%	6%	1%	1%	1%	0%	7%	2%	2%	13%	1%	2%	4%	2%	1%	3%	1%	0%	1%	2%	1%
Transit Trips	PM Work Trips	3%	0%	2%	1%	1%	0%	0%	0%	0%	1%	3%	1%	4%	1%	2%	0%	1%	0%	0%	0%	0%	0%	3%	2%
	PM Non-Work Trips	11%	1%	9%	3%	2%	0%	4%	0%	0%	1%	15%	1%	10%	2%	7%	4%	0%	0%	1%	0%	1%	4%	3%	0%

CHTS Trips for Place Type		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	-	439	512	2,606	527	461	2,140	297	-	3,282	1,019	1,372	3,025	376	3,935	2,105	1,021	685	1,515	445	-	3,643	225	79
	PM Non-Work Trips	4,138	1,022	1,260	1,610	6,756	3,256	3,385	4,450	-	6,747	2,262	457	120	311	1,282	2,584	7,034	510	4,342	2,876	-	10,278	390	554
Shared Ride 2	PM Work Trips	-	-	235	2,169	99	-	-	863	-	245	-	1,331	236	775	4,008	3,207	122	-	309	-	-	749	-	-
	PM Non-Work Trips	244	-	3,126	9,027	24,367	1,730	7,259	13,363	-	6,517	3,551	1,636	929	2,138	4,834	2,831	7,882	-	8,009	13,500	-	5,102	2,391	661
Shared Ride 3	PM Work Trips	-	-	-	-	-	-	-	-	-	116	-	86	104	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	1,207	-	2,883	8,422	22,300	3,179	1,436	24,636	-	16,174	4,574	1,238	1,256	175	2,401	690	10,699	753	2,174	11,904	-	12,366	1,717	866
Taxi	PM Work Trips	-	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	-	-	-	-	-	-	-	-
	PM Non-Work Trips	908	-	-	-	-	-	-	-	-	-	-	-	273	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	1,761	-	-	5,860	61	99	-	282	-	62	-	-	2,006	1,363	1,069	754	3,924	-	-	-	-	-	1,093	2,936
	PM Non-Work Trips	4,716	629	1,337	5,434	1,992	294	1,087	2,560	-	2,657	4,718	342	4,445	-	5,557	2,665	4,819	-	238	582	-	1,760	61	-

CHTS Summarized Trips		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Vehicle Drive Trips	PM Work Trips	-	439	630	3,691	577	461	2,140	728	-	3,437	1,019	2,099	3,173	764	5,939	3,708	1,082	685	1,669	445	-	4,505	225	79
	PM Non-Work Trips	5,149	1,022	3,647	8,529	25,312	5,029	7,424	18,170	-	14,627	5,344	1,629	1,107	1,430	4,385	4,197	14,032	725	8,967	13,028	-	16,362	2,076	1,132
Vehicle Person Trips	PM Work Trips	-	439	747	4,775	626	461	2,140	1,159	-	3,643	1,019	2,850	3,365	1,151	7,943	5,312	1,143	685	1,824	445	-	5,206	225	79
	PM Non-Work Trips	6,498	1,022	7,269	19,058	53,424	8,166	12,079	42,448	-	29,438	10,387	3,33												

CHTS Trip Shares																										
Vehicle Drive Trips	PM Work Trips	0%	0%	0%	2%	0%	0%	1%	0%	0%	2%	1%	1%		2%	0%	3%	2%	1%	0%	1%	0%	0%	2%	0%	0%
	PM Non-Work Trips	3%	1%	2%	4%	13%	3%	4%	9%	0%	7%	3%	1%		1%	1%	2%	2%	7%	0%	4%	6%	0%	8%	1%	1%
Vehicle Person Trips	PM Work Trips	0%	0%	0%	1%	0%	0%	1%	0%	0%	1%	0%	1%		1%	0%	2%	1%	0%	0%	1%	0%	0%	1%	0%	0%
	PM Non-Work Trips	2%	0%	2%	5%	15%	2%	3%	12%	0%	8%	3%	1%		1%	1%	2%	2%	7%	0%	4%	8%	0%	8%	1%	1%
Transit Trips	PM Work Trips	3%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%		3%	2%	2%	1%	6%	0%	0%	0%	0%	2%	4%	0%
	PM Non-Work Trips	7%	1%	2%	8%	3%	0%	2%	4%	0%	4%	7%	1%		7%	0%	8%	4%	7%	0%	0%	1%	0%	3%	0%	0%

CHTS Trips for City																									
		Outbound												Inbound											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Drive Alone	PM Work Trips	1,736	986	10,381	5,264	792	845	2,418	670	180	8,643	3,135	2,265	6,665	819	10,189	2,614	2,321	1,303	4,854	1,029	-	6,580	4,219	537
	PM Non-Work Trips	5,002	3,760	8,672	4,354	8,535	5,900	5,672	6,223	-	10,927	2,757	1,410	3,589	2,261	6,832	6,207	13,361	1,214	7,369	4,337	-	11,663	551	801
Shared Ride 2	PM Work Trips	-	-	2,060	2,363	164	-	1,789	863	-	1,046	137	1,411	724	2,582	4,459	4,485	187	-	309	-	-	838	-	-
	PM Non-Work Trips	8,168	2,830	6,551	14,194	26,073	4,065	16,552	13,895	-	14,505	5,607	2,036	4,957	3,461	8,035	3,075	8,518	3,234	10,457	15,781	-	6,464	4,079	1,230
Shared Ride 3	PM Work Trips	-	-	-	104	61	-	-	-	-	116	882	218	165	1,331	-	-	-	-	-	-	-	224	-	-
	PM Non-Work Trips	6,579	-	8,983	12,549	29,721	7,577	3,458	27,081	-	18,312	6,375	3,276	10,033	1,027	4,890	690	14,285	7,725	4,367	12,453	-	12,878	2,440	2,246
Taxi	PM Work Trips	200	-	-	-	-	-	-	-	-	-	-	61	200	-	-	-	-	-	-	-	-	815	-	-
	PM Non-Work Trips	908	-	-	-	-	-	-	-	-	-	-	-	273	-	-	-	-	-	-	-	-	-	-	-
Transit	PM Work Trips	5,572	-	1,352	7,174	449	99	-	282	-	1,416	3,023	497	8,355	1,933	2,879	1,930	4,253	-	-	579	-	1,256	4,456	855
	PM Non-Work Trips	13,431	2,280	12,963	7,854	4,078	416	4,894	3,184	-	3,731	15,218	1,353	13,547	1,360	12,642	4,912	5,531	-	865	2,746	345	4,109	2,702	61

CHTS Summarized Trips																									
Vehicle Drive Trips	PM Work Trips	1,856	986	11,411	6,476	891	845	3,312	1,101	180	9,199	3,455	3,070	7,194	2,491	12,419	4,856	2,415	1,303	5,008	1,029	-	7,551	4,219	537
	PM Non-Work Trips	11,510	5,175	14,514	15,036	30,063	10,098	14,936	20,908	-	23,411	7,382	3,364	9,098	4,286	12,247	7,942	21,701	5,038	13,846	15,786	-	18,574	3,287	2,058
Vehicle Person Trips	PM Work Trips	1,936	986	12,441	7,732	1,017	845	4,207	1,533	180	9,805	4,154	3,955	7,754	4,733	14,648	7,099	2,508	1,303	5,163	1,029	-	8,457	4,219	537
	PM Non-Work Trips	20,658	6,590	24,206	31,097	64,329	17,543	25,682	47,199	-	43,743	14,739	6,722	18,852	6,750	19,757	9,972	36,164	12,173	22,194	32,572	-	31,005	7,069	4,278
Vehicle Occupancy	PM Work Trips	1.04	1.00	1.09	1.19	1.14	1.00	1.27	1.39	1.00	1.07	1.20	1.29	1.08	1.90	1.18	1.46	1.04	1.00	1.03	1.00	-	1.12	1.00	1.00
	PM Non-Work Trips	1.79	1.27	1.67	2.07	2.14	1.74	1.72	2.26	-	1.87	2.00	2.00	2.07	1.58	1.61	1.26	1.67	2.42	1.60	2.06	-	1.67	2.15	2.08
Transit Trips	PM Work Trips	5,572	-	1,352	7,174	449	99	-	282	-	1,416	3,023	497	8,355	1,933	2,879	1,930	4,253	-	-	579	-	1,256	4,456	855
	PM Non-Work Trips	13,431	2,280	12,963	7,854	4,078	416	4,894	3,184	-	3,731	15,218	1,353	13,547	1,360	12,642	4,912	5,531	-	865	2,746	345	4,109	2,702	61

CHTS Trip Shares																										
Vehicle Drive Trips	PM Work Trips	1%	0%	3%	2%	0%	0%	1%	0%	0%	3%	1%	1%		2%	1%	3%	1%	1%	0%	1%	0%	0%	2%	1%	0%
	PM Non-Work Trips	3%	1%	4%	4%	8%	3%	4%	6%	0%	6%	2%	1%		3%	1%	3%	2%	6%	1%	4%	4%	0%	5%	1%	1%
Vehicle Person Trips	PM Work Trips	0%	0%	2%	1%	0%	0%	1%	0%	0%	2%	1%	1%		1%	1%	2%	1%	0%	0%	1%	0%	0%	1%	1%	0%
	PM Non-Work Trips	3%	1%	4%	5%	11%	3%	4%	8%	0%	7%	2%	1%		3%	1%	3%	2%	6%	2%	4%	5%	0%	5%	1%	1%
Transit Trips	PM Work Trips	3%	0%	1%	4%	0%	0%	0%	0%	0%	1%	2%	0%		5%	1%	2%	1%	3%	0%	0%	0%	1%	3%	1%	1%
	PM Non-Work Trips	8%	1%	8%	5%	2%	0%	3%	2%	0%	2%	9%	1%		8%	1%	8%	3%	3%	0%	1%	2%	0%	2%	2%	0%

## **APPENDIX D: PARKING & LOADING DEMAND**

Residential Demand

TAZ	Res Parking Rate	2020 NP		2020 Plus Hub		2020 Change w/ Hub Plan	
		HH	Parking Demand	HH	Parking Demand	HH	Parking Demand
242	0.63	603	380	603	380	0	0
259	0.65	629	409	629	409	0	0
286	0.48	323	155	323	155	0	0
296	0.47	1,381	649	1,381	649	0	0
578	0.65	402	261	2,723	1,770	2,321	1,508
579	0.63	369	232	1,897	1,195	1,528	963
587	0.66	437	288	437	288	0	0
588	0.65	440	286	1,505	978	1,065	692
589	0.64	207	132	207	132	0	0
591	0.64	746	477	3,209	2,054	2,463	1,577
595	0.65	366	238	366	238	0	0
608	0.57	2,039	1,162	2,039	1,162	0	0
609	0.60	361	217	361	217	0	0
618	0.60	24	14	24	14	0	0
619	0.65	673	437	673	437	0	0
620	0.52	375	195	375	195	0	0
621	0.50	1,055	528	1,055	528	0	0
622	0.60	276	166	276	166	0	0
646	0.54	0	0	0	0	0	0
647	0.56	1,129	632	1,831	1,025	702	393
648	0.51	48	24	48	24	0	0
683	0.55	1,142	628	1,142	628	0	0
<b>Total</b>		<b>13,025</b>	<b>7,512</b>	<b>21,104</b>	<b>12,645</b>	<b>8,079</b>	<b>5,133</b>

Non-Residential Demand

TAZ	Non-Res Parking Rate	2020 NP		2020 Plus Hub		2020 Change w/ Hub Plan	
		Total Non-Res Space (ksf)	Parking Demand	Total Non-Res Space (ksf)	Parking Demand	Total Non-Res Space (ksf)	Parking Demand
242	0.057	288	16	288	16	0	0
259	0.086	718	62	718	62	0	0
286	0.175	612	107	612	107	0	0
296	0.334	330	110	330	110	0	0
578	0.077	363	28	283	22	-80	-6
579	0.071	421	30	421	30	0	0
587	0.078	232	18	232	18	0	0
588	0.075	280	21	345	26	64	5
589	0.082	322	26	322	26	0	0
591	0.085	795	68	679	58	-116	-10
595	0.099	213	21	213	21	0	0
608	0.106	520	55	520	55	0	0
609	0.097	449	43	449	43	0	0
618	0.100	269	27	269	27	0	0
619	0.094	510	48	510	48	0	0
620	0.136	151	21	151	21	0	0
621	0.193	452	87	452	87	0	0
622	0.110	220	24	220	24	0	0
646	0.120	392	47	482	58	90	11
647	0.104	836	87	990	103	153	16
648	0.135	866	117	866	117	0	0
683	0.118	970	115	970	115	0	0
<b>Total</b>		<b>10,210</b>	<b>1,178</b>	<b>10,322</b>	<b>1,194</b>	<b>112</b>	<b>16</b>

### Loading Calculations - 98 Franklin & 30 South Van Ness

Site	Revised	
	98 Franklin	30 SVN
Land Use	Mixed	Mixed
Geography	District 1	District 1
TNC Vehicle Trips	7	38
Personal Vehicle Trips	32	144
% of Personal Vehicle Trips w/ Loading	10%	10%
Rate of Delivery Trips per Person Trip	5%	5%
Passenger Loading Instances	23	110
Delivery Person Trip % to Loading Instance	50.0%	50.0%
Delivery Instances	5.7	27.4
Pax Loading Instances	23.1	109.7
Delivery Duration	4	4
Pax Loading Duration (minutes)	1	1
Delivery Vehicle Length	25	25
Pax Loading Vehicle Length	20	20
% Arriving Peak 15 Minutes of Hour	50%	50%
Delivery Linear Feet	19	91
Pax Loading Linear Feet	15	73
Delivery Spaces Required (PCEs)	1	5
Pax Loading Spaces Required	1	4
<b>Combined Spaces Required</b>	<b>2</b>	<b>9</b>



## **APPENDIX E: Alternative Travel Demand Calculation for 30 Van Ness and 98 Franklin**

**No Build Alternative – 30 Van Ness Trip Generation by Mode and Land Use**

Land Use	Amount	Person Trips by Mode					Vehicle Trips	Vehicle Trips		Transit Trips	
		Vehicle	Transit	Bike <sup>1</sup>	Walk	Total		In	Out	In	Out
<b>Daily</b>											
Retail <sup>2</sup>	13,840 sf	330	527	77	1,140	2,074	202	97	105	283	244
Office	184,100 sf	708	832	107	1,223	2,870	544	272	272	419	413
Residential	n/a	0	0	0	0	0	0	0	0	0	0
<i>Total</i>		<i>1,038</i>	<i>1,360</i>	<i>184</i>	<i>2,362</i>	<i>4,944</i>	<i>746</i>	<i>370</i>	<i>377</i>	<i>702</i>	<i>658</i>
<b>PM Peak Hour</b>											
Retail <sup>2</sup>	21,000 sf	30	47	7	103	187	18	7	11	21	27
Office	184,100 sf	63	74	10	109	256	51	4	47	4	133
Residential	n/a	0	0	0	0	0	0	0	0	0	0
<i>Total</i>		<i>93</i>	<i>122</i>	<i>16</i>	<i>212</i>	<i>443</i>	<i>69</i>	<i>11</i>	<i>58</i>	<i>25</i>	<i>160</i>

Notes:

1. "Bike" includes biking, taxi, skateboarding , etc.
2. Includes internal/linked trip reductions as appropriate.

Source: SF Guidelines, 2002, Fehr & Peers, 2018.

**Reduced Intensity Alternative Conditions – 30 Van Ness Trip Generation by Mode and Land Use**

Land Use	Amount	Person Trips by Mode					Vehicle Trips	Vehicle Trips		Transit Trips	
		Vehicle	Transit	Bike <sub>1</sub>	Walk	Total		In	Out	In	Out
<b>Daily</b>											
Retail <sup>2</sup>	15,000 sf	358	572	83	1,235	2,248	219	105	114	307	265
Office	350,000 sf	1,346	1,583	203	2,324	5,457	1,035	518	517	797	786
Residential	n/a	0	0	0	0	0	0	0	0	0	0
<i>Total</i>		<i>1,704</i>	<i>2,154</i>	<i>287</i>	<i>3,560</i>	<i>7,704</i>	<i>1,254</i>	<i>623</i>	<i>631</i>	<i>1,103</i>	<i>1,051</i>
<b>PM Peak Hour</b>											
Retail <sup>2</sup>	21,000 sf	32	51	7	111	202	19	7	12	22	29
Office	350,000 sf	120	141	18	207	487	98	9	89	8	133
Residential	n/a	0	0	0	0	0	0	0	0	0	0
<i>Total</i>		<i>152</i>	<i>193</i>	<i>26</i>	<i>318</i>	<i>689</i>	<i>117</i>	<i>16</i>	<i>101</i>	<i>30</i>	<i>162</i>

Notes:

1. Other includes biking, taxi, TNC, skateboarding , etc.
2. Includes internal/linked trip reductions as appropriate.

Source: SF Guidelines, 2002, Fehr & Peers, 2018.

Reduced Intensity Alternative Conditions – 98 Franklin Generation by Mode and Land Use

Land Use	Net Increase in Land Use	Person Trips by Mode					Vehicle Trips	Vehicle Trips		Transit Trips	
		Vehicle	Transit	Bicycle	Walk	Total		In	Out	In	Out
<b>Daily</b>											
Retail <sup>2</sup>	3.1ksf	74	118	17	255	465	45	22	23	63	55
Residential	47 DU	156	192	25	355	728	98	51	47	93	100
School	60 Students	51	69	4	6	130	80	40	40	25	40
<i>Total</i>		281	380	46	617	1,323	224	113	111	181	194
<b>PM Peak Hour</b>											
Retail <sup>2</sup>	3.1ksf	12	5	1	24	42	7	3	4	2	3
Residential	47 DU	19	12	2	33	65	11	5	6	6	6
School	60 Students	6	14	0	1	21	10	4	6	0	14
<i>Total</i>		36	30	3	58	128	28	12	16	8	23

Notes:

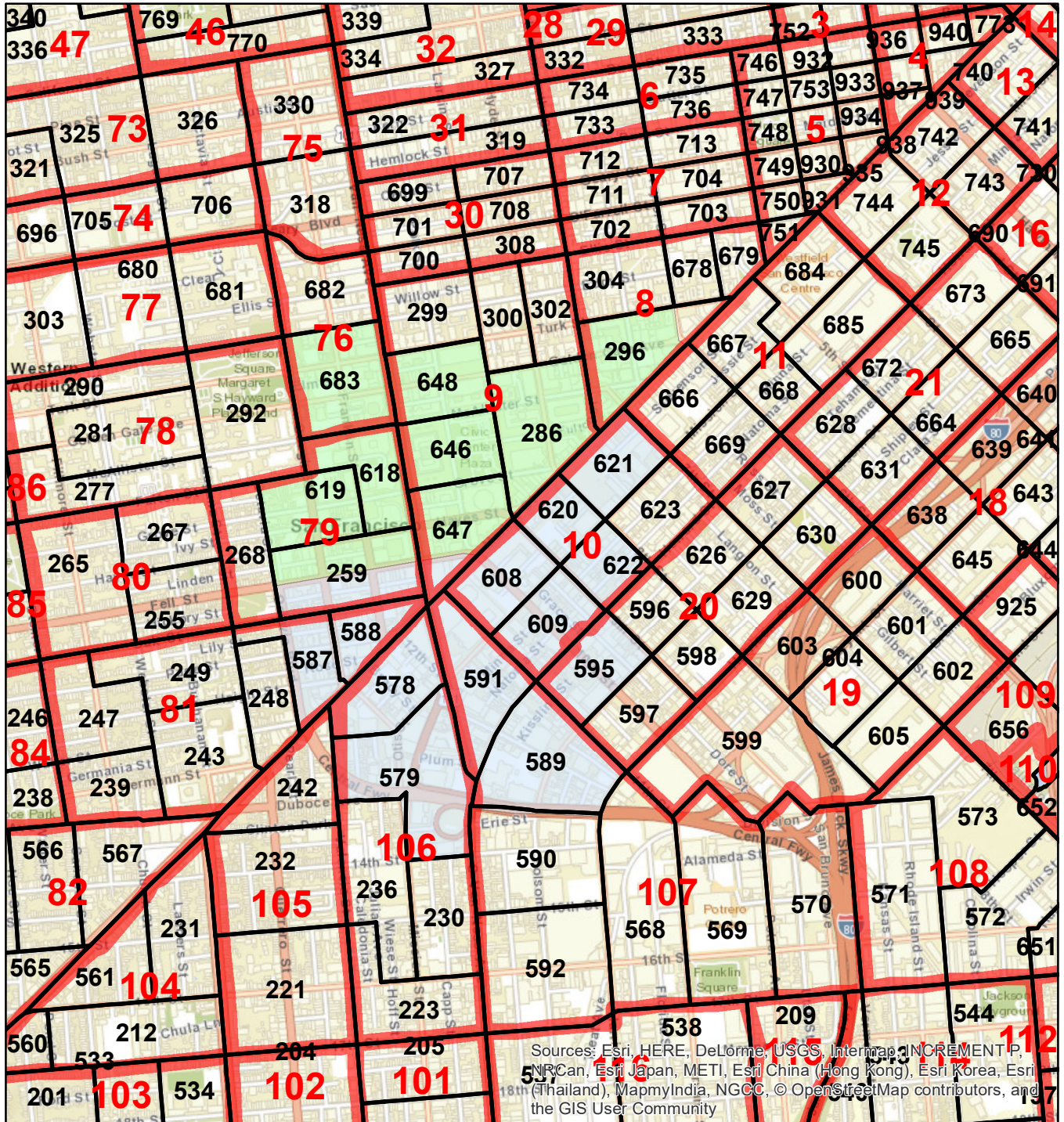
1. Other includes biking, taxi, TNC, skateboarding , etc.
2. Includes internal/linked trip reductions as appropriate.



**APPENDIX D-5**  
VMT ANALYSIS







# Civic Center Public Realm Plan and The Hub Plan



0 0.125 0.25 0.5 0.75 1 Miles

## Legend

-  TAZ2454
-  bayarea\_rtaz1454\_rev1
-  Civic Center Public Realm Plan
-  The Hub Plan



**The Hub Plan EIR**  
**Existing 2012 and 2040 VMT per capita - TIMs Data**

TAZ	Existing TIMs Data					
	Residential		Office		Retail	
	2012	2040	2012	2040	2012	2040
242	4.5	3.8	7.6	6.9	8.9	9.1
259	3.3	2.9	7.6	6.9	8.0	8.4
578	3.7	3.1	7.6	6.9	8.9	9.0
579	3.9	3.2	7.6	7.0	9.2	9.2
587	3.8	3.3	7.6	6.9	8.5	8.7
588	3.5	3.0	7.6	6.9	8.3	8.5
589	3.5	2.9	8.0	7.1	9.3	9.2
591	3.1	2.7	7.7	6.9	9.0	8.9
595	2.6	2.2	8.0	7.0	8.9	8.7
608	2.5	2.3	7.6	6.7	8.3	8.2
609	2.6	2.3	7.8	6.9	8.6	8.4
620	2.1	1.9	7.5	6.6	8.3	7.9
621	2.0	1.7	7.4	6.5	8.0	7.7
622	2.2	1.9	7.9	6.8	8.4	8.3
647	2.5	2.3	7.6	6.8	8.1	8.2
Hub Area	3.1	2.6	7.6	6.8	8.6	8.6
Reg Avg	17.2		19.1		14.9	

Source: TIMs Database for TAZs



The Hub Plan EIR

Existing 2015, 2020 and 2040 VMT per capita - Hub Model Runs

TAZ	The Hub Model Runs - No Project									The Hub Model Runs - plus Plan					
	Residential			Office			Retail			Residential		Office		Retail	
	2015	2020	2040	2015	2020	2040	2015	2020	2040	2020	2040	2020	2040	2020	2040
242	4.2	4.2	4.5	7.2	7.5	6.8	10.1	10.0	11.9	4.2	4.7	7.2	7.0	10.1	11.1
259	3.1	3.5	3.7	5.8	5.5	5.2	9.5	9.3	9.9	3.7	3.5	5.0	5.3	8.7	9.0
578	3.5	3.1	2.7	6.4	6.0	6.4	9.4	8.3	9.1	3.1	3.0	5.3	5.7	7.7	9.0
579	3.6	3.8	3.3	6.2	6.3	6.3	10.5	9.4	10.3	3.2	3.2	6.0	5.5	8.1	9.2
587	3.8	3.8	3.5	5.7	6.2	6.1	8.9	8.7	9.5	5.2	3.4	4.8	7.0	9.5	9.1
588	3.7	3.5	3.7	6.0	6.3	5.7	9.3	9.2	9.6	3.7	3.7	5.3	3.9	7.2	8.5
589	5.1	4.9	3.8	7.1	6.6	6.5	12.0	10.8	10.8	3.8	4.1	6.4	6.4	12.3	11.3
591	5.1	4.3	3.1	6.6	6.5	7.3	13.7	12.4	12.3	3.6	3.1	5.8	6.5	8.9	10.1
595	2.8	2.5	2.4	8.6	6.2	5.3	9.3	8.9	7.1	2.5	2.4	5.4	4.1	9.7	7.5
608	2.1	2.1	1.8	5.6	5.6	4.4	7.6	7.1	6.7	2.1	1.8	5.2	5.2	7.1	6.8
609	2.1	2.6	1.9	6.5	4.9	4.9	9.9	9.2	8.3	4.0	2.1	4.8	4.7	9.1	8.0
620	2.4	2.4	2.1	4.9	3.9	4.8	6.9	6.9	7.6	2.7	2.3	4.3	5.7	7.7	8.1
621	2.0	1.7	1.7	6.0	5.4	4.8	8.8	9.3	8.0	1.7	1.4	5.7	5.3	9.1	8.2
622	2.0	2.4	1.8	6.3	4.9	4.5	9.2	9.2	7.7	2.7	2.1	5.4	4.3	10.2	8.9
647	2.1	1.9	1.9	6.5	5.6	6.5	7.1	6.7	7.8	2.2	1.8	6.0	6.5	7.3	7.8
Hub Area	2.8	2.9	2.7	6.3	5.9	5.8	8.9	8.7	9.0	3.1	2.8	5.6	5.7	8.3	8.8

Source: SFCTA SF-CHAMP Model Runs for Hub Plan EIR



**APPENDIX D-6**  
VEHICLE VOLUMES (ALL SCENARIOS)



Hub and Civic Center Master Volumes Spreadsheet

10.26.2018

Intersection	Turning Movement	<u>1</u>		<u>2</u>		<u>3</u>		<u>4</u>		<u>5</u>		<u>6</u>		<u>7</u>		<u>8</u>	
		Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1 Gough St/McAllister	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	70	-	310	-	320	-	320	-	300	-	320	-	340	-	320
	SBT	-	1,497	-	1,240	-	1,260	-	1,270	-	1,300	-	1,410	-	1,420	-	1,410
	SBR	-	40	-	20	-	20	-	20	-	30	-	30	-	30	-	30
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	114	-	170	-	170	-	170	-	180	-	170	-	170	-	170
	EBR	-	40	-	20	-	20	-	20	-	20	-	20	-	20	-	20
	WBL	-	100	-	360	-	360	-	360	-	360	-	410	-	420	-	410
	WBT	-	211	-	220	-	220	-	210	-	230	-	230	-	230	-	230
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 Gough St/Grove St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	71	-	120	-	120	-	120	-	60	-	170	-	170	-	170
	SBT	-	1,594	-	1,520	-	1,550	-	1,560	-	1,660	-	1,640	-	1,670	-	1,640
	SBR	-	32	-	40	-	40	-	40	-	-	-	40	-	40	-	-
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	172	-	220	-	230	-	230	-	130	-	280	-	290	-	280
	EBR	-	133	-	140	-	140	-	140	-	130	-	150	-	150	-	150
	WBL	-	107	-	130	-	130	-	130	-	90	-	150	-	150	-	150
	WBT	-	142	-	180	-	190	-	190	-	-	-	170	-	190	-	-
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 Gough St/Hayes St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	28	-	30	-	40	-	30	-	30	-	40	-	40	-	40
	SBT	-	1,834	-	1,780	-	1,800	-	1,800	-	1,830	-	1,900	-	1,910	-	1,900
	SBR	-	25	-	30	-	70	-	90	-	40	-	50	-	50	-	50
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	32	-	30	-	40	-	50	-	30	-	50	-	50	-	50
	EBR	-	112	-	110	-	200	-	210	-	110	-	370	-	370	-	370
	WBL	-	182	-	200	-	220	-	200	-	160	-	230	-	230	-	230
	WBT	-	321	-	280	-	300	-	360	-	280	-	690	-	710	-	680
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 Octavia Blvd/Market St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	1,400	-	1,410	-	1,430	-	1,410	-	1,420	-	1,950	-	1,950	-	1,950
	NBR	-	92	-	90	-	90	-	90	-	90	-	90	-	90	-	90
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	1,791	-	1,870	-	1,880	-	1,880	-	1,890	-	2,240	-	2,240	-	2,240
	SBR	-	49	-	60	-	60	-	80	-	60	-	80	-	80	-	80
	EBL	-	207	-	240	-	240	-	300	-	240	-	250	-	270	-	250
	EBT	-	686	-	670	-	680	-	680	-	680	-	700	-	700	-	700
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	664	-	710	-	730	-	720	-	730	-	840	-	850	-	840
	WBR	-	16	-	20	-	20	-	20	-	20	-	20	-	20	-	20

Intersection		Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC				
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
5	Valencia St/Market St	NBL	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		NBR	-	446	-	710	-	790	-	710	-	830	-	510	-	550	-	530	-	530	
		SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		EBT	-	710	-	760	-	780	-	760	-	780	-	940	-	940	-	940	-	940	-
		EBR	-	51	-	60	-	60	-	60	-	60	-	-	-	-	-	-	-	-	-
		WBL	-	329	-	360	-	360	-	360	-	360	-	390	-	390	-	390	-	390	-
5		WBT	-	684	-	750	-	750	-	750	-	800	-	810	-	810	-	800	-		
5		WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
6	Valencia St/McCoppin St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		NBT	-	389	-	690	-	740	-	650	-	830	-	665	-	865	-	665	-	665	
		NBR	-	43	-	80	-	90	-	70	-	100	-	150	-	170	-	150	-	150	
		SBL	-	21	-	10	-	10	-	10	-	10	-	20	-	20	-	20	-	20	
		SBT	-	365	-	330	-	380	-	330	-	380	-	315	-	380	-	370	-	370	
		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		6		WBL	-	91	-	80	-	90	-	100	-	90	-	120	-	130	-	120	-
6		WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
6		WBR	-	52	-	50	-	50	-	60	-	50	-	60	-	60	-	60	-		
7	Valencia St/DuBoce Ave	NBL	-	45	-	60	-	60	-	70	-	60	-	90	-	90	-	90	-	90	
		NBT	-	309	-	460	-	470	-	440	-	470	-	650	-	790	-	650	-	650	
		NBR	-	118	-	130	-	140	-	120	-	120	-	150	-	150	-	150	-	150	
		SBL	-	62	-	70	-	70	-	70	-	90	-	90	-	90	-	90	-	90	
		SBT	-	344	-	470	-	510	-	450	-	470	-	465	-	555	-	465	-	465	
		SBR	-	77	-	90	-	100	-	90	-	90	-	110	-	110	-	110	-	110	
		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		EBT	-	497	-	530	-	530	-	450	-	540	-	560	-	600	-	560	-	560	
		EBR	-	43	-	50	-	50	-	60	-	50	-	90	-	90	-	90	-	90	
		7		WBL	-	135	-	150	-	160	-	140	-	160	-	180	-	180	-	180	-
7		WBT	-	1,143	-	1,190	-	1,290	-	1,280	-	1,260	-	1,290	-	1,380	-	1,340	-		
7		WBR	-	135	-	140	-	150	-	140	-	180	-	190	-	190	-	190	-		
8	Gough St/Market St/Haight St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		NBR	-	278	-	460	-	560	-	640	-	570	-	520	-	580	-	520	-	520	
		SBL	-	39	-	40	-	40	-	50	-	50	-	50	-	50	-	50	-	50	
		SBT	-	654	-	650	-	670	-	680	-	680	-	760	-	780	-	760	-	760	
		SBR	-	463	-	460	-	480	-	480	-	480	-	880	-	920	-	910	-	910	
		SBR2	-	163	-	170	-	170	-	170	-	170	-	190	-	200	-	190	-	190	
		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		EBT	-	1,088	-	1,220	-	1,290	-	1,220	-	1,310	-	1,330	-	1,380	-	1,270	-	1,270	
		EBR	-	59	-	70	-	70	-	70	-	80	-	110	-	110	-	110	-	110	
		8		WBL	-	2	-	10	-	10	-	10	-	10	-	10	-	10	-	10	-
		8		WBT	-	534	-	500	-	510	-	510	-	500	-	80	-	80	-	80	-
		8		WBR	-	52	-	50	-	50	-	50	-	50	-	10	-	10	-	10	-
		8		SEBL1	-	10	-	20	-	20	-	20	-	20	-	20	-	20	-	20	-
8		SEBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
8		SEBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
8		SEBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
9 Franklin St/McAllister St	NBL	-	113	-	160	-	160	-	160	-	150	-	180	-	180	-	180
	NBT	-	1,890	-	1,360	-	1,360	-	1,390	-	1,350	-	1,670	-	1,670	-	1,670
	NBR	-	142	-	350	-	350	-	340	-	350	-	370	-	380	-	370
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	41	-	70	-	70	-	70	-	60	-	70	-	70	-	70
	EBT	-	177	-	490	-	500	-	490	-	540	-	530	-	560	-	530
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBT	-	196	-	290	-	340	-	330	-	280	-	360	-	360	-	360	
WBR	-	246	-	650	-	670	-	650	-	705	-	660	-	705	-	660	
10 Franklin St/Grove St	NBL	-	100	-	80	-	80	-	80	-	135	-	120	-	120	-	155
	NBT	-	1,870	-	1,130	-	1,180	-	1,140	-	1,500	-	1,850	-	1,860	-	1,850
	NBR	-	75	-	460	-	400	-	400	-	270	-	230	-	230	-	215
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	62	-	40	-	40	-	30	-	60	-	60	-	60	-	60
	EBT	-	160	-	350	-	360	-	350	-	200	-	280	-	280	-	280
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBT	-	175	-	240	-	240	-	240	-	-	-	300	-	300	-	-	
WBR	-	158	-	640	-	640	-	640	-	40	-	250	-	240	-	50	
11 Franklin St/Hayes St	NBL	-	52	-	180	-	180	-	200	-	210	-	90	-	90	-	90
	NBT	-	1,263	-	1,340	-	1,370	-	1,350	-	1,380	-	1,470	-	1,470	-	1,470
	NBR	-	28	-	10	-	10	-	10	-	10	-	20	-	20	-	20
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	21	-	110	-	120	-	130	-	140	-	230	-	240	-	230
	EBT	-	44	-	10	-	20	-	20	-	20	-	60	-	60	-	60
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBT	-	494	-	110	-	140	-	130	-	120	-	630	-	650	-	630	
WBR	-	776	-	50	-	60	-	60	-	125	-	560	-	560	-	630	
12 Franklin St/Oak St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	1,176	-	1,430	-	1,450	-	1,620	-	1,470	-	1,510	-	1,470	-	1,530
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	734	-	800	-	820	-	820	-	820	-	730	-	760	-	750
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
WBR	-	98	-	100	-	150	-	180	-	170	-	180	-	260	-	180	

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
13	12th St/Market St	NBL	5	-	10	-	10	-	-	-	10	-	-	-	-	-	-
13		NBT	8	-	10	-	10	-	-	-	10	-	-	-	-	-	-
13		NBR	17	-	20	-	20	-	-	-	20	-	-	-	-	-	-
13		SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		EBL	1,108	-	1,330	-	1,360	-	1,510	-	1,400	-	1,200	-	1,260	-	1,200
13		EBT	227	-	280	-	280	-	80	-	290	-	80	-	90	-	80
13		EBR	29	-	250	-	250	-	450	-	250	-	630	-	630	-	630
13		EBL2	51	-	70	-	70	-	70	-	70	-	80	-	80	-	80
13		WBR2	28	-	40	-	75	-	75	-	75	-	10	-	10	-	10
13		WBL	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		WBT	576	-	690	-	730	-	590	-	800	-	50	-	50	-	50
13		WBR	10	-	20	-	20	-	15	-	20	-	20	-	20	-	20
13		SEBL	43	-	60	-	60	-	60	-	60	-	-	-	-	-	-
13		SEBL2	38	-	40	-	75	-	75	-	75	-	40	-	90	-	90
13		SEBR	10	-	10	-	10	-	10	-	10	-	-	-	-	-	-
13		SEBR2	11	-	20	-	20	-	20	-	20	-	20	-	20	-	20
14	Gough St/McCoppin St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		NBT	-	-	-	-	-	-	300	-	-	-	-	-	-	-	200
14		NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		SBL	1	-	-	-	-	-	-	-	-	10	-	10	-	-	-
14		SBT	723	-	640	-	640	-	650	-	660	-	710	-	710	-	710
14		SBR	19	-	20	-	20	-	20	-	20	-	40	-	40	-	40
14		EBL	6	-	10	-	10	-	-	-	10	-	10	-	10	-	-
14		EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14		EBR	83	-	90	-	90	-	90	-	90	-	90	-	90	-	90
14		WBL	468	-	540	-	620	-	530	-	630	-	640	-	680	-	540
14		WBT	122	-	140	-	170	-	130	-	170	-	170	-	180	-	170
14		WBR	265	-	310	-	360	-	280	-	360	-	370	-	390	-	370
15	Mission St/13th St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		NBT	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100
15		NBR	294	-	330	-	470	-	590	-	460	-	580	-	640	-	580
15		NBR2	156	-	180	-	250	-	310	-	240	-	310	-	340	-	310
15		SBL	627	-	580	-	590	-	590	-	600	-	640	-	640	-	640
15		SBT	460	-	430	-	430	-	440	-	440	-	470	-	470	-	470
15		SBR	137	-	130	-	130	-	130	-	140	-	140	-	140	-	140
15		SBL2	72	-	70	-	70	-	-	-	70	-	80	-	80	-	-
15		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		EBT	660	-	660	-	670	-	620	-	680	-	790	-	810	-	790
15		EBR	44	-	50	-	50	-	50	-	50	-	60	-	60	-	60
15		WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15		WBT	1,333	-	1,450	-	1,460	-	1,730	-	1,510	-	1,580	-	1,610	-	1,580
15		WBR	715	-	460	-	550	-	460	-	600	-	520	-	560	-	520
15		WBR2	-	-	-	-	-	-	100	-	-	-	-	-	-	-	100



Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
16 Van Ness St/Turk St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	829	918	730	540	710	540	740	560	670	530	750	770	770	770	870	770
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	898	906	790	1,040	870	1,060	800	1,060	870	1,060	980	1,060	980	1,130	880	1,060
	SBR	115	88	130	60	120	60	120	60	130	60	140	90	140	90	210	90
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	55	78	60	100	60	120	80	130	50	180	60	80	60	80	60	80
	WBT	496	819	670	920	660	940	620	980	770	970	700	940	710	950	670	940
	WBR	66	72	70	50	70	50	80	50	60	50	60	60	60	60	80	60
17 Van Ness Ave/Golden Gate Ave	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	740	823	470	570	500	630	470	630	530	650	580	670	580	680	570	670
	NBR	138	100	140	160	130	170	120	160	160	190	110	130	110	130	110	130
	SBL	12	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	942	981	950	980	1,040	1,070	940	1,040	1,070	1,120	1,020	1,140	1,100	1,350	1,085	1,290
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	60	77	40	40	40	40	40	40	40	40	60	60	60	60	60	60
	EBT	1,100	723	1,110	740	1,120	720	1,130	800	1,050	675	1,140	880	1,240	895	1,175	880
	EBR	83	93	50	40	50	40	50	40	50	40	60	60	60	60	60	60
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18 Van Ness Ave/McAllister St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	812	845	610	630	630	640	580	640	660	710	670	800	670	800	640	800
	NBR	76	50	50	20	50	20	50	20	60	20	60	10	60	10	110	10
	SBL	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	972	986	640	780	720	890	620	840	760	910	830	910	830	960	840	960
	SBR	48	69	160	400	170	420	170	410	160	415	50	430	140	445	105	430
	EBL	19	7	20	90	20	90	20	90	20	100	20	110	20	110	20	110
	EBT	480	252	370	240	390	260	430	250	520	260	450	140	450	210	340	140
	EBR	26	68	600	470	560	520	560	520	490	540	560	710	560	720	410	710
	WBL	15	55	20	20	20	20	20	20	20	20	30	10	30	20	20	10
	WBT	294	375	230	340	240	390	230	370	310	400	280	360	280	380	210	390
	WBR	54	63	30	20	30	20	30	20	40	20	40	10	40	10	30	10

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
19 Van Ness Ave/Grove St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	801	813	740	690	760	710	710	710	780	840	810	900	810	900	810	900
	NBR	67	72	80	80	80	115	80	115	20	70	120	250	130	270	90	250
	SBL	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	943	962	1,000	830	1,020	860	970	850	1,090	1,070	1,150	1,280	1,160	1,300	1,095	1,430
	SBR	57	119	80	290	80	370	70	360	-	-	70	150	70	150	-	-
	EBL	70	33	90	70	90	80	80	70	110	70	90	50	90	50	120	50
	EBT	343	200	480	210	480	220	460	220	100	160	590	380	600	380	120	330
	EBR	38	34	210	260	210	260	200	260	200	240	180	130	180	130	200	130
	WBL	17	29	30	40	30	40	30	40	-	-	40	80	50	90	-	-
	WBT	100	232	160	710	160	720	150	720	-	-	180	460	180	460	-	-
	WBR	20	44	30	50	30	60	20	75	10	20	30	60	30	60	10	50
20 Van Ness Ave/Hayes St	NBL	385	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	760	753	590	580	610	630	560	640	610	670	730	910	750	930	680	910
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	1,002	950	1,050	920	1,070	960	1,010	970	1,025	1,070	1,160	1,240	1,180	1,270	1,030	1,240
	SBR	31	43	30	10	10	10	10	10	65	95	10	50	20	50	65	120
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	44	69	90	10	10	10	10	10	10	10	10	50	10	50	30	50
	WBL	57	88	90	160	90	210	100	220	10	200	80	290	80	300	60	290
	WBT	669	845	310	130	480	165	360	165	420	110	420	990	430	990	1,030	990
	WBR	95	130	380	310	380	360	370	340	230	250	400	350	390	350	420	350
21 Van Ness Ave/Fell St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	1,068	1,120	680	730	710	760	660	790	700	730	800	950	820	980	750	950
	NBR	54	81	40	70	50	130	40	140	50	130	50	80	60	150	40	140
	SBL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	1,051	1,027	980	960	1,010	1,015	960	1,010	990	995	1,000	1,250	1,020	1,300	950	1,250
	SBR	57	102	50	80	50	80	50	80	50	80	50	130	50	150	70	150
	EBL	60	48	50	40	50	40	50	40	50	40	60	50	60	50	60	50
	EBT	1,052	692	910	520	890	540	880	540	930	540	1,030	700	1,040	720	1,040	720
	EBR	49	43	390	230	410	270	430	260	400	260	440	300	450	610	420	580
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22 Van Ness Ave/Oak St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	1,104	1,179	810	1,040	870	1,120	810	1,100	900	1,100	1,000	1,170	1,070	1,260	920	1,250
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	1,095	1,075	1,140	1,010	1,190	1,190	1,370	1,260	1,100	1,060	1,480	1,660	1,490	1,880	1,310	1,660
	SBR	68	76	100	100	120	110	120	120	110	100	150	140	180	160	150	140
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC		
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
23	Van Ness Ave/Market St	NBL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		NBT	1,079	1,123	960	970	1,010	1,040	940	1,030	1,000	1,060	1,130	1,320	1,210	1,400	1,000	1,380
23		NBR	71	44	70	50	80	50	-	-	80	50	-	-	-	-	-	-
23		SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		SBT	945	904	840	1,010	1,080	1,080	1,170	1,060	1,070	1,030	1,480	1,350	1,480	1,560	1,410	1,520
23		SBR	100	167	100	190	110	225	-	-	110	225	-	-	-	-	-	-
23		EBL	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		EBT	373	265	410	280	420	280	390	320	450	330	90	80	90	80	100	80
23		EBR	24	19	30	20	50	40	-	-	50	50	-	-	-	-	-	-
23		WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		WBT	197	439	220	500	230	570	200	500	250	570	50	100	50	100	50	100
23		WBR	56	64	60	70	60	70	-	-	60	70	-	-	-	-	-	-
24	South Van Ness Ave/Otis St	NBL	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		NBT	438	383	390	340	420	360	440	360	450	360	480	390	500	610	470	590
24		NBR	59	49	60	50	60	50	60	50	70	50	70	50	70	60	70	50
24		NEBL1	619	607	440	420	500	470	300	420	480	500	580	480	610	510	320	480
24		NEBL2	251	222	260	230	260	230	-	-	260	230	260	230	260	230	-	-
24		NEBR1	179	189	180	190	180	190	180	190	180	190	180	190	180	190	180	190
24		NEBR2	95	77	100	80	100	80	100	80	100	80	100	80	100	80	100	80
24		SBR2	9	8	20	10	20	20	20	20	20	20	110	110	110	110	110	110
24		SBL	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		SBT	907	848	1,080	1,040	1,220	1,200	1,180	1,170	1,230	1,100	1,700	1,620	1,740	1,850	1,520	1,720
24		SBR	56	94	100	150	120	170	80	130	100	150	140	240	170	310	100	160
24		SEBR1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		SEBR2	11	30	-	-	-	-	-	-	20	30	-	-	-	-	-	-
24		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		WBL	98	168	100	200	110	220	100	190	130	220	130	250	130	260	100	250
24		WBT	247	438	250	520	270	560	250	520	320	580	310	640	320	670	260	640
24		WBR	110	200	120	240	120	260	110	220	140	270	140	300	150	310	120	300
25	South Van Ness Ave/12th St	NBL	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		NBT	438	462	410	420	420	460	440	450	460	460	500	480	500	690	480	630
25		NBR	38	39	40	40	40	40	40	40	40	40	50	50	50	50	50	50
25		SBL	138	98	180	120	210	140	180	130	210	140	220	180	240	190	240	180
25		SBT	948	990	1,180	1,220	1,420	1,400	1,230	1,300	1,410	1,330	1,490	1,770	1,630	1,900	1,600	1,770
25		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		WBL	1	4	10	10	10	10	10	10	10	10	10	10	10	10	10	10
25		WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		WBR	61	83	50	70	40	80	60	80	50	80	80	80	80	100	60	120

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
26 South Van Ness Ave/Howard St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	504	531	470	480	490	530	500	510	520	520	590	580	600	630	570	580
	NBR	242	183	230	170	240	180	240	180	250	180	290	200	290	220	280	200
	SBL	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	1,104	1,228	1,250	1,530	1,460	1,740	1,400	1,650	1,450	1,670	1,580	1,970	1,590	2,130	1,560	1,970
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	2	1	10	-	10	-	10	-	10	-	10	-	10	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	90	184	40	210	100	260	110	280	60	230	140	310	110	410	130	310
27 South Van Ness Ave/13th St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	612	424	610	420	660	500	640	450	670	490	680	610	690	690	700	610
	NBR	204	131	230	190	220	190	250	210	230	190	310	210	280	190	320	210
	SBL	132	22	140	-	150	-	150	-	170	-	180	-	190	-	180	-
	SBT	898	1,123	890	1,270	960	1,400	950	1,360	950	1,320	990	1,620	1,020	1,690	1,030	1,620
	SBR	89	85	90	90	100	100	100	100	100	90	110	110	100	120	110	110
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	689	689	710	680	730	740	770	790	760	780	920	910	930	930	920	910
	EBR	1,339	822	1,390	900	1,400	910	1,390	1,010	1,360	910	1,410	1,060	1,450	1,040	1,460	1,060
	WBL	99	221	110	300	110	310	120	340	110	320	140	350	140	350	160	350
	WBT	571	788	580	800	610	850	610	880	610	850	690	1,000	680	1,050	690	1,030
	WBR	154	232	160	240	170	250	170	250	190	270	210	330	220	350	180	360
28 11th St/Market St	NBL	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	138	-	170	-	170	-	170	-	170	-	170	-	170	-	170
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	158	-	160	-	190	-	170	-	200	-	40	-	40	-	40
	EBR	-	159	-	160	-	190	-	-	-	200	-	-	-	-	-	-
	WBL	-	16	-	20	-	30	-	30	-	30	-	10	-	10	-	10
	WBT	-	512	-	620	-	650	-	680	-	710	-	60	-	60	-	60
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29 Polk St/Golden Gate Ave	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	51	-	60	-	60	-	60	-	60	-	80	-	80	-	80
	NBR	-	20	-	40	-	40	-	40	-	70	-	30	-	30	-	40
	SBL	-	62	-	70	-	70	-	70	-	60	-	90	-	90	-	90
	SBT	-	591	-	550	-	590	-	590	-	560	-	820	-	830	-	820
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	49	-	60	-	60	-	60	-	60	-	70	-	70	-	70
	EBT	-	536	-	560	-	660	-	670	-	510	-	720	-	720	-	720
	EBR	-	262	-	390	-	430	-	430	-	410	-	400	-	420	-	400
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
30 Polk St/McAllister St	NBL	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	24	-	40	-	40	-	40	-	-	-	40	-	40	-	-
	NBR	-	8	-	10	-	10	-	10	-	-	-	10	-	10	-	-
	SBL	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	738	-	1,100	-	1,170	-	1,170	-	1,080	-	1,170	-	1,190	-	990
	SBR	-	49	-	40	-	50	-	40	-	50	-	40	-	40	-	40
	EBL	-	15	-	20	-	20	-	20	-	20	-	20	-	20	-	20
	EBT	-	191	-	110	-	110	-	125	-	170	-	80	-	80	-	80
	EBR	-	94	-	80	-	80	-	80	-	80	-	70	-	80	-	70
	WBL	-	70	-	70	-	120	-	120	-	150	-	70	-	80	-	80
	WBT	-	416	-	230	-	240	-	230	-	260	-	160	-	170	-	160
	WBR	-	21	-	30	-	30	-	30	-	30	-	30	-	30	-	30
31 Polk St/Grove St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	29	-	40	-	40	-	40	-	-	-	30	-	40	-	-
	SBT	-	811	-	840	-	860	-	840	-	990	-	850	-	880	-	900
	SBR	-	57	-	180	-	210	-	225	-	20	-	230	-	380	-	80
	EBL	-	18	-	70	-	140	-	140	-	-	-	230	-	230	-	-
	EBT	-	106	-	180	-	180	-	180	-	10	-	150	-	150	-	30
	EBR	-	146	-	210	-	215	-	215	-	150	-	280	-	290	-	280
	WBL	-	69	-	80	-	80	-	80	-	-	-	70	-	70	-	-
	WBT	-	243	-	530	-	540	-	540	-	-	-	310	-	310	-	-
	WBR	-	16	-	20	-	20	-	20	-	-	-	20	-	30	-	-
32 Polk St/Hayes St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	962	-	1,160	-	1,180	-	1,170	-	1,080	-	910	-	930	-	910
	SBR	-	47	-	50	-	65	-	65	-	30	-	130	-	130	-	100
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	125	-	120	-	130	-	140	-	540	-	540	-	580	-	540
	WBT	-	1,011	-	870	-	870	-	890	-	830	-	1,700	-	1,710	-	1,700
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
33	Polk St/Market St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33		NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33		NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33		SBL	-	17	-	30	-	30	-	30	-	30	-	30	-	30	30
33		SBT	-	1,037	-	1,180	-	1,290	-	1,260	-	1,550	-	1,510	-	1,590	1,610
33		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33		SEBR1	-	718	-	720	-	845	-	845	-	845	-	720	-	845	845
33		SEBR2	-	58	-	60	-	60	-	60	-	60	-	60	-	60	60
33		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33		EBT	-	82	-	90	-	100	-	80	-	110	-	30	-	30	30
33		EBR	-	196	-	200	-	240	-	190	-	240	-	80	-	80	80
33		WBL	-	1	-	10	-	10	-	10	-	10	-	10	-	10	10
33		WBT	-	492	-	590	-	620	-	660	-	680	-	60	-	80	80
33		WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	11th St/Mission St	NBL	-	264	-	340	-	350	-	320	-	360	-	420	-	400	420
34		NBT	-	123	-	100	-	100	-	110	-	100	-	130	-	130	130
34		NBR	-	128	-	250	-	280	-	250	-	280	-	290	-	300	290
34		SBL	-	130	-	100	-	100	-	120	-	100	-	140	-	140	40
34		SBT	-	116	-	90	-	100	-	100	-	100	-	160	-	160	160
34		SBR	-	115	-	90	-	90	-	110	-	90	-	140	-	140	140
34		EBL	-	1	-	10	-	10	-	10	-	10	-	10	-	10	10
34		EBT	-	214	-	250	-	260	-	270	-	270	-	270	-	290	270
34		EBR	-	31	-	50	-	50	-	50	-	50	-	60	-	60	60
34		WBL	-	3	-	10	-	10	-	10	-	10	-	10	-	10	10
34		WBT	-	465	-	520	-	540	-	470	-	560	-	580	-	610	580
34		WBR	-	65	-	50	-	50	-	80	-	50	-	70	-	70	70
35	12th St/Howard St	NBL	-	16	-	20	-	20	-	20	-	20	-	20	-	20	20
35		NBT	-	109	-	150	-	170	-	190	-	180	-	110	-	120	110
35		NBR	-	101	-	80	-	90	-	90	-	80	-	70	-	110	70
35		SBL	-	120	-	140	-	140	-	140	-	150	-	130	-	130	130
35		SBT	-	181	-	100	-	100	-	100	-	120	-	170	-	170	170
35		SBR	-	46	-	60	-	100	-	100	-	110	-	180	-	210	180
35		EBL	-	44	-	50	-	50	-	50	-	50	-	120	-	140	120
35		EBT	-	119	-	100	-	130	-	120	-	120	-	160	-	160	160
35		EBR	-	18	-	20	-	20	-	20	-	20	-	20	-	30	20
35		WBL	-	21	-	20	-	20	-	20	-	20	-	20	-	30	20
35		WBT	-	71	-	60	-	70	-	70	-	70	-	100	-	100	100
35		WBR	-	44	-	70	-	80	-	80	-	100	-	130	-	130	130
36	Larkin St/McAllister St	NBL	-	119	-	70	-	70	-	70	-	70	-	40	-	50	40
36		NBT	-	878	-	970	-	970	-	1,000	-	970	-	1,440	-	1,440	1,440
36		NBR	-	19	-	40	-	40	-	40	-	10	-	60	-	90	60
36		SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36		SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36		SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36		EBL	-	48	-	30	-	30	-	30	-	180	-	20	-	20	20
36		EBT	-	129	-	120	-	120	-	120	-	70	-	80	-	90	80
36		EBR	-	52	-	30	-	30	-	30	-	30	-	20	-	20	20
36		WBL	-	7	-	30	-	50	-	50	-	10	-	20	-	40	20
36		WBT	-	349	-	220	-	230	-	220	-	190	-	180	-	180	180
36		WBR	-	96	-	200	-	220	-	220	-	80	-	360	-	370	360

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
37 Larkin St/Fulton St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	979	-	1,000	-	1,070	-	1,090	-	1,160	-	1,490	-	1,500	-	1,590
	NBR	-	24	-	30	-	30	-	30	-	-	-	30	-	30	-	-
	SBL	-	16	-	20	-	20	-	20	-	-	-	20	-	20	-	-
	SBT	-	80	-	90	-	90	-	90	-	-	-	100	-	100	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	7	-	10	-	10	-	10	-	-	-	20	-	20	-	-
	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR	-	36	-	30	-	20	-	30	-	-	-	110	-	110	-	-
	38 Larkin St/Grove St	NBL	-	178	-	520	-	520	-	520	-	-	-	160	-	160	-
NBT		-	914	-	1,010	-	1,090	-	1,120	-	1,120	-	1,420	-	1,430	-	1,470
NBR		-	30	-	30	-	30	-	30	-	-	-	20	-	20	-	-
SBL		-	14	-	10	-	10	-	10	-	-	-	10	-	10	-	-
SBT		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SBR		-	95	-	120	-	130	-	130	-	-	-	210	-	220	-	-
EBL		-	54	-	60	-	60	-	60	-	10	-	130	-	130	-	30
EBT		-	90	-	90	-	90	-	90	-	-	-	60	-	60	-	-
EBR		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBL		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WBT		-	45	-	40	-	40	-	40	-	-	-	30	-	30	-	-
WBR		-	20	-	20	-	20	-	20	-	40	-	20	-	20	-	50
39 Larkin St/Market St		NBL	-	1,045	-	1,240	-	1,250	-	1,280	-	1,180	-	1,710	-	1,720	-
	NBT	-	1,187	-	1,410	-	1,420	-	1,450	-	1,230	-	1,620	-	1,630	-	1,620
	NBR	-	152	-	190	-	190	-	190	-	260	-	250	-	250	-	250
	NBL2	-	162	-	200	-	200	-	200	-	170	-	270	-	270	-	270
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	98	-	110	-	120	-	110	-	280	-	50	-	50	-	50
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBR2	-	48	-	50	-	50	-	50	-	50	-	30	-	40	-	30
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	319	-	290	-	290	-	290	-	290	-	50	-	50	-	50
WBR	-	56	-	50	-	60	-	60	-	60	-	40	-	40	-	40	

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC		
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
40	10th St/Mission St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40		NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40		NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40		SBL	-	169	-	170	-	170	-	170	-	190	-	240	-	250	-	240
40		SBT	-	1,603	-	1,530	-	1,570	-	1,540	-	1,620	-	1,830	-	1,850	-	1,830
40		SBR	-	141	-	230	-	240	-	230	-	240	-	260	-	290	-	260
40		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
40		EBT	-	317	-	340	-	350	-	320	-	360	-	400	-	400	-	400
40		EBR	-	151	-	160	-	170	-	210	-	170	-	180	-	180	-	180
40		WBL	-	10	-	10	-	10	-	10	-	20	-	20	-	20	-	20
40		WBT	-	422	-	470	-	500	-	460	-	530	-	540	-	570	-	540
40		WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	11th St/Howard St	NBL	-	17	-	20	-	20	-	30	-	20	-	30	-	30	-	30
41		NBT	-	301	-	380	-	460	-	370	-	460	-	560	-	590	-	560
41		NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41		SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41		SBT	-	136	-	140	-	160	-	160	-	160	-	210	-	210	-	210
41		SBR	-	16	-	20	-	30	-	30	-	30	-	30	-	30	-	30
41		EBL	-	97	-	160	-	220	-	160	-	210	-	200	-	210	-	200
41		EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41		EBR	-	95	-	100	-	110	-	120	-	120	-	120	-	120	-	120
41		WBL	-	184	-	200	-	210	-	200	-	220	-	240	-	240	-	240
41		WBT	-	287	-	340	-	350	-	340	-	350	-	380	-	390	-	380
41		WBR	-	166	-	200	-	330	-	200	-	350	-	360	-	410	-	360
42	Folsom St/13th St	NBL	-	154	-	160	-	160	-	160	-	170	-	190	-	190	-	190
42		NBT	-	551	-	560	-	560	-	590	-	580	-	690	-	690	-	690
42		NBR	-	135	-	150	-	160	-	160	-	150	-	220	-	230	-	220
42		SBL	-	17	-	20	-	30	-	20	-	30	-	30	-	30	-	30
42		SBT	-	219	-	220	-	230	-	240	-	230	-	280	-	280	-	280
42		SBR	-	130	-	140	-	140	-	140	-	140	-	150	-	150	-	150
42		EBL	-	154	-	160	-	160	-	160	-	170	-	180	-	180	-	180
42		EBT	-	596	-	690	-	710	-	770	-	720	-	900	-	920	-	920
42		EBR	-	92	-	100	-	100	-	100	-	100	-	120	-	120	-	120
42		WBL	-	1	-	10	-	10	-	10	-	10	-	10	-	10	-	10
42		WBT	-	973	-	1,030	-	1,080	-	1,190	-	1,150	-	1,330	-	1,350	-	1,330
42		WBR	-	40	-	50	-	50	-	50	-	50	-	60	-	60	-	60
43	Hyde St/McAllister St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43		NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43		NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43		SBL	-	5	-	30	-	50	-	40	-	10	-	40	-	40	-	40
43		SBT	-	1,283	-	1,330	-	1,340	-	1,330	-	1,320	-	1,490	-	1,490	-	1,490
43		SBR	-	88	-	110	-	110	-	110	-	90	-	150	-	150	-	130
43		EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43		EBT	-	21	-	30	-	30	-	30	-	30	-	30	-	30	-	30
43		EBR	-	130	-	140	-	140	-	140	-	80	-	140	-	140	-	100
43		WBL	-	104	-	120	-	140	-	140	-	220	-	120	-	130	-	140
43		WBT	-	350	-	370	-	400	-	380	-	310	-	450	-	450	-	450
43		WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
44 Hyde St/Fulton St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	SBT	-	1,486	-	1,590	-	1,600	-	1,600	-	1,680	-	1,770	-	1,760	-	1,770
44	SBR	-	38	-	50	-	50	-	50	-	-	-	50	-	50	-	-
44	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	EBR	-	42	-	50	-	50	-	50	-	-	-	50	-	50	-	-
44	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	WBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45 Hyde St/Grove St/Market/8th	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	SBL	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	SBT	-	1,283	-	1,280	-	1,330	-	1,310	-	1,440	-	1,400	-	1,400	-	1,400
45	SBR	-	177	-	180	-	190	-	180	-	200	-	200	-	200	-	200
45	SBR2	-	79	-	90	-	90	-	90	-	90	-	90	-	90	-	90
45	SEBR1	-	96	-	90	-	90	-	90	-	-	-	70	-	70	-	-
45	SEBR2	-	33	-	30	-	30	-	30	-	-	-	30	-	30	-	-
45	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	EBT	-	132	-	190	-	190	-	190	-	200	-	60	-	60	-	60
45	EBR	-	116	-	160	-	170	-	160	-	160	-	60	-	60	-	60
45	WBL	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	WBT	-	257	-	250	-	250	-	250	-	250	-	50	-	50	-	50
45	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46 9th St/Mission St	NBL	-	50	-	60	-	60	-	60	-	60	-	70	-	70	-	70
46	NBT	-	2,077	-	2,340	-	2,440	-	2,500	-	2,340	-	3,250	-	3,270	-	3,250
46	NBR	-	125	-	130	-	140	-	130	-	140	-	150	-	150	-	150
46	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	EBL	-	10	-	20	-	20	-	20	-	20	-	20	-	20	-	20
46	EBT	-	476	-	500	-	510	-	500	-	560	-	600	-	600	-	600
46	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	WBT	-	456	-	480	-	510	-	480	-	540	-	580	-	600	-	580
46	WBR	-	307	-	320	-	330	-	340	-	320	-	380	-	380	-	380
47 10th St/Howard St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	SBT	-	1,723	-	1,640	-	1,670	-	1,680	-	1,710	-	1,890	-	1,910	-	1,910
47	SBR	-	123	-	130	-	140	-	140	-	150	-	160	-	160	-	160
47	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	EBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	WBL	-	399	-	440	-	460	-	450	-	470	-	730	-	730	-	740
47	WBT	-	454	-	620	-	720	-	620	-	730	-	820	-	880	-	830
47	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection	Turning Movement	Existing Count		2020 No Project		2020 + Land Use		2020 + Hub +LU		2020 + Civic Center +LU		2040 No Project		2040 + LU		2040 + LU + Hub + CC	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
48 Charles M Brenham/Market/7th	NBL	-	18	-	20	-	20	-	20	-	20	-	20	-	10	-	20
	NBT	-	1,078	-	990	-	1,030	-	1,010	-	1,030	-	1,240	-	1,250	-	1,250
	NBR	-	29	-	30	-	30	-	30	-	30	-	20	-	20	-	20
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	2	-	10	-	10	-	10	-	10	-	20	-	20	-	20
	EBL	-	2	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	EBT	-	126	-	170	-	170	-	170	-	170	-	50	-	50	-	50
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	221	-	210	-	220	-	220	-	220	-	80	-	80	-	80
	WBR	-	20	-	130	-	130	-	130	-	130	-	30	-	30	-	30
49 8th St/Mission St	NBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	NBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBL	-	120	-	120	-	120	-	120	-	120	-	140	-	140	-	140
	SBT	-	1,226	-	1,210	-	1,250	-	1,240	-	1,230	-	1,440	-	1,440	-	1,440
	SBR	-	139	-	150	-	160	-	160	-	190	-	200	-	210	-	200
	EBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBT	-	426	-	440	-	440	-	440	-	440	-	500	-	500	-	500
	EBR	-	172	-	190	-	190	-	190	-	210	-	210	-	220	-	210
	WBL	-	3	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	WBT	-	617	-	650	-	660	-	650	-	680	-	770	-	790	-	770
	WBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50 Taylor/Golden Gate/Market/6th	NBL	-	1	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	NBT	-	1,118	-	1,200	-	1,210	-	1,210	-	1,210	-	860	-	870	-	870
	NBR	-	6	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SEBL2	-	117	-	120	-	120	-	120	-	120	-	110	-	110	-	110
	SEBL1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SEBR1	-	657	-	670	-	670	-	670	-	670	-	610	-	610	-	610
	SEBR2	-	2	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	EBL	-	2	-	10	-	10	-	10	-	10	-	10	-	10	-	10
	EBT	-	115	-	140	-	140	-	140	-	140	-	30	-	30	-	30
	EBR	-	71	-	90	-	90	-	90	-	70	-	20	-	20	-	20
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	211	-	240	-	240	-	250	-	240	-	80	-	90	-	80
WBR	-	3	-	10	-	10	-	10	-	10	-	10	-	10	-	10	
51 7th St/Mission St	NBL	-	90	-	130	-	130	-	120	-	130	-	150	-	150	-	150
	NBT	-	1,070	-	1,000	-	1,040	-	1,030	-	1,050	-	1,270	-	1,270	-	1,270
	NBR	-	121	-	120	-	120	-	120	-	120	-	140	-	140	-	140
	SBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EBL	-	13	-	20	-	20	-	20	-	20	-	20	-	20	-	20
	EBT	-	587	-	580	-	590	-	580	-	600	-	660	-	670	-	660
	EBR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WBT	-	490	-	490	-	490	-	490	-	500	-	620	-	620	-	620
	WBR	-	93	-	90	-	90	-	90	-	100	-	100	-	110	-	100

## **APPENDIX D-7**

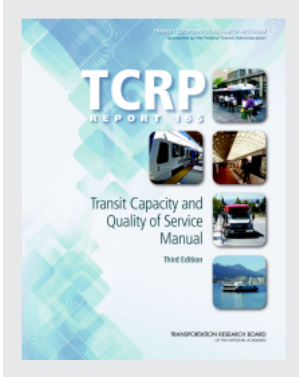
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## 1. INTRODUCTION

As discussed in Chapter 3, Operations Concepts, bus capacity is not just an interest of high-ridership, major-city bus systems. The factors that ultimately determine the capacity of a service or facility—dwell time, traffic signal timing, and so on—also affect passenger quality of service elements such as travel speed and travel time reliability, as well as a service provider's operations costs. These are issues of concern to any size transit agency.

Bus capacity, speed, and reliability address the movement of both buses and the movement of people within those buses:

- *Capacity* deals with how many people and buses can move past a given location during a given time period under specified operating conditions; without unreasonable delay, hazard, or restriction; and with reasonable certainty.
- *Speed* deals with how quickly people and buses can move from one location to another.
- *Reliability* deals with how well the bus schedule can be maintained.

Bus capacity, speed, and reliability are influenced by the timing, location, and magnitude of passenger travel demands; by external factors such as traffic signal timing and traffic congestion along the roadways used by buses; and by a transit agency's operating budget and service policies, which influence bus frequencies and allowed passenger loads, among other things. Ultimately, bus capacity is constrained by (a) the ability of bus stops and facilities to serve buses and their passengers, (b) the number and type of buses operated, and (c) the distribution of passenger demand.

Chapter 6 of the *Transit Capacity and Quality of Service Manual* (TCQSM) presents methods for calculating fixed-route bus capacity and speed for a variety of facility types, and provides a summary of the current state of knowledge about factors influencing service reliability.

- Section 2 provides bus-specific speed and capacity concepts, building upon the general concepts information presented in Chapter 3, Operations Concepts. It also presents capacity values suitable for planning analyses.
- Section 3 is an overview of transit preferential treatments (infrastructure improvements) that can improve bus capacity, speed, reliability, or a combination of these.
- Section 4 describes operational tools available to transit agencies that can improve bus capacity, speed, and reliability.
- Section 5 presents a computational procedure for estimating bus capacity.
- Section 6 presents a computational procedure for estimating average bus speeds.
- Section 7 describes current knowledge about the factors that affect bus reliability.
- Section 8 presents potential applications of this chapter's methods to a variety of questions that transit agencies may face.

*Factors that influence bus capacity also influence bus speeds and reliability—issues of interest to any size transit agency. See Chapter 3 for a discussion of these relationships.*

*Organization of Chapter 6.*

- Section 9 provides a comprehensive example of the calculations involved in performing bus capacity and speed analyses.
- Appendix A provides substitute exhibits in metric units for selected exhibits that use U.S. customary units.
- Appendix B provides a standardized procedure for collecting bus dwell time data in the field.
- Appendix C discusses the effects of bus bunching on bus capacity.

## **HOW TO USE THIS CHAPTER**

The early sections of this chapter, Sections 2–4, provide bus-specific concepts that support the computational methods presented later in the chapter, but which are also intended to be a useful resource for a wide range of transit and transportation professionals. Section 8, describing applications of this chapter’s methods, is written with both non-technical and technical audiences in mind.

Sections 5 and 6 provide step-by-step guidance for performing bus capacity and speed evaluations, and Section 9 gives examples of the calculations involved. Although capacity may not be the ultimate output of an analysis, it is a necessary input to this chapter’s speed estimation procedures. Buses interfere with each other as the number of buses using a facility approaches the facility’s maximum capacity, thereby reducing average bus speeds. Analysts should be familiar with these sections prior to using the spreadsheet that implements these methods, found on the accompanying CD-ROM. Although Section 7 is less mathematical, as insufficient research exists to present a computational method for estimating bus reliability, this section is also intended primarily for analysts.

Appendix B serves as a resource to those who wish to collect bus dwell time data in the field. Appendix C supplements Sections 5 and 7 with information on bus bunching that, while theoretically sound, has not yet been confirmed through field testing.

## **OTHER RESOURCES**

Other TCQSM material related to bus capacity includes:

- The “What’s New” section of Chapter 1, User’s Guide, which describes the changes made in this chapter from the 2nd Edition.
- Chapter 2, Mode and Service Concepts, which defines and illustrates the various bus submodes and typical service patterns.
- Chapter 3, Operations Concepts, which defines capacity and presents general capacity, speed, and reliability concepts applicable to all transit modes.
- The “Passenger Load” section of Chapter 5, Quality of Service Methods, which serves as a resource for determining the standing capacity of a bus at a design passenger loading level.
- Chapter 10, Stop and Station Capacity, which provides a method for sizing off-street bus facilities.
- The TCQSM’s CD-ROM, which includes a bus speed and capacity spreadsheet and links to electronic versions of all of the TCRP reports referenced in this chapter.





**SFMTA**  
Municipal  
Transportation  
Agency

# SFMTA Bus Fleet Management Plan

2017-2030



March 2017

Route	Vehicle Type				AM Peak Vehicles				PM Peak Vehicles			
	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030
1	T Std	T Std	T Std	T Std	28	28	28	28	30	30	30	30
1AX	M Std	M Artic	M Artic	M Artic	6	6	6	6	5	5	5	5
1BX	M Std, M Artic	M Artic	M Artic	M Artic	9	9	9	9	5	5	5	5
2 short	T Std	T Std	T Std	T Std	5	5	5	5	6	6	6	6
2	M Std	M Std	M Std	M Std	7	7	7	7	8	8	8	8
3	T Std	T Std	T Std	T Std	5	5	5	5	6	6	6	6
5R	T Std, T Artic	T Artic	T Artic	T Artic	27	27	27	27	20	20	20	20
5S	M Std	M Std	M Std	M Std	10	10	10	10	10	10	10	10
6	T Std	T Std	T Std	T Std	12	12	12	12	13	13	13	13
7	M Std	M Artic	M Artic	M Artic	14	14	14	14	15	15	15	15
7X	M Std, M Artic	M Std	M Std	M Std	12	12	12	12	9	9	9	9
8	M Artic	M Artic	M Artic	M Artic	38	42	42	44	40	44	44	46
9	M Std	M Std	M Std	M Std	12	12	12	12	12	12	12	12
9R	M Std	M Artic	M Artic	M Artic	16	16	16	16	16	16	16	16
10	M Std	M Std	M Std	M Std	10	18	18	18	11	19	19	19
11	M Std	M Std	M Std	M Std	-	13	13	13	-	13	13	13
XX	-	M Std	M Std	M Std	-	7	7	7	-	7	7	7
12	M Std	M Std	M Std	M Std	9	6	6	6	10	7	7	7
14	T Artic	T Artic	T Artic	T Artic	18	18	18	18	20	20	20	20
14R	M Artic	M Artic	M Artic	M Artic	17	17	20	20	17	17	20	20
14X	M Artic	M Artic	M Artic	M Artic	10	10	10	10	10	10	10	10
18	M Std	M Std	M Std	M Std	4	4	4	4	4	4	4	4
19	M Std	M Std	M Std	M Std	10	12	16	16	10	12	16	16
21	T Std	T Std	T Std	T Std	12	15	15	15	12	12	12	12
22	T Std	T Std, T Artic	T Std, T Artic	T Std, T Artic	17	21	21	21	19	23	23	23
23	M Std	M Std	M Std	M Std	5	5	7	7	6	6	8	8
24	T Std	T Std	T Std	T Std	15	15	15	25	15	15	15	25
25	M Std	M Std	M Artic	M Artic	4	4	5	5	4	4	6	6
27	M Std	M Std	M Std	M Std	8	8	8	8	8	8	8	8
28	M Std	M Std	M Std	M Std	14	16	16	16	15	17	17	17
28R	M Std	M Std	M Std	M Artic	11	11	19	23	11	11	19	23
29	M Std	M Std	M Std	M Std	20	21	28	28	18	19	26	26
30	T Std, T Artic	T Std, T Artic	T Std, T Artic	T Std, T Artic	14	13	13	13	25	16	16	16
30X	M Artic	M Artic	M Artic	M Artic	11	11	11	11	7	7	7	7
31	T Std	T Std	T Std	T Std	11	11	11	11	12	12	12	12
31AX	M Std	M Std	M Std	M Std	6	6	6	6	5	5	5	5
31BX	M Std	M Std	M Std	M Std	6	6	6	6	5	5	5	5
33	T Std	T Std	T Std	T Std	9	9	9	9	9	9	9	9
35	M Short	M Short	M Short	M Short	2	2	2	2	3	3	3	3
36	M Short	M Short	M Short	M Short	3	3	3	3	3	3	3	3

Route	Vehicle Type				AM Peak Vehicles				PM Peak Vehicles			
	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030
37	M Short	M Short	M Short	M Short	4	4	4	4	5	5	5	5
38	M Artic	M Artic	M Artic	M Artic	15	15	19	19	16	16	21	21
38R	M Artic	M Artic	M Artic	M Artic	25	31	31	31	30	36	36	36
38AX	M Std	M Artic	M Artic	M Artic	6	6	15	15	6	6	15	15
38BX	M Std	M Std	-	-	6	6	-	-	6	6	-	-
39	M Short	M Short	M Short	M Short	2	2	2	2	2	2	2	2
41	T Std	T Std	T Std	T Std	15	15	15	15	11	11	11	11
43	M Std	M Std	M Std	M Std	22	22	22	22	19	19	19	19
44	M Std	M Std	M Std	M Artic	23	23	25	25	19	19	21	21
45	T Std	T Std	T Std	T Std	13	12	12	12	9	12	12	12
47	M Std	M Artic	M Artic	M Artic	15	15	15	15	17	17	17	17
48	M Std	M Std	M Std	M Std	13	13	13	13	12	12	12	12
49	M Artic	T Artic	T Artic	T Artic	18	18	18	18	21	21	21	21
52	M Short, M Std	M Short, M Std	M Short, M Std	M Short, M Std	4	4	4	4	4	4	4	4
54	M Std	M Std	M Std	M Std	8	8	8	8	8	8	8	8
55	M Std	-	-	-	3	-	-	-	3	-	-	-
56	M Short	M Short	M Short	M Short	1	3	1	1	1	3	1	1
57	M Std	M Short, M Std	M Short, M Std	M Short, M Std	5	5	5	5	5	5	5	5
66	M Std	M Std	M Std	M Std	2	2	2	2	2	2	2	2
67	M Short, M Std	M Short, M Std	M Short, M Std	M Short, M Std	2	2	2	2	2	2	2	2
81X/82X	M Std	M Std	M Std	M Std	3	3	3	3	2	2	2	2
83X	M Std	-	-	-	2	-	-	-	2	-	-	-
88	M Std	-	-	-	1	-	-	-	1	-	-	-
NX	M Std	M Std	M Std	M Std	9	9	9	9	8	8	8	8
CPX	M Std	M Std	M Artic	M Artic	-	8	8	8	-	8	8	8
HPX	-	-	M Std	M Std	-	-	10	14	-	-	10	14

Route	Vehicle Type				AM Peak Headway (min)				PM Peak Headway (min)			
	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030
1	T Std	T Std	T Std	T Std	6	6	6	6	6	6	6	6
1S	T Std	T Std	T Std	T Std	6	6	6	6	6	6	6	6
1AX	M Std	M Artic	M Artic	M Artic	10	10	10	10	15	15	15	15
1BX	M Std, M Artic	M Artic	M Artic	M Artic	7	7	7	7	15	15	15	15
2 short	T Std	T Std	T Std	T Std	15	15	15	15	15	15	15	15
2	M Std	M Std	M Std	M Std	15	15	15	15	15	15	15	15
3	T Std	T Std	T Std	T Std	15	15	15	15	15	15	15	15
5R	T Std, T Artic	T Artic	T Artic	T Artic	4	4	4	4	6	6	6	6
5S	M Std	M Std	M Std	M Std	9	9	9	9	9	9	9	9
6	T Std	T Std	T Std	T Std	10	10	10	10	10	10	10	10
7	M Std	M Artic	M Artic	M Artic	10	10	10	10	10	10	10	10
7X	M Std, M Artic	M Std	M Std	M Std	9	9	9	9	10	10	10	10
8	M Artic	M Artic	M Artic	M Artic	8	8	8	8	8	8	8	8
9	M Std	M Std	M Std	M Std	12	12	12	12	12	12	12	12
9R	M Std	M Artic	M Artic	M Artic	8	8	8	8	8	8	8	8
10	M Std	M Std	M Std	M Std	15	12	12	12	15	12	12	12
11	M Std	M Std	M Std	M Std	0	15	15	15	0	15	15	15
XX	-	M Std	M Std	M Std	0	12	12	12	0	12	12	12
12	M Std	M Std	M Std	M Std	15	15	15	15	15	15	15	15
14	T Artic	T Artic	T Artic	T Artic	15	15	15	15	15	15	15	15
14S	T Artic	T Artic	T Artic	T Artic	15	15	15	15	15	15	15	15
14R	M Artic	M Artic	M Artic	M Artic	8	8	8	8	8	8	8	8
14X	M Artic	M Artic	M Artic	M Artic	9	9	9	9	9	9	9	9
18	M Std	M Std	M Std	M Std	20	20	20	20	20	20	20	20
19	M Std	M Std	M Std	M Std	15	15	10	10	15	15	10	10
21	T Std	T Std	T Std	T Std	8	6	6	6	9	9	9	9
22	T Std	T Std, T Artic	T Std, T Artic	T Std, T Artic	8	8	10	10	9	9	10	10
22S	-	-	T Std, T Artic	T Std, T Artic	-	-	10	10	-	-	10	10
23	M Std	M Std	M Std	M Std	20	20	15	20	20	20	15	20
24	T Std	T Std	T Std	T Std	9	9	9	7.5	9	9	9	7.5
25	M Std	M Std	M Artic	M Artic	10	10	5	5	15	15	5	5
27	M Std	M Std	M Std	M Std	15	15	15	15	15	15	15	15
28	M Std	M Std	M Std	M Std	10	9	9	9	10	9	9	9
28R	M Std	M Std	M Std	M Artic	10	10	8	8	10	10	8	8
29	M Std	M Std	M Std	M Std	10	10	10	10	12	12	10	10
29S	-	-	M Std	M Std	-	-	10	10	-	-	10	10
30	T Std	T Std	T Std	T Std	8	8	8	8	12	8	8	8
30S	T Std, T Artic	-	-	-	-	-	-	-	6	-	-	-
30X	M Artic	M Artic	M Artic	M Artic	6	6	6	6	10	10	10	10
31	T Std	T Std	T Std	T Std	12	12	12	12	12	12	12	12

Route	Vehicle Type				AM Peak Headway (min)				PM Peak Headway (min)			
	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030	Existing (2017)	2020	2025	2030
31AX	M Std	M Std	M Std	M Std	10	10	10	10	12	12	12	12
31BX	M Std	M Std	M Std	M Std	10	10	10	10	15	15	15	15
33	T Std	T Std	T Std	T Std	15	15	15	15	15	15	15	15
35	M Short	M Short	M Short	M Short	25	25	25	25	15	15	15	15
36	M Short	M Short	M Short	M Short	30	30	30	30	30	30	30	30
37	M Short	M Short	M Short	M Short	15	15	15	15	15	15	15	15
38	M Artic	M Artic	M Artic	M Artic	15	15	5.5	5.5	15	15	5.5	5.5
38S	M Artic	M Artic	-	-	15	15	-	-	15	15	-	-
38R-S	-	-	M-Artic	M-Artic	-	-	5.5	5.5	-	-	5.5	5.5
38R	M Artic	M Artic	M Artic	M Artic	4	4	5.5	5.5	4	4	5.5	5.5
38AX	M Std	M Artic	M Artic	M Artic	10	10	5.5	5.5	15	15	5.5	5.5
38BX	M Std	-	-	-	10	10	-	-	15	15	-	-
39	M Short	M Short	M Short	M Short	-	-	-	-	20	20	20	20
41	T Std	T Std	T Std	T Std	5	5	5	5	8	8	8	8
43	M Std	M Std	M Std	M Std	9	9	9	9	10	10	10	10
44	M Std	M Std	M Std	M Artic	10	10	10	10	8	8	8	8
45	T Std	T Std	T Std	T Std	8	8	8	8	12	8	8	8
47	M Std	M Artic	M Artic	M Artic	8	8	8	8	8	8	8	8
48	M Std	M Std	M Std	M Std	12	12	12	12	12	12	12	12
49	M Artic	T Artic	T Artic	T Artic	8	8	8	8	8	8	8	8
52	M Short, M Std	M Short, M Std	M Short, M Std	M Short, M Std	20	20	20	20	20	20	20	20
54	M Std	M Std	M Std	M Std	20	20	20	20	20	20	20	20
55	M Std				15	-	-	-	15	-	-	-
56	M Short	M Short	M Short	M Short	30	30	30	30	30	30	30	30
57	M Std	M Short, M Std	M Short, M Std	M Short, M Std	20	20	20	20	20	20	20	20
66	M Std	M Std	M Std	M Std	20	20	20	20	20	20	20	20
67	M Short, M Std	M Short, M Std	M Short, M Std	M Short, M Std	20	20	20	20	20	20	20	20
81X/82X	M Std	M Std	M Std	M Std	15	15	15	15	20	20	20	20
83X	M Std	-	-	-	20	-	-	-	15	-	-	-
88	M Std	-	-	-	20	-	-	-	20	-	-	-
NX	M Std	M Std	M Std	M Std	8	8	8	8	10	10	10	10
CPX	-	M Std	M Artic	M Artic	-	15	15	15	-	15	15	15
HPX	-	-	M Std	M Std	-	-	15	10	-	-	15	10

### Step 0: Calculate Average Dwell Time (Optional)

Highlight indicates that this input changed from existing conditions

#### Northbound/Eastbound Stops (Inbound)

	Gough	Van Ness	Hyde	Leavenworth <sup>2</sup>	6th	
Inputs	1	2	3	4	5	6
Average boarding volume per bus	2	10	1	3	2	
Average alighting volume per bus	2	13	3	15	5	
Boarding door(s)	All	All	All	All	All	
Fare payment method	Smart card	Smart card	Smart card	Smart card	Smart card	
Boarding height	Level	Level	Level	Level	Level	
Standeers present?	No	No	No	No	No	
Number of doors	2	2	2	2	2	
Available door channels	3	3	3	3	3	
Percent of boarders using farebox	10%	10%	10%	10%	10%	
Door opening and closing time	4	4	4	4	4	
Number of loading areas	2	2	1	3	2	

#### Calculations

P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	1.1	0.1	0.4	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.0	4.6	0.5	1.5	1.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.0	4.6	0.5	1.5	1.0
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.6	3.1	0.9	3.7	1.1
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.7	9.4	2.6	11.1	3.4
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.7	2.9	0.3	1.0	0.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	4.8	24.2	4.8	19.3	7.2
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	9.6	50.6	12.0	50.4	16.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	10	51	12	50	17
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	4.0	2.0

#### Output

t <sub>d</sub>	Average dwell time (s)	16	57	16	58	23
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<b>Southbound/Westbound Stops (Outbound)</b>		6th	Jones <sup>2</sup>	Hyde	Larkin	Van Ness	Gough
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		1	8	6	3	18	2
Average alighting volume per bus		1	5	2	1	8	2
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	1	2	2	1
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.8	0.6	0.4	1.9	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.5	3.6	2.6	1.5	8.2	1.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.5	3.6	2.6	1.5	8.2	1.0
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.3	1.1	0.6	0.3	2.0	0.6
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.9	3.4	1.7	0.9	6.0	1.7
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.00	2.50	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.00	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.4	2.7	1.9	1.2	6.2	0.8
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.9	13.5	8.7	5.0	28.4	5.8
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	5.6	27.2	15.9	8.7	53.3	11.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	6	27	16	9	53	11
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	2.0	2.0	0.0
<b>Output</b>							
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>12</b>	<b>33</b>	<b>20</b>	<b>15</b>	<b>59</b>	<b>15</b>

## Step 1: Capacity Calculations

Highlight indicates that this input changed from existing conditions

### Northbound/Eastbound Stops (Inbound)

		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
Inputs		1	2	3	4	5	6
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	16	57	16	58	23	
$g/C$	Green time ratio	0.21	0.23	0.31	0.31	0.37	
$C$	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	Off-line	Off-line	On-line	Off-line	On-line	
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Influenced	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
$v$	Curb lane traffic volume (veh/h)	190	120	170	60	188	
$v_{rt}$	Right-turning volume (veh/h)	20	0	140	0	90	
$v_{ped}$	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
$N_{la}$	Number of physical loading areas	2	2	1	3	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	1	2	
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	822	912	847	998	824	
$d_{re,1}$	Case 1 re-entry delay (s)	15.8	27.2	18.0	59.9	16.1	
$d_{qs}$	Case 2 queue service delay (s)	7.9	4.6	6.1	2.0	7.4	
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1046	1009	1061	984	
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.3	0.1	0.4	
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.1	4.7	6.3	2.1	7.8	
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.0	0.4	0.7	0.2	0.9	
$d_{re,3}$	Case 3 re-entry delay (s)	1.0	0.4	2.5	0.2	6.2	
$t_c$	Clearance time (s)	11.0	10.4	10.0	12.1	10.0	
$t_{om}$	Operating margin (s)	9.7	35.2	10.0	36.3	14.2	
$B_l$	Loading area design capacity (bus/h)	31	14	44	17	41	
$N_{el}$	Number of effective loading areas	1.85	1.85	1.00	2.00	1.75	
$f_l$	Bus stop location factor	0.8	0.5	0.9	0.9	0.7	
$C_{th}$	Through movement capacity (veh/h)	336	379	498	498	601	
$C_{rt}$	Right turn capacity (veh/h)	284	261	445	445	173	
$C_{cl}$	Curb lane capacity (veh/h)	330	379	454	498	396	
$f_{tb}$	Traffic blockage adjustment factor	0.54	0.84	0.66	0.89	0.67	
Output							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>31</b>	<b>22</b>	<b>29</b>	<b>29</b>	<b>47</b>	
		36	28	34	36	56	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>22</b>	28	34	36	36	28



Southbound/Westbound Stops (Outbound)		6th <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
Inputs		1	2	3	4	5	6
C <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	12	33	20	15	59	15
g/C	Green time ratio	0.37	0.37	0.31	0.48	0.23	0.21
C	Traffic signal cycle length (s)	90	90	75	75	75	75
	Stop type (on-line/off-line)	On-line	Off-line	Off-line	On-line	On-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Influenced	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289	289				
v	Curb lane traffic volume (veh/h)	178	111	259	310	170	220
V <sub>rt</sub>	Right-turning volume (veh/h)	10	0	0	200	0	0
V <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	205	487	0	610	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
N <sub>la</sub>	Number of physical loading areas	2	2	1	2	2	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	1	2	2	2	1
Calculations							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
C <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	836	925	741	686	847	785
d <sub>re,1</sub>	Case 1 re-entry delay (s)	17.2	29.7	10.7	8.4	18.1	13.1
d <sub>qs</sub>	Case 2 queue service delay (s)	7.0	4.2	9.9	9.3	6.7	9.3
C <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	989	1026	969	875	1028	1020
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.3	0.2	0.4	0.8	0.2	0.2
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	7.3	4.4	10.3	10.1	6.9	9.6
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	0.9	0.4	1.7	1.9	0.8	1.4
d <sub>re,3</sub>	Case 3 re-entry delay (s)	4.4	6.8	1.7	1.9	0.8	1.4
t <sub>c</sub>	Clearance time (s)	10.0	16.8	11.7	10.0	10.0	11.4
t <sub>om</sub>	Operating margin (s)	7.2	20.6	12.4	9.1	36.9	9.5
B <sub>l</sub>	Loading area capacity (bus/h)	62	27	37	66	14	31
N <sub>el</sub>	Number of effective loading areas	1.75	1.85	1	1.75	1.75	1
f <sub>l</sub>	Bus stop location factor	0.7	0.9	0.5	0.5	0.5	0.8
C <sub>th</sub>	Through movement capacity (veh/h)	601	601	498	775	379	336
C <sub>rt</sub>	Right turn capacity (veh/h)	482	406	445	480	338	300
C <sub>cl</sub>	Curb lane capacity (veh/h)	595	601	498	585	379	336
f <sub>tb</sub>	Traffic blockage adjustment factor	0.79	0.83	0.74	0.73	0.78	0.48
Output							
B <sub>s</sub>	Bus stop capacity (bus/h)	85	41	27	84	18	14
B	Bus facility capacity (bus/h)	14					

<b>Step 3: Speed Calculations</b>			
		Inbound	Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	6.7
	Average stop spacing (stops/mi)	7	8
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	33.9	25.7
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1679.7	1763.7
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3600.3	3516.3
$t_{rs}$	Time spent at running speed per mile (s/mi)	122.5	119.6
$t_u$	Unimpeded bus running time (min/mi)	7.98	7.20
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	10.98	10.20
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.60	0.39
$f_{bb}$	Bus-bus interference factor	0.94	1.00
<b>Outputs</b>			
$t$	<b>Average Travel Speed (mi/h)</b>	<b>5.1</b>	<b>5.9</b>

Conversion from Speed to Minutes

Corridor Length (miles)		0.70	0.80
Scenario 2 Corridor Travel Time (decimal)	8.164357006		8.160549698
Scenario 2 Corridor Travel Time (minutes/sec)		08:10	08:10

## Step 0: Calculate Average Dwell Time (Optional)

Highlight indicates that input may have changed from existing conditions

### Northbound/Eastbound Stops (Inbound)

Van Ness Leavenworth<sup>2</sup> 6th

Inputs		1	2	3
Average boarding volume per bus		7	2	2
Average alighting volume per bus		8	10	4
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standees present?		No	No	No
Number of doors		3	3	3
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door opening and closing time		4	4	4
Number of loading areas		2	2	2
Calculations				
$P_{b,1}$	Boarding passengers through door channel 1	0.7	0.2	0.2
$P_{b,2}$	Boarding passengers through door channel 2	3.1	1.1	0.8
$P_{b,3}$	Boarding passengers through door channel 3	3.1	1.1	0.8
$P_{b,4}$	Boarding passengers through door channel 4			
$P_{b,5}$	Boarding passengers through door channel 5			
$P_{b,6}$	Boarding passengers through door channel 6			
$P_{a,1}$	Alighting passengers through door channel 1	2.3	5.7	1.9
$P_{a,2}$	Alighting passengers through door channel 2	4.6	5.7	1.9
$P_{a,3}$	Alighting passengers through door channel 3	3.8	4.7	1.6
$P_{a,4}$	Alighting passengers through door channel 4			
$P_{a,5}$	Alighting passengers through door channel 5			
$P_{a,6}$	Alighting passengers through door channel 6			
$t_{b,1}$	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30
$t_{b,2}$	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00
$t_{b,3}$	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00
$t_{b,4-6}$	Average boarding service time for door channels 4-6 (s)			
$t_{a,1}$	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20
$t_{a,2}$	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20
$t_{a,3}$	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20
$t_{a,4-6}$	Average alighting service time for door channels 4-6 (s)			
$t_{pf,1}$	Passenger flow time for door channel 1 (s)	12.1	24.7	8.7
$t_{pf,2}$	Passenger flow time for door channel 2 (s)	29.7	23.9	8.1
$t_{pf,3}$	Passenger flow time for door channel 3 (s)	26.1	19.5	6.6
$t_{pf,4}$	Passenger flow time for door channel 4 (s)			
$t_{pf,5}$	Passenger flow time for door channel 5 (s)			
$t_{pf,6}$	Passenger flow time for door channel 6 (s)			
$t_{pf,max}$	Maximum passenger flow time of all door channels (s)	30	25	9
$t_{bl}$	Boarding lost time (s)	2.0	2.0	2.0
Output				
$t_d$	Average dwell time (s)	36	31	15

Southbound/Westbound Stops (Outbound)		Mason	Jones <sup>2</sup>	Van Ness
		1	2	3
<b>Inputs</b>				
	Average boarding volume per bus	2	5	13
	Average alighting volume per bus	1	3	5
	Boarding door(s)	All	All	All
	Fare payment method	Smart card	Smart card	Smart card
	Boarding height	Level	Level	Level
	Standees present?	Yes	Yes	Yes
	Number of doors	3	3	3
	Available door channels	3	3	3
	Percent of boarders using farebox	10%	10%	10%
	Door closing time	4	4	4
	Number of loading areas	2	1	2
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.6	1.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.8	2.4	5.7
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.8	2.4	5.7
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.2	0.9	2.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.4	1.7	2.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.3	1.4	2.4
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	1.6	6.4	19.1
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.2	9.8	17.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	1.9	8.3	14.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	2	10	19
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0	2.0
<b>Output</b>				
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>8</b>	<b>14</b>	<b>25</b>

## Step 1: Capacity Calculations

Highlight indicates that input may have changed from existing conditions

Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
Inputs		1	2	3	4	5	6
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	36	0	31	15	
$g/C$	Green time ratio	0.21	0.23	0.31	0.31	0.37	
$C$	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Influenced	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
$v$	Curb lane traffic volume (veh/h)	190	120	170	60	188	
$v_{rt}$	Right-turning volume (veh/h)	20	0	140	0	90	
$v_{ped}$	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
$N_{la}$	Number of physical loading areas	2	2	1	2	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	2	2	
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	822	912	847	998	824	
$d_{re,1}$	Case 1 re-entry delay (s)	15.8	27.2	18.0	58.8	16.1	
$d_{qs}$	Case 2 queue service delay (s)	7.9	4.6	6.1	2.0	7.4	
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1046	1009	1061	984	
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.3	0.1	0.4	
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.1	4.7	6.3	2.1	7.8	
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.0	0.4	0.7	0.1	0.9	
$d_{re,3}$	Case 3 re-entry delay (s)	1.0	0.4	2.5	0.1	6.2	
$t_c$	Clearance time (s)	10.0	10.4	10.0	12.1	10.0	
$t_{om}$	Operating margin (s)	0.0	22.2	0.0	19.1	9.2	
$B_l$	Loading area design capacity (bus/h)	74	21	110	27	54	
$N_{el}$	Number of effective loading areas	1.75	1.85	1.00	1.85	1.75	
$f_l$	Bus stop location factor	0.8	0.5	0.9	0.7	0.7	
$C_{th}$	Through movement capacity (veh/h)	336	379	498	498	601	
$C_{rt}$	Right turn capacity (veh/h)	284	261	445	445	173	
$C_{cl}$	Curb lane capacity (veh/h)	330	379	454	498	396	
$f_{tb}$	Traffic blockage adjustment factor	0.54	0.84	0.66	0.92	0.67	
Output							
$B_s$	Bus stop capacity (bus/h)	70	31	73	46	63	
$B$	Bus facility capacity (bus/h)	31					

Southbound/Westbound Stops (Outbound)		6th <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
Inputs		1	2	3	4	5	6
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	8	14	0	0	25	0
$g/C$	Green time ratio	0.37	0.31	0.31	0.48	0.23	0.21
$C$	Traffic signal cycle length (s)	90	75	75	75	75	75
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289					
$v$	Curb lane traffic volume (veh/h)	178	111	259	310	170	220
$v_{rt}$	Right-turning volume (veh/h)	10	0	0	200	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	205	487	0	610	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	1	1	2	2	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	1	2	2	2	1
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	836	925	741	686	847	785
$d_{re,1}$	Case 1 re-entry delay (s)	17.2	29.4	10.7	8.4	18.1	13.1
$d_{qs}$	Case 2 queue service delay (s)	7.0	3.8	9.9	9.3	6.7	9.3
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	989	1037	969	875	1028	1020
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.2	0.4	0.8	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	7.3	4.0	10.3	10.1	6.9	9.6
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.9	0.4	1.7	1.9	0.8	1.4
$d_{re,3}$	Case 3 re-entry delay (s)	4.4	0.4	1.7	1.9	0.8	1.4
$t_c$	Clearance time (s)	10.0	10.4	10.0	10.0	10.0	10.0
$t_{om}$	Operating margin (s)	5.1	8.6	0.0	0.0	15.6	0.0
$B_l$	Loading area capacity (bus/h)	74	48	110	172	27	74
$N_{el}$	Number of effective loading areas	1.75	1	1	1.75	1.75	1
$f_l$	Bus stop location factor	0.7	0.8	0.5	0.5	0.5	0.8
$C_{th}$	Through movement capacity (veh/h)	601	498	498	775	379	336
$C_{rt}$	Right turn capacity (veh/h)	482	336	445	480	338	300
$C_{cl}$	Curb lane capacity (veh/h)	595	498	498	585	379	336
$f_{tb}$	Traffic blockage adjustment factor	0.79	0.82	0.74	0.73	0.78	0.48
Output							
$B_s$	Bus stop capacity (bus/h)	101	39	81	220	36	35
$B$	Bus facility capacity (bus/h)	35	35				35

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	16.7
	Average stop spacing (stops/mi)	4	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	16.2	7.8
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1007.8	881.8
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4272.2	4398.2
$t_{rs}$	Time spent at running speed per mile (s/mi)	145.3	149.6
$t_u$	Unimpeded bus running time (min/mi)	4.72	3.98
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	7.72	6.98
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.43	0.48
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$s_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.8</b>	<b>8.6</b>

#### Conversion from Speed to Minutes

Corridor Length (miles)	0.70	0.80
Scenario 2 Corridor Travel Time (decimal)	5.406198723	5.582771818
Scenario 2 Corridor Travel Time (minutes/sec)	05:24	05:35

## Step 0: Calculate Average Dwell Time (Optional)

Highlight indicates that this input changed from existing conditions

### Northbound/Eastbound Stops (Inbound)

		Howard <sup>1</sup>	Market
Inputs		1	2
Average boarding volume per bus		1	5
Average alighting volume per bus		0	23
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standees present?		No	No
Number of doors		2	2
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		1	2
Calculations			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.5
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.5	2.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.5	2.0
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.1	5.7
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.3	17.1
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.3	1.3
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	1.3	28.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	2.3	76.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	2	77
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0
Output			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>6</b>	<b>83</b>



<b>Southbound/Westbound Stops (Outbound)</b>		11th	Mission	Howard
<b>Inputs</b>		1	2	3
Average boarding volume per bus		17	2	1
Average alighting volume per bus		5	1	1
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standees present?		Yes	Yes	Yes
Number of doors		2	2	2
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door closing time		4	4	4
Number of loading areas		2	3	1
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.8	0.2	0.1
P <sub>b,2</sub>	Boarding passengers through door channel 2	7.7	1.0	0.5
P <sub>b,3</sub>	Boarding passengers through door channel 3	7.7	1.0	0.5
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.1	0.3	0.3
P <sub>a,3</sub>	Alighting passengers through door channel 3	3.4	0.9	0.9
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	5.8	0.8	0.4
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	23.7	3.7	2.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	39.4	7.2	5.6
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	39	7	6
t <sub>bl</sub>	Boarding lost time (s)	2.0	4.0	0.0
<b>Output</b>				
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>45</b>	<b>15</b>	<b>10</b>

## Step 1: Capacity Calculations

Highlight indicates that this input changed from existing conditions

### Northbound/Eastbound Stops (Inbound)

		Howard	Market
		1	2
<b>Inputs</b>			
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	6	83
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	400	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2

### Calculations

$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	599	847
$d_{re,1}$	Case 1 re-entry delay (s)	5.7	18.1
$d_{qs}$	Case 2 queue service delay (s)	16.8	5.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	845	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.0	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	17.8	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	3.9	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	3.9	0.7
$t_c$	Clearance time (s)	13.9	10.0
$t_{om}$	Operating margin (s)	3.9	51.5
$B_l$	Loading area design capacity (bus/h)	75	17
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$c_{th}$	Through movement capacity (veh/h)	695	813
$c_{rt}$	Right turn capacity (veh/h)	620	269
$c_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.56

### Output

$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>53</b>	<b>17</b>
		57	20
$B$	<b>Bus facility capacity (bus/h)</b>	<b>17</b>	<b>20</b>

Southbound/Westbound Stops (Outbound)		11th <sup>2</sup>	Mission	Howard
Inputs		1	2	3
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	45	15	10
$g/C$	Green time ratio	0.40	0.17	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	206	180	90
$v_{rt}$	Right-turning volume (veh/h)	0	0	20
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
Calculations				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	802	834	954
$d_{re,1}$	Case 1 re-entry delay (s)	14.3	17.0	37.1
$d_{qs}$	Case 2 queue service delay (s)	7.8	9.3	3.0
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	965	1042	1030
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.4	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.3	9.4	3.2
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.1	1.1	0.3
$d_{re,3}$	Case 3 re-entry delay (s)	1.1	1.1	0.3
$t_c$	Clearance time (s)	11.1	11.1	10.3
$t_{om}$	Operating margin (s)	28.3	9.4	6.0
$B_l$	Loading area capacity (bus/h)	25	27	75
$N_{el}$	Number of effective loading areas	1.85	2	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$C_{th}$	Through movement capacity (veh/h)	650	280	695
$C_{rt}$	Right turn capacity (veh/h)	580	250	578
$C_{cl}$	Curb lane capacity (veh/h)	650	280	669
$f_{tb}$	Traffic blockage adjustment factor	0.75	0.49	0.93
Output				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>34</b>	<b>25</b>	<b>70</b>
		41	30	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>25</b>	30	41

### Step 3: Speed Calculations

Highlight indicates that this input changed from existing conditions		Inbound	Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	10	12
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
Calculations			
$t_{dt}$	Average dwell time (s)	44.5	23.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	2351.6	2821.9
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	2928.4	2458.1
$t_{rs}$	Time spent at running speed per mile (s/mi)	99.6	83.6
$t_u$	Unimpeded bus running time (min/mi)	11.75	9.28
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	14.75	12.28
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.63	0.42
$f_{bb}$	Bus-bus interference factor	0.93	1.00
Outputs			
$t$	<b>Average Travel Speed (mi/h)</b>	<b>3.8</b>	<b>4.9</b>

#### Conversion from Speed to Minutes

Corridor Length (miles)	0.20	0.25
Corridor Travel Time (decimal)	3.179887735	3.06903699
Corridor Travel Time (minutes/sec)	03:11	03:04

Step 0: Calculate Average Dwell Time (Optional)						
Highlight indicates that input may have changed from existing conditions						
Northbound/Eastbound Stops (Inbound)		11th	9th	8th	7th	6th
Inputs		1	2	3	4	5
Average boarding volume per bus		8	5	5	6	3
Average alighting volume per bus		3	3	7	7	6
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
Calculations						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.8	0.5	0.5	0.6	0.4
P <sub>b,2</sub>	Boarding passengers through door channel 2	3.6	2.0	2.0	2.6	1.5
P <sub>b,3</sub>	Boarding passengers through door channel 3	3.6	2.0	2.0	2.6	1.5
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.9	1.9	3.8	3.8	3.1
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.7	1.9	3.8	3.8	3.1
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.4	1.5	3.1	3.1	2.6
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	6.4	9.5	17.4	17.8	14.4
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	19.2	7.9	15.8	15.8	13.2
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	17.8	6.5	12.9	12.9	10.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	19	9	17	18	14
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
Output						
t <sub>d</sub>	Average dwell time (s)	25	15	23	24	20

<b>Southbound/Westbound Stops (Outbound)</b>		6th	7th	Hyde	Larkin	11th
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		5	7	6	3	13
Average alighting volume per bus		2	3	3	3	3
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standeers present?		Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.5	0.7	0.6	0.4	1.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	2.0	3.1	2.6	1.5	5.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	2.0	3.1	2.6	1.5	5.6
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.6	0.9	1.9	1.9	1.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.3	1.9	1.9	1.9	1.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.0	1.5	1.5	1.5	1.5
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.50
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.00
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	4.9	7.3	11.4	10.4	14.1
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	7.3	10.9	10.6	10.0	12.4
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	6.2	9.2	8.9	8.3	9.0
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	7	11	11	10	14
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>13</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>20</b>

<b>Step 1: Capacity Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard	11th
<b>Inputs</b>		1	2
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	25
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	400	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2
<b>Calculations</b>			
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	599	847
$d_{re,1}$	Case 1 re-entry delay (s)	5.7	18.1
$d_{qs}$	Case 2 queue service delay (s)	16.8	5.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	845	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.0	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	17.8	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	3.9	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	3.9	0.7
$t_c$	Clearance time (s)	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	15.6
$B_l$	Loading area design capacity (bus/h)	154	47
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$c_{th}$	Through movement capacity (veh/h)	695	813
$c_{rt}$	Right turn capacity (veh/h)	620	269
$c_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.56
<b>Output</b>			
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>109</b>	<b>45</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>45</b>	

Southbound/Westbound Stops (Outbound)		11th <sup>1</sup>	Mission	Howard
		4	6	7
<b>Inputs</b>				
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	20	0	0
$g/C$	Green time ratio	0.40	0.17	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	206	180	90
$v_{rt}$	Right-turning volume (veh/h)	0	0	20
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
<b>Calculations</b>				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	802	834	954
$d_{re,1}$	Case 1 re-entry delay (s)	14.3	17.0	37.1
$d_{qs}$	Case 2 queue service delay (s)	7.8	9.3	3.0
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	965	1042	1030
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.4	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.3	9.4	3.2
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.1	1.1	0.3
$d_{re,3}$	Case 3 re-entry delay (s)	1.1	1.1	0.3
$t_c$	Clearance time (s)	11.1	10.0	10.0
$t_{om}$	Operating margin (s)	12.5	0.0	0.0
$B_l$	Loading area capacity (bus/h)	45	62	154
$N_{el}$	Number of effective loading areas	1.85	2.45	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$c_{th}$	Through movement capacity (veh/h)	650	280	695
$c_{rt}$	Right turn capacity (veh/h)	580	250	578
$c_{cl}$	Curb lane capacity (veh/h)	650	280	669
$f_{tb}$	Traffic blockage adjustment factor	0.75	0.49	0.93
<b>Output</b>				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>62</b>	<b>73</b>	<b>143</b>
		72	73	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>62</b>	<b>72</b>	



<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	5	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	12.6	6.7
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1175.8	940.6
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4104.2	4339.4
$t_{rs}$	Time spent at running speed per mile (s/mi)	139.6	147.6
$t_u$	Unimpeded bus running time (min/mi)	4.71	3.97
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	7.71	6.97
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.24	0.17
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.8</b>	<b>8.6</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.20	0.25
Corridor Travel Time (decimal)	1.541534244	1.743427063
Corridor Travel Time (minutes/sec)	01:32	01:45

Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th	9th	8th	7th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		2	1	6	2	5	2
Average alighting volume per bus		2	0	13	3	8	3
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	1	1	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.1	0.6	0.2	0.5	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.0	0.6	2.6	1.0	2.0	1.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.0	0.6	2.6	1.0	2.0	1.0
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.6	0.2	6.9	1.9	4.4	1.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.3	0.2	6.9	1.9	4.4	1.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.0	0.2	5.6	1.5	3.6	1.5
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	3.4	1.5	31.0	8.7	20.0	8.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	8.6	1.0	29.0	7.9	18.4	7.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	7.7	0.8	23.7	6.5	15.1	6.5
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	9	1	31	9	20	9
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	0.0	0.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	13	5	37	13	24	15

<b>Southbound/Westbound Stops (Outbound)</b>		7th	8th	9th	11th	12th	Otis
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		5	11	3	14	2	2
Average alighting volume per bus		2	6	2	6	1	2
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	3	2	2
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.5	1.2	0.4	1.4	0.2	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	2.0	5.1	1.5	6.1	1.0	1.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	2.0	5.1	1.5	6.1	1.0	1.0
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.6	3.1	1.3	3.1	0.6	1.3
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.3	3.1	1.3	3.1	0.6	1.3
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.0	2.6	1.0	2.6	0.5	1.0
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	4.9	19.7	7.4	20.6	3.9	7.0
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	7.3	18.1	6.9	18.7	3.6	6.6
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	6.2	15.4	5.8	16.0	3.1	5.5
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	7	20	7	21	4	7
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	4.0	2.0	2.0
<b>Output</b>							
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>11</b>	<b>24</b>	<b>13</b>	<b>29</b>	<b>10</b>	<b>13</b>

Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
Inputs		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	13	10	33	12	22	14
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	Off-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	110	95	100	100	278	116
$v_{rt}$	Right-turning volume (veh/h)	0	80	50	0	190	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	926	947	940	940	720	918
$d_{re,1}$	Case 1 re-entry delay (s)	29.7	35.0	33.4	33.1	9.7	28.3
$d_{qs}$	Case 2 queue service delay (s)	5.2	6.7	3.9	4.0	10.9	4.2
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1056	1058	1037	1040	920	1018
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.1	0.2	0.2	0.6	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	5.3	6.8	4.1	4.2	11.6	4.4
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.4	0.4	0.3	0.3	1.9	0.4
$d_{re,3}$	Case 3 re-entry delay (s)	0.4	0.4	0.3	0.3	1.9	0.4
$t_c$	Clearance time (s)	10.0	10.4	14.1	10.3	11.9	10.4
$t_{om}$	Operating margin (s)	7.9	6.2	20.5	7.5	13.7	8.7
$B_l$	Loading area design capacity (bus/h)	35	42	27	54	43	58
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.85
$f_l$	Bus stop location factor	0.5	0.5	0.7	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	301	492	524	617	650
$f_{tb}$	Traffic blockage adjustment factor	0.83	0.84	0.86	0.90	0.77	0.91
Output							
$B_s$	Bus stop capacity (bus/h)	29	35	42	48	33	98
$B$	Bus facility capacity (bus/h)	29					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	2	3	4	5	6
<b>Inputs</b>							
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	11	24	13	29	10	13
g/C	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
C	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	On-line	On-line	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
v	Curb lane traffic volume (veh/h)	188	130	96	104	52	54
v <sub>rt</sub>	Right-turning volume (veh/h)	90	0	0	0	0	0
v <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
N <sub>la</sub>	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	824	899	946	934	1010	1007
d <sub>re,1</sub>	Case 1 re-entry delay (s)	16.0	24.6	35.0	32.3	68.7	65.9
d <sub>qs</sub>	Case 2 queue service delay (s)	7.1	4.6	3.8	4.1	3.5	2.5
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	975	1008	1042	1035	1072	1074
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.4	0.3	0.2	0.2	0.1	0.1
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	7.5	4.9	4.0	4.3	3.6	2.5
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	0.9	0.5	0.3	0.4	0.2	0.1
d <sub>re,3</sub>	Case 3 re-entry delay (s)	0.9	0.5	0.3	0.4	0.2	0.1
t <sub>c</sub>	Clearance time (s)	10.0	10.0	10.0	10.4	10.0	10.0
t <sub>om</sub>	Operating margin (s)	7.0	14.7	8.3	17.8	6.2	8.1
B <sub>l</sub>	Loading area capacity (bus/h)	67	43	51	32	45	35
N <sub>el</sub>	Number of effective loading areas	1	1	1.75	2	1.75	1.75
f <sub>l</sub>	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
c <sub>th</sub>	Through movement capacity (veh/h)	650	668	524	551	374	325
c <sub>rt</sub>	Right turn capacity (veh/h)	501	596	467	491	334	290
c <sub>cl</sub>	Curb lane capacity (veh/h)	579	668	524	551	374	325
f <sub>tb</sub>	Traffic blockage adjustment factor	0.84	0.90	0.91	0.91	0.93	0.92
<b>Output</b>							
B <sub>s</sub>	<b>Bus stop capacity (bus/h)</b>	<b>56</b>	<b>38</b>	<b>81</b>	<b>58</b>	<b>73</b>	<b>55</b>
		63	45	93	69	82	64
B	<b>Bus facility capacity (bus/h)</b>	<b>38</b>	45	63	63	63	45

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	8	8
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	17.3	16.6
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1763.7	1881.3
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3516.3	3398.7
$t_{rs}$	Time spent at running speed per mile (s/mi)	119.6	115.6
$t_u$	Unimpeded bus running time (min/mi)	6.15	6.28
$t_l$	Base bus running time losses (min/mi)	1.40	1.40
$t_r$	Base bus running time rate (min/mi)	7.55	7.68
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.35	0.42
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.9</b>	<b>7.8</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Corridor Travel Time (decimal)	6.041829578	5.759013927
Corridor Travel Time (minutes/sec)	06:03	05:46

<b>Step 0: Calculate Average Dwell Time (Optional)</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		11th	8th
<b>Inputs</b>		1	2
Average boarding volume per bus		2	5
Average alighting volume per bus		7	8
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standeers present?		No	No
Number of doors		3	3
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		2	1
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.5
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.0	2.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.0	2.0
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.9	4.4
P <sub>a,2</sub>	Alighting passengers through door channel 2	3.8	4.4
P <sub>a,3</sub>	Alighting passengers through door channel 3	3.1	3.6
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	8.7	20.0
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	19.2	18.4
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	16.3	15.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	19	20
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0
<b>Output</b>			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>25</b>	<b>24</b>

Southbound/Westbound Stops (Outbound)		8th	11th
		1	2
<b>Inputs</b>			
	Average boarding volume per bus	9	14
	Average alighting volume per bus	5	6
	Boarding door(s)	All	All
	Fare payment method	Smart card	Smart card
	Boarding height	Level	Level
	Standeers present?	Yes	Yes
	Number of doors	3	3
	Available door channels	3	3
	Percent of boarders using farebox	10%	10%
	Door closing time	4	4
	Number of loading areas	1	3
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.9	1.4
P <sub>b,2</sub>	Boarding passengers through door channel 2	4.1	6.1
P <sub>b,3</sub>	Boarding passengers through door channel 3	4.1	6.1
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.3	3.1
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.5	3.1
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.1	2.6
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	9.7	20.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	14.5	18.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	12.3	16.0
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	15	21
t <sub>bl</sub>	Boarding lost time (s)	0.0	4.0
<b>Output</b>			
t <sub>d</sub>	Average dwell time (s)	19	29



Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
Inputs		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	0	25	0	24	0
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	On-line	Off-line	On-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	110	95	100	100	278	116
$v_{rt}$	Right-turning volume (veh/h)	0	80	50	0	190	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	926	947	940	940	720	918
$d_{re,1}$	Case 1 re-entry delay (s)	29.7	35.0	33.4	33.1	9.7	28.3
$d_{qs}$	Case 2 queue service delay (s)	5.2	6.7	3.9	4.0	10.9	4.2
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1056	1058	1037	1040	920	1018
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.1	0.2	0.2	0.6	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	5.3	6.8	4.1	4.2	11.6	4.4
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.4	0.4	0.3	0.3	1.9	0.4
$d_{re,3}$	Case 3 re-entry delay (s)	0.4	0.4	0.3	0.3	1.9	0.4
$t_c$	Clearance time (s)	10.0	10.0	10.3	10.0	11.9	10.0
$t_{om}$	Operating margin (s)	0.0	0.0	15.7	0.0	14.9	0.0
$B_l$	Loading area design capacity (bus/h)	72	79	35	116	40	144
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	301	492	524	617	650
$f_{tb}$	Traffic blockage adjustment factor	0.83	0.84	0.90	0.90	0.77	0.91
Output							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>59</b>	<b>66</b>	<b>58</b>	<b>104</b>	<b>31</b>	<b>229</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>31</b>					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	1	3	2	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	19	0	29	0	0
$g/C$	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
$C$	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	188	130	96	104	52	54
$v_{rt}$	Right-turning volume (veh/h)	90	0	0	0	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	824	899	946	934	1010	1007
$d_{re,1}$	Case 1 re-entry delay (s)	16.0	24.6	35.0	32.3	68.7	65.9
$d_{qs}$	Case 2 queue service delay (s)	7.1	4.6	3.8	4.1	3.5	2.5
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	975	1008	1042	1035	1072	1074
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.4	0.3	0.2	0.2	0.1	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	7.5	4.9	4.0	4.3	3.6	2.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.9	0.5	0.3	0.4	0.2	0.1
$d_{re,3}$	Case 3 re-entry delay (s)	0.9	0.5	0.3	0.4	0.2	0.1
$t_c$	Clearance time (s)	10.0	10.5	10.0	10.4	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	11.5	0.0	17.8	0.0	0.0
$B_l$	Loading area capacity (bus/h)	144	50	116	32	83	72
$N_{el}$	Number of effective loading areas	1	1	1.75	2	1.75	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	650	668	524	551	374	325
$c_{rt}$	Right turn capacity (veh/h)	501	596	467	491	334	290
$c_{cl}$	Curb lane capacity (veh/h)	579	668	524	551	374	325
$f_{tb}$	Traffic blockage adjustment factor	0.84	0.90	0.91	0.91	0.93	0.92
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>120</b>	<b>45</b>	<b>184</b>	<b>58</b>	<b>134</b>	<b>115</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>45</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	3	3
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	8.2	7.9
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	587.9	627.1
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	4692.1	4652.9
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	159.6	158.3
t <sub>u</sub>	Unimpeded bus running time (min/mi)	3.67	3.70
t <sub>l</sub>	Base bus running time losses (min/mi)	1.40	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	5.07	5.10
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.32	0.37
f <sub>bb</sub>	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
s <sub>t</sub>	<b>Average Travel Speed (mi/h)</b>	<b>11.8</b>	<b>11.8</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Scenario 4 Corridor Travel Time (decimal)	4.054532712	3.82327806
Scenario 4 Corridor Travel Time (minutes/sec)	04:03	03:49

<b>Step 0: Calculate Average Dwell Time (Optional)</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		1	2	8	6	2
Average alighting volume per bus		1	9	3	1	1
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standeers present?		No	No	No	No	No
Number of doors		2	2	2	2	2
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		1	2	2	1	1
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.2	0.8	0.6	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.3	0.9	3.7	2.5	0.9
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.3	0.9	3.7	2.5	0.9
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.2	2.4	0.6	0.3	0.1
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.7	7.1	1.9	0.8	0.4
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.00	2.00	2.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.00	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	3.50	3.50	3.50
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	3.50	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.2	0.6	2.3	1.6	0.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	1.7	12.2	9.6	5.8	2.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	3.6	32.1	16.8	7.6	3.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	4	32	17	8	4
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0	2.0	0.0	0.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>8</b>	<b>38</b>	<b>23</b>	<b>12</b>	<b>8</b>

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
Average boarding volume per bus		2	2	8	2
Average alighting volume per bus		2	6	2	2
Boarding door(s)		All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level
Standeers present?		No	No	No	No
Number of doors		2	2	2	2
Available door channels		3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%
Door closing time		4	4	4	4
Number of loading areas		2	2	1	1
<b>Calculations</b>					
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.2	0.8	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.0	1.0	3.6	1.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.0	1.0	3.6	1.0
P <sub>b,4</sub>	Boarding passengers through door channel 4				
P <sub>b,5</sub>	Boarding passengers through door channel 5				
P <sub>b,6</sub>	Boarding passengers through door channel 6				
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.6	1.4	0.6	0.6
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.7	4.3	1.7	1.7
P <sub>a,4</sub>	Alighting passengers through door channel 4				
P <sub>a,5</sub>	Alighting passengers through door channel 5				
P <sub>a,6</sub>	Alighting passengers through door channel 6				
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)				
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)				
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.7	0.7	2.3	0.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	4.8	8.4	9.2	4.8
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	9.6	20.4	15.8	9.6
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)				
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)				
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)				
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	10	20	16	10
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	0.0
<b>Output</b>					
t <sub>d</sub>	Average dwell time (s)	16	26	20	14

<b>Step 1: Capacity Calculations</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	8	38	23	12	8
$g/C$	Green time ratio	0.38	0.45	0.29	0.39	0.39
$C$	Traffic signal cycle length (s)	90	90	90	75	75
	Stop type (on-line/off-line)	Off-line	On-line	On-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side	Near-side	Far-side	Near-side
	Bus stop distance to upstream signal (ft)					
$v$	Curb lane traffic volume (veh/h)	250	20	175	367	363
$V_{rt}$	Right-turning volume (veh/h)	0	0	0	30	40
$V_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	300	361
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random
$N_{ia}$	Number of physical loading areas	1	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2
<b>Calculations</b>						
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	751	1059	840	630	633
$d_{re,1}$	Case 1 re-entry delay (s)	11.2	196.5	17.5	6.5	6.6
$d_{qs}$	Case 2 queue service delay (s)	10.1	0.6	7.7	13.4	13.2
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	947	1076	1012	883	883
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.5	0.1	0.3	0.8	0.8
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	10.7	0.7	8.0	14.2	14.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.6	0.1	0.9	3.0	3.0
$d_{re,3}$	Case 3 re-entry delay (s)	1.6	0.1	0.9	3.0	3.0
$t_c$	Clearance time (s)	11.6	10.0	10.0	13.0	24.0
$t_{om}$	Operating margin (s)	4.7	23.7	14.2	7.2	4.9
$B_l$	Loading area design capacity (bus/h)	71	32	34	56	44
$N_{el}$	Number of effective loading areas	1.00	1.75	1.75	1.00	1.00
$f_l$	Bus stop location factor	0.5	0.7	0.7	0.5	0.7
$C_{th}$	Through movement capacity (veh/h)	618	731	469	628	634
$C_{rt}$	Right turn capacity (veh/h)	551	653	419	477	463
$C_{cl}$	Curb lane capacity (veh/h)	618	731	469	616	615
$f_{tb}$	Traffic blockage adjustment factor	0.80	0.98	0.74	0.70	0.59
<b>Output</b>						
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>56</b>	<b>54</b>	<b>43</b>	<b>39</b>	<b>25</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>25</b>				

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	16	26	20	14
$g/C$	Green time ratio	0.44	0.48	0.48	0.37
$C$	Traffic signal cycle length (s)	75	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Influenced	Far-side	Far-side
	Bus stop distance to upstream signal (ft)		170		
$v$	Curb lane traffic volume (veh/h)	553	607	607	403
$v_{rt}$	Right-turning volume (veh/h)	110	180	180	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	392	303	303	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2
<b>Calculations</b>					
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	474	437	437	596
$d_{re,1}$	Case 1 re-entry delay (s)	3.2	2.7	2.6	5.6
$d_{qs}$	Case 2 queue service delay (s)	21.7	28.0	28.0	18.7
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	758	707	707	873
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.5	1.8	1.8	0.8
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	23.1	29.8	29.8	19.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	7.3	10.0	10.0	4.5
$d_{re,3}$	Case 3 re-entry delay (s)	7.3	9.0	10.0	4.5
$t_c$	Clearance time (s)	33.1	19.0	20.0	10.0
$t_{om}$	Operating margin (s)	9.7	16.4	12.3	8.5
$B_l$	Loading area capacity (bus/h)	32	36	41	57
$N_{el}$	Number of effective loading areas	1.85	1.85	1	1
$f_l$	Bus stop location factor	0.7	0.7	0.5	0.5
$C_{th}$	Through movement capacity (veh/h)	715	776	776	601
$C_{rt}$	Right turn capacity (veh/h)	513	588	588	537
$C_{cl}$	Curb lane capacity (veh/h)	675	720	720	601
$f_{tb}$	Traffic blockage adjustment factor	0.43	0.41	0.58	0.66
<b>Output</b>					
$B_s$	Bus stop capacity (bus/h)	25	27	23	37
		26	30	26	43
$B$	Bus facility capacity (bus/h)	23	26	26	26

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	4	4
	Average stop spacing (stops/mi)	8	13
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	17.6	18.9
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1959.6	3135.4
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3320.4	2144.6
$t_{rs}$	Time spent at running speed per mile (s/mi)	112.9	72.9
$t_u$	Unimpeded bus running time (min/mi)	6.55	8.96
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	9.55	11.96
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.15	0.15
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$t$	<b>Average Travel Speed (mi/h)</b>	<b>6.3</b>	<b>5.0</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.60	0.30
Scenario 4 Corridor Travel Time (decimal)	5.728421349	3.589262671
Scenario 4 Corridor Travel Time (minutes/sec)	05:44	03:35



Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	9th	8th	7th	6th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		1	1	7	8	9	5
Average alighting volume per bus		1	3	6	10	9	8
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	2	2	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.1	0.7	0.8	0.9	0.5
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.5	0.5	3.1	3.6	4.1	2.0
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.5	0.5	3.1	3.6	4.1	2.0
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.3	0.9	1.4	2.6	2.3	2.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.9	2.6	4.3	7.7	6.8	6.0
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.3	0.3	2.0	2.3	2.6	1.3
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.4	4.8	13.4	19.4	19.4	13.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	4.8	12.0	25.3	40.9	38.6	30.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	5	12	25	41	39	30
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	2.0	2.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	9	16	31	47	45	36

<b>Southbound/Westbound Stops (Outbound)</b>		6th	7th	8th	Hayes/Larkin	Van Ness	Gough
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		8	8	6	3	2	1
Average alighting volume per bus		5	6	2	1	1	3
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	2	2	2	2
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.8	0.8	0.6	0.4	0.2	0.1
P <sub>b,2</sub>	Boarding passengers through door channel 2	3.6	3.6	2.6	1.5	1.0	0.5
P <sub>b,3</sub>	Boarding passengers through door channel 3	3.6	3.6	2.6	1.5	1.0	0.5
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.1	1.4	0.6	0.3	0.3	0.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	3.4	4.3	1.7	0.9	0.9	2.6
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	3.00	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.80	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	2.7	2.7	1.9	1.2	0.8	0.4
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	13.5	17.6	8.7	5.0	3.7	5.6
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	27.2	31.3	15.9	8.7	7.2	13.9
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	27	31	16	9	7	14
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0	2.0
<b>Output</b>							
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>33</b>	<b>37</b>	<b>22</b>	<b>15</b>	<b>13</b>	<b>20</b>

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		Gough	Van Ness	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>	6th <sup>1</sup>
<b>Inputs</b>		1	2	3	4	5	6
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	25.0%	15.0%	15.0%
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	9	16	31	47	45	36
g/C	Green time ratio	0.21	0.23	0.32	0.29	0.33	0.32
C	Traffic signal cycle length (s)	75	75	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Far-side	Near-side	Near-side	Near-side	Near-side
	Bus stop distance to upstream signal (ft)						
v	Curb lane traffic volume (veh/h)	300	365	33	57	51	42
v <sub>rt</sub>	Right-turning volume (veh/h)	140	260	0	0	0	0
v <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	40	70	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
N <sub>la</sub>	Number of physical loading areas	1	1	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	1	2	2	2	2	2
<b>Calculations</b>							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	0.67	1.04	1.04
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	696	631	1039	1002	1011	1025
d <sub>re,1</sub>	Case 1 re-entry delay (s)	8.7	6.6	112.8	62.2	70.2	86.7
d <sub>qs</sub>	Case 2 queue service delay (s)	13.4	16.7	1.3	2.3	2.0	1.6
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	992	961	1074	1065	1064	1069
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.3	0.5	0.1	0.1	0.1	0.1
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	13.7	17.1	1.3	2.4	2.1	1.7
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	2.7	4.0	0.1	0.1	0.1	0.1
d <sub>re,3</sub>	Case 3 re-entry delay (s)	2.7	4.0	0.1	0.1	0.1	0.1
t <sub>c</sub>	Clearance time (s)	10.0	14.0	10.0	10.0	10.0	10.0
t <sub>om</sub>	Operating margin (s)	5.5	10.0	19.5	19.0	27.7	22.4
B <sub>l</sub>	Loading area design capacity (bus/h)	44	30	29	24	22	26
N <sub>el</sub>	Number of effective loading areas	1.00	1.00	1.75	1.75	1.75	1.75
f <sub>l</sub>	Bus stop location factor	0.9	0.5	0.7	0.7	0.7	0.7
c <sub>th</sub>	Through movement capacity (veh/h)	347	379	524	469	531	524
c <sub>rt</sub>	Right turn capacity (veh/h)	303	326	467	419	474	467
c <sub>cl</sub>	Curb lane capacity (veh/h)	326	342	524	469	531	524
f <sub>tb</sub>	Traffic blockage adjustment factor	0.17	0.47	0.96	0.92	0.93	0.94
<b>Output</b>							
<b>B<sub>s</sub></b>	<b>Bus stop capacity (bus/h)</b>	<b>7</b>	<b>14</b>	<b>49</b>	<b>39</b>	<b>36</b>	<b>43</b>
<b>B</b>	<b>Bus facility capacity (bus/h)</b>	<b>7</b>					

<b>Southbound/Westbound Stops (Outbound)</b>		6th	7th	8th	Hayes/Larkin	Van Ness	Gough
<b>Inputs</b>		0	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	33	37	22	15	13	20
$g/C$	Green time ratio	0.32	0.33	0.29	0.33	0.25	0.29
$C$	Traffic signal cycle length (s)	90	90	90	90	75	75
	Stop type (on-line/off-line)	On-line	On-line	On-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Near-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	218					
$v$	Curb lane traffic volume (veh/h)	178	277	175	100	65	280
$v_{rt}$	Right-turning volume (veh/h)	10	130	0	50	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	331	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	1	2	1
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	836	721	840	940	990	718
$d_{re,1}$	Case 1 re-entry delay (s)	17.2	9.8	17.5	33.4	53.8	9.6
$d_{qs}$	Case 2 queue service delay (s)	7.5	12.5	7.7	4.0	2.4	11.1
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1002	953	1012	1039	1065	968
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.5	0.3	0.2	0.1	0.4
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	7.8	12.9	8.0	4.1	2.4	11.6
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.9	2.1	0.9	0.3	0.2	2.0
$d_{re,3}$	Case 3 re-entry delay (s)	3.6	2.1	0.9	0.3	0.2	2.0
$t_c$	Clearance time (s)	10.0	10.0	10.0	10.3	10.2	12.0
$t_{om}$	Operating margin (s)	20.6	23.2	13.6	9.1	8.2	12.3
$B_l$	Loading area capacity (bus/h)	28	26	35	49	41	34
$N_{el}$	Number of effective loading areas	1.75	1.75	1.75	1.85	1.85	1.85
$f_l$	Bus stop location factor	0.7	0.7	0.7	0.8	0.5	0.8
$c_{th}$	Through movement capacity (veh/h)	524	531	469	536	401	466
$c_{rt}$	Right turn capacity (veh/h)	467	474	419	399	358	416
$c_{cl}$	Curb lane capacity (veh/h)	520	504	469	468	401	466
$f_{tb}$	Traffic blockage adjustment factor	0.76	0.62	0.74	0.83	0.92	0.52
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>37</b>	<b>27</b>	<b>44</b>	<b>74</b>	<b>69</b>	<b>32</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>27</b>	33				

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	6.7	6.7
	Average stop spacing (stops/mi)	6	7
	Running way type	Bus lane, no right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	30.6	21.4
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1485.2	1659.9
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	3794.8	3620.1
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	129.1	123.1
t <sub>u</sub>	Unimpeded bus running time (min/mi)	7.06	6.45
t <sub>l</sub>	Base bus running time losses (min/mi)	0.60	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	7.66	7.85
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.83	0.25
f <sub>bb</sub>	Bus-bus interference factor	0.77	1.00
<b>Outputs</b>			
s <sub>t</sub>	<b>Average Travel Speed (mi/h)</b>	<b>6.0</b>	<b>7.6</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.95	0.85
Scenario 4 Corridor Travel Time (decimal)	9.448789129	6.671956068
Scenario 4 Corridor Travel Time (minutes/sec)	09:27	06:40

Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	Hyde	Leavenworth <sup>1</sup>	6th	
Inputs		1	2	3	4	5	6
Average boarding volume per bus		3	14	2	5	3	
Average alighting volume per bus		3	17	5	20	6	
Boarding door(s)		All	All	All	All	All	
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	
Boarding height		Level	Level	Level	Level	Level	
Standees present?		No	No	No	No	No	
Number of doors		2	2	2	2	2	
Available door channels		3	3	3	3	3	
Percent of boarders using farebox		10%	10%	10%	10%	10%	
Door opening and closing time		4	4	4	4	4	
Number of loading areas		2	2	1	3	2	
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.3	1.4	0.2	0.5	0.3	
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.4	6.2	0.7	2.1	1.4	
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.4	6.2	0.7	2.1	1.4	
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.8	4.2	1.2	5.0	1.5	
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.3	12.7	3.5	15.0	4.6	
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75	
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40	
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40	
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50	
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.9	4.0	0.4	1.3	0.9	
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	6.5	32.6	6.5	25.9	9.7	
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	13.0	68.0	16.2	67.8	22.6	
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	13	68	16	68	23	
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	4.0	2.0	
Output							
t <sub>d</sub>	Average dwell time (s)	19	74	20	76	29	

Southbound/Westbound Stops (Outbound)		Mason	Jones <sup>2</sup>	Hyde	Larkin	Van Ness	Gough
Inputs		1	2	3	4	5	6
Average boarding volume per bus		2	11	8	5	25	3
Average alighting volume per bus		2	6	3	2	11	3
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	1	2	2	1
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	1.1	0.8	0.5	2.6	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.7	4.8	3.4	2.1	11.0	1.4
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.7	4.8	3.4	2.1	11.0	1.4
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.4	1.5	0.8	0.4	2.7	0.8
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.2	4.6	2.3	1.2	8.1	2.3
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.00	2.50	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.00	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.5	3.6	2.6	1.6	8.3	1.0
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	3.9	18.2	11.7	6.7	38.2	7.8
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	7.6	36.5	21.4	11.7	71.7	15.2
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	8	37	21	12	72	15
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	2.0	2.0	0.0
Output							
t <sub>d</sub>	Average dwell time (s)	14	43	25	18	78	19

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
<b>Inputs</b>		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	19	74	20	76	29	
$g/C$	Green time ratio	0.21	0.23	0.31	0.31	0.37	
$C$	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	Off-line	Off-line	On-line	Off-line	On-line	
				Metro			
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Influenced	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
$v$	Curb lane traffic volume (veh/h)	190	125	170	70	188	
$V_{rt}$	Right-turning volume (veh/h)	20	0	140	0	90	
$V_{ped}$	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
$N_{la}$	Number of physical loading areas	2	2	1	3	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	1	2	
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	822	905	847	983	824	
$d_{re,1}$	Case 1 re-entry delay (s)	15.8	26.0	18.0	50.4	16.1	
$d_{qs}$	Case 2 queue service delay (s)	7.9	4.8	6.1	2.3	7.4	
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1045	1009	1057	984	
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.2	0.3	0.1	0.4	
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.1	4.9	6.3	2.5	7.8	
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.0	0.4	0.7	0.2	0.9	
$d_{re,3}$	Case 3 re-entry delay (s)	1.0	0.4	2.5	0.2	6.2	
$t_c$	Clearance time (s)	11.0	10.4	10.0	12.5	10.0	
$t_{om}$	Operating margin (s)	11.8	46.0	12.5	47.1	17.8	
$B_l$	Loading area design capacity (bus/h)	28	11	38	13	35	
$N_{el}$	Number of effective loading areas	1.85	1.85	1.00	2.00	1.75	
$f_l$	Bus stop location factor	0.8	0.5	0.9	0.9	0.7	
$C_{th}$	Through movement capacity (veh/h)	336	379	498	498	601	
$C_{rt}$	Right turn capacity (veh/h)	284	261	445	445	173	
$C_{cl}$	Curb lane capacity (veh/h)	330	379	454	498	396	
$f_{tb}$	Traffic blockage adjustment factor	0.54	0.84	0.66	0.87	0.67	
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>27</b>	<b>17</b>	<b>25</b>	<b>23</b>	<b>40</b>	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>17</b>					



Southbound/Westbound Stops (Outbound)		Mason <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60		0.60	0.60
	Failure rate	15.0%	15.0%	15.0%		15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	14	43	25		18	78
$g/C$	Green time ratio	0.37	0.37	0.31		0.48	0.23
$C$	Traffic signal cycle length (s)	90	90	75		75	75
	Stop type (on-line/off-line)	On-line	Off-line	Off-line		On-line	On-line
				Metro			Metro
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD		Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Influenced	Far-side		Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289	289				
$v$	Curb lane traffic volume (veh/h)	185	114	266		330	185
$v_{rt}$	Right-turning volume (veh/h)	10	0	0		220	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	205	487	0		610	0
	Arrival type (random/typical/platooned)	Random	Random	Random		Random	Random
$N_{ia}$	Number of physical loading areas	2	2	1		2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear		Linear	Linear
	Bus lane type	2	1	2		2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04		1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	828	920	733		666	828
$d_{re,1}$	Case 1 re-entry delay (s)	16.4	28.8	10.3		7.7	16.4
$d_{qs}$	Case 2 queue service delay (s)	7.3	4.3	10.2		10.0	7.4
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	985	1025	966		863	1023
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.4	0.2	0.4		0.9	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	7.6	4.5	10.6		10.9	7.6
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.9	0.4	1.8		2.1	0.9
$d_{re,3}$	Case 3 re-entry delay (s)	4.3	6.6	1.8		2.1	0.9
$t_c$	Clearance time (s)	10.0	16.6	11.8		10.0	10.0
$t_{om}$	Operating margin (s)	8.4	26.5	15.8		11.0	48.3
$B_l$	Loading area capacity (bus/h)	57	23	31		58	11
$N_{el}$	Number of effective loading areas	1.75	1.85	1		1.75	1.75
$f_l$	Bus stop location factor	0.7	0.9	0.5		0.5	0.5
$C_{th}$	Through movement capacity (veh/h)	601	601	498		775	379
$C_{rt}$	Right turn capacity (veh/h)	482	406	445		480	338
$C_{cl}$	Curb lane capacity (veh/h)	595	601	498		578	379
$f_{tb}$	Traffic blockage adjustment factor	0.78	0.83	0.73		0.71	0.76
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>77</b>	<b>34</b>	<b>22</b>		<b>72</b>	<b>14</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>13</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	6.7
	Average stop spacing (stops/mi)	7	8
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	43.5	32.7
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1679.7	1763.7
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3600.3	3516.3
$t_{rs}$	Time spent at running speed per mile (s/mi)	122.5	119.6
$t_u$	Unimpeded bus running time (min/mi)	9.13	8.08
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	12.13	11.08
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.76	0.42
$f_{bb}$	Bus-bus interference factor	0.84	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>4.2</b>	<b>5.4</b>

Conversion from Speed to Minutes

Corridor Length (miles)		0.70	0.80
Corridor Travel Time (decimal)		10.05767593	8.86186763
Corridor Travel Time (minutes/sec)		10:03	08:52

<b>Step 0: Calculate Average Dwell Time (Optional)</b>				
Highlight indicates that input may have changed from existing conditions				
<b>Northbound/Eastbound Stops (Inbound)</b>		Van Ness	Leavenworth <sup>1</sup>	6th
<b>Inputs</b>		1	2	3
Average boarding volume per bus		9	3	3
Average alighting volume per bus		11	14	5
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standees present?		No	No	No
Number of doors		3	3	3
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door opening and closing time		4	4	4
Number of loading areas		2	2	2
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.0	0.3	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	4.2	1.4	1.1
P <sub>b,3</sub>	Boarding passengers through door channel 3	4.2	1.4	1.1
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	3.1	7.6	2.6
P <sub>a,2</sub>	Alighting passengers through door channel 2	6.2	7.6	2.6
P <sub>a,3</sub>	Alighting passengers through door channel 3	5.1	6.3	2.1
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	16.3	33.2	11.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	39.9	32.1	10.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	35.2	26.3	8.9
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	40	33	12
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0
<b>Output</b>				
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>46</b>	<b>39</b>	<b>18</b>

Southbound/Westbound Stops (Outbound)		Mason	Jones <sup>2</sup>	Van Ness
		1	2	3
<b>Inputs</b>				
	Average boarding volume per bus	2	7	17
	Average alighting volume per bus	1	4	7
	Boarding door(s)	All	All	All
	Fare payment method	Smart card	Smart card	Smart card
	Boarding height	Level	Level	Level
	Standeers present?	Yes	Yes	Yes
	Number of doors	3	3	3
	Available door channels	3	3	3
	Percent of boarders using farebox	10%	10%	10%
	Door closing time	4	4	4
	Number of loading areas	2	1	2
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.8	1.8
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.1	3.3	7.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.1	3.3	7.6
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.2	1.2	3.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.5	2.3	3.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.4	1.9	3.2
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	2.1	8.5	25.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.9	13.1	23.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	2.5	11.1	19.9
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	3	13	26
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0	2.0
<b>Output</b>				
t <sub>d</sub>	Average dwell time (s)	9	17	32

Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
Inputs		1	2	3	4	5	6
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	46	0	39	18	
$g/C$	Green time ratio	0.21	0.23	0.31	0.31	0.37	
$C$	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Influenced	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
$v$	Curb lane traffic volume (veh/h)	190	125	170	70	188	
$v_{rt}$	Right-turning volume (veh/h)	20	0	140	0	90	
$v_{ped}$	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
$N_{la}$	Number of physical loading areas	2	2	1	2	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	2	2	
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	822	905	847	983	824	
$d_{re,1}$	Case 1 re-entry delay (s)	15.8	26.0	18.0	49.6	16.1	
$d_{qs}$	Case 2 queue service delay (s)	7.9	4.8	6.1	2.3	7.4	
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1045	1009	1057	984	
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.2	0.3	0.1	0.4	
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.1	4.9	6.3	2.5	7.8	
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.0	0.4	0.7	0.2	0.9	
$d_{re,3}$	Case 3 re-entry delay (s)	1.0	0.4	2.5	0.2	6.2	
$t_c$	Clearance time (s)	10.0	10.4	10.0	12.5	10.0	
$t_{om}$	Operating margin (s)	0.0	28.6	0.0	24.4	11.0	
$B_l$	Loading area design capacity (bus/h)	74	17	110	23	48	
$N_{el}$	Number of effective loading areas	1.75	1.85	1.00	1.85	1.75	
$f_l$	Bus stop location factor	0.8	0.5	0.9	0.7	0.7	
$C_{th}$	Through movement capacity (veh/h)	336	379	498	498	601	
$C_{rt}$	Right turn capacity (veh/h)	284	261	445	445	173	
$C_{cl}$	Curb lane capacity (veh/h)	330	379	454	498	396	
$f_{tb}$	Traffic blockage adjustment factor	0.54	0.84	0.66	0.90	0.67	
Output							
$B_s$	Bus stop capacity (bus/h)	70	26	73	37	56	
$B$	Bus facility capacity (bus/h)	26					

Southbound/Westbound Stops (Outbound)		Mason <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	9	17	0	0	32	0
$g/C$	Green time ratio	0.37	0.31	0.31	0.48	0.23	0.21
$C$	Traffic signal cycle length (s)	90	75	75	75	75	75
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289					
$v$	Curb lane traffic volume (veh/h)	185	114	266	330	185	210
$v_{rt}$	Right-turning volume (veh/h)	10	0	0	220	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	205	487	0	610	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	1	1	2	2	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	1	2	2	2	1
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	828	920	733	666	828	797
$d_{re,1}$	Case 1 re-entry delay (s)	16.4	28.6	10.3	7.7	16.4	13.9
$d_{qs}$	Case 2 queue service delay (s)	7.3	3.9	10.2	10.0	7.4	8.8
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	985	1036	966	863	1023	1023
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.4	0.2	0.4	0.9	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	7.6	4.1	10.6	10.9	7.6	9.1
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.9	0.4	1.8	2.1	0.9	1.2
$d_{re,3}$	Case 3 re-entry delay (s)	4.3	0.4	1.8	2.1	0.9	1.2
$t_c$	Clearance time (s)	10.0	10.4	10.0	10.0	10.0	10.0
$t_{om}$	Operating margin (s)	5.5	10.7	0.0	0.0	19.7	0.0
$B_l$	Loading area capacity (bus/h)	71	42	110	172	23	74
$N_{el}$	Number of effective loading areas	1.75	1	1	1.75	1.75	1
$f_l$	Bus stop location factor	0.7	0.8	0.5	0.5	0.5	0.8
$c_{th}$	Through movement capacity (veh/h)	601	498	498	775	379	336
$c_{rt}$	Right turn capacity (veh/h)	482	336	445	480	338	300
$c_{cl}$	Curb lane capacity (veh/h)	595	498	498	578	379	336
$f_{tb}$	Traffic blockage adjustment factor	0.78	0.82	0.73	0.71	0.76	0.50
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>96</b>	<b>34</b>	<b>80</b>	<b>214</b>	<b>29</b>	<b>37</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>29</b>	<b>36</b>				

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	16.7
	Average stop spacing (stops/mi)	4	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	20.6	9.8
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1007.8	881.8
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4272.2	4398.2
$t_{rs}$	Time spent at running speed per mile (s/mi)	145.3	149.6
$t_u$	Unimpeded bus running time (min/mi)	5.03	4.10
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	8.03	7.10
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.52	0.57
$f_{bb}$	Bus-bus interference factor	0.96	0.95
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.2</b>	<b>8.0</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.70	0.80
Corridor Travel Time (decimal)	5.835440216	5.996532002
Corridor Travel Time (minutes/sec)	05:50	06:00

<b>Step 0: Calculate Average Dwell Time (Optional)</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard <sup>1</sup>	11th
<b>Inputs</b>		1	2
Average boarding volume per bus		1	6
Average alighting volume per bus		0	31
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standeers present?		No	No
Number of doors		2	2
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		1	2
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.6
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.6	2.8
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.6	2.8
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.1	7.7
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.4	23.0
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.4	1.8
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	1.7	38.8
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	3.0	103.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	3	103
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0
<b>Output</b>			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>7</b>	<b>109</b>



Southbound/Westbound Stops (Outbound)		11th	Mission	Howard
<b>Inputs</b>		<b>5</b>	<b>6</b>	<b>7</b>
Average boarding volume per bus		23	3	2
Average alighting volume per bus		6	2	2
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standeers present?		Yes	Yes	Yes
Number of doors		2	2	2
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door closing time		4	4	4
Number of loading areas		2	3	1
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	2.4	0.3	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	10.3	1.4	0.7
P <sub>b,3</sub>	Boarding passengers through door channel 3	10.3	1.4	0.7
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.5	0.4	0.4
P <sub>a,3</sub>	Alighting passengers through door channel 3	4.6	1.2	1.2
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	7.8	1.0	0.5
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	31.9	5.0	3.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	53.0	9.6	7.6
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	53	10	8
t <sub>bl</sub>	Boarding lost time (s)	2.0	4.0	0.0
<b>Output</b>				
t <sub>d</sub>	Average dwell time (s)	59	18	12

Step 1: Capacity Calculations			
Highlight indicates that input may have changed from existing conditions			
Northbound/Eastbound Stops (Inbound)		Howard	11th
Inputs		1	2
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	7	109
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	400	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2
Calculations			
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	599	847
$d_{re,1}$	Case 1 re-entry delay (s)	5.7	18.1
$d_{qs}$	Case 2 queue service delay (s)	16.8	5.3
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	845	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.0	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	17.8	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	3.9	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	3.9	0.7
$t_c$	Clearance time (s)	13.9	10.0
$t_{om}$	Operating margin (s)	4.4	68.0
$B_l$	Loading area design capacity (bus/h)	72	14
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$C_{th}$	Through movement capacity (veh/h)	695	813
$C_{rt}$	Right turn capacity (veh/h)	620	269
$C_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.56
Output			
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>51</b>	<b>13</b>
		55	16
$B$	<b>Bus facility capacity (bus/h)</b>	<b>13</b>	<b>16</b>

Southbound/Westbound Stops (Outbound)		11th <sup>2</sup>	Mission	Howard
Inputs		5	6	7
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	59	18	12
$g/C$	Green time ratio	0.40	0.17	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	234	210	110
$v_{rt}$	Right-turning volume (veh/h)	0	0	30
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{ia}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
Calculations				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	769	797	926
$d_{re,1}$	Case 1 re-entry delay (s)	12.2	14.1	29.7
$d_{qs}$	Case 2 queue service delay (s)	9.1	11.1	3.7
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	949	1034	1017
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.5	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	9.6	11.3	4.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.4	1.5	0.4
$d_{re,3}$	Case 3 re-entry delay (s)	1.4	1.5	0.4
$t_c$	Clearance time (s)	11.4	11.5	10.4
$t_{om}$	Operating margin (s)	36.7	11.0	7.2
$B_l$	Loading area capacity (bus/h)	20	24	68
$N_{el}$	Number of effective loading areas	1.85	2	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$c_{th}$	Through movement capacity (veh/h)	650	276	695
$c_{rt}$	Right turn capacity (veh/h)	580	247	578
$c_{cl}$	Curb lane capacity (veh/h)	650	276	663
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.39	0.92
Output				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>26</b>	<b>18</b>	<b>62</b>
		32	22	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>18</b>	22	

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	10	12
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	58.2	29.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	2351.6	2821.9
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	2928.4	2458.1
$t_{rs}$	Time spent at running speed per mile (s/mi)	99.6	83.6
$t_u$	Unimpeded bus running time (min/mi)	14.02	10.48
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	17.02	13.48
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.78	0.57
$f_{bb}$	Bus-bus interference factor	0.83	0.95
<b>Outputs</b>			
$s_t$	<b>Average Travel Speed (mi/h)</b>	<b>2.9</b>	<b>4.2</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.20	0.25
Corridor Travel Time (decimal)	4.125886667	3.548505064
Corridor Travel Time (minutes/sec)	04:08	03:33

<b>Step 0: Calculate Average Dwell Time (Optional)</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		11th	9th	8th	7th	6th
Inputs		1	2	3	4	5
Average boarding volume per bus		11	6	6	8	5
Average alighting volume per bus		4	5	9	9	8
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.1	0.6	0.6	0.8	0.5
P <sub>b,2</sub>	Boarding passengers through door channel 2	4.8	2.8	2.8	3.4	2.1
P <sub>b,3</sub>	Boarding passengers through door channel 3	4.8	2.8	2.8	3.4	2.1
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.2	2.5	5.1	5.1	4.2
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.4	2.5	5.1	5.1	4.2
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.9	2.1	4.1	4.1	3.5
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	8.6	12.7	23.4	23.9	19.3
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	25.8	10.6	21.3	21.3	17.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	24.0	8.7	17.4	17.4	14.5
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	26	13	23	24	19
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>32</b>	<b>19</b>	<b>29</b>	<b>30</b>	<b>25</b>

<b>Southbound/Westbound Stops (Outbound)</b>		6th	7th	Hyde	Larkin	11th
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		6	9	8	5	17
Average alighting volume per bus		3	5	5	5	5
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standeers present?		Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.6	1.0	0.8	0.5	1.8
P <sub>b,2</sub>	Boarding passengers through door channel 2	2.8	4.1	3.4	2.1	7.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	2.8	4.1	3.4	2.1	7.6
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.8	1.3	2.5	2.5	2.5
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.7	2.5	2.5	2.5	2.5
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.4	2.1	2.1	2.1	2.1
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.50
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.00
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	6.5	9.8	15.3	14.0	19.0
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	9.8	14.6	14.2	13.4	16.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	8.3	12.4	12.0	11.2	12.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	10	15	15	14	19
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>16</b>	<b>21</b>	<b>21</b>	<b>20</b>	<b>25</b>

<b>Step 1: Capacity Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard	11th
<b>Inputs</b>		1	2
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	32
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	400	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2
<b>Calculations</b>			
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	599	847
$d_{re,1}$	Case 1 re-entry delay (s)	5.7	18.1
$d_{qs}$	Case 2 queue service delay (s)	16.8	5.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	845	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.0	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	17.8	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	3.9	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	3.9	0.7
$t_c$	Clearance time (s)	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	19.7
$B_l$	Loading area design capacity (bus/h)	154	39
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$c_{th}$	Through movement capacity (veh/h)	695	813
$c_{rt}$	Right turn capacity (veh/h)	620	269
$c_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.56
<b>Output</b>			
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>109</b>	<b>38</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>38</b>	

Southbound/Westbound Stops (Outbound)		11th <sup>2</sup>	Mission	Howard
		5	6	7
<b>Inputs</b>				
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	25	0	0
$g/C$	Green time ratio	0.40	0.17	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	234	210	110
$v_{rt}$	Right-turning volume (veh/h)	0	0	30
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
<b>Calculations</b>				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	769	797	926
$d_{re,1}$	Case 1 re-entry delay (s)	12.2	14.1	29.7
$d_{qs}$	Case 2 queue service delay (s)	9.1	11.1	3.7
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	949	1034	1017
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.5	0.2	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	9.6	11.2	4.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.4	1.5	0.4
$d_{re,3}$	Case 3 re-entry delay (s)	1.4	1.5	0.4
$t_c$	Clearance time (s)	11.4	10.0	10.0
$t_{om}$	Operating margin (s)	15.5	0.0	0.0
$B_l$	Loading area capacity (bus/h)	39	62	154
$N_{el}$	Number of effective loading areas	1.85	2.45	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$c_{th}$	Through movement capacity (veh/h)	650	280	695
$c_{rt}$	Right turn capacity (veh/h)	580	250	578
$c_{cl}$	Curb lane capacity (veh/h)	650	280	663
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.40	0.92
<b>Output</b>				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>51</b>	<b>60</b>	<b>141</b>
	Bus stop maximum capacity (bus/h)	60	60	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>51</b>	<b>60</b>	



<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	5	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	15.9	8.3
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1175.8	940.6
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4104.2	4339.4
$t_{rs}$	Time spent at running speed per mile (s/mi)	139.6	147.6
$t_u$	Unimpeded bus running time (min/mi)	4.98	4.08
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	7.98	7.08
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.28	0.21
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.5</b>	<b>8.5</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.20	0.25
Corridor Travel Time (decimal)	1.596591402	1.770504591
Corridor Travel Time (minutes/sec)	01:36	01:46

Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th	9th	8th	7th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		3	2	8	3	6	3
Average alighting volume per bus		3	1	17	5	11	5
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	1	1	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.3	0.2	0.8	0.3	0.6	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.4	0.8	3.4	1.4	2.8	1.4
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.4	0.8	3.4	1.4	2.8	1.4
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.8	0.3	9.3	2.5	5.9	2.5
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.7	0.3	9.3	2.5	5.9	2.5
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.4	0.3	7.6	2.1	4.8	2.1
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	4.6	2.0	41.6	11.7	26.9	11.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	11.6	1.4	39.0	10.6	24.8	10.6
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	10.3	1.1	31.9	8.7	20.3	8.7
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	12	2	42	12	27	12
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	0.0	0.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	16	6	48	16	31	18

<b>Southbound/Westbound Stops (Outbound)</b>		7th	8th	9th	11th	12th	Otis
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		6	15	5	18	3	3
Average alighting volume per bus		3	8	3	8	2	3
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	3	2	2
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.6	1.6	0.5	1.9	0.3	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	2.8	6.9	2.1	8.3	1.4	1.4
P <sub>b,3</sub>	Boarding passengers through door channel 3	2.8	6.9	2.1	8.3	1.4	1.4
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.8	4.2	1.7	4.2	0.8	1.7
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.7	4.2	1.7	4.2	0.8	1.7
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.4	3.5	1.4	3.5	0.7	1.4
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	6.5	26.5	10.0	27.7	5.3	9.3
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	9.8	24.4	9.3	25.2	4.9	8.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	8.3	20.7	7.9	21.5	4.1	7.5
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	10	26	10	28	5	9
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	4.0	2.0	2.0
<b>Output</b>							
t <sub>d</sub>	Average dwell time (s)	14	30	16	36	11	15

Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
Inputs		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	16	10	33	12	22	14
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	Off-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	196.7	57	77	50	234	58
$v_{rt}$	Right-turning volume (veh/h)	0	80	50	0	190	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	813	1002	973	1013	769	1001
$d_{re,1}$	Case 1 re-entry delay (s)	15.1	61.0	44.7	70.2	12.2	61.0
$d_{qs}$	Case 2 queue service delay (s)	9.9	3.9	3.0	1.9	8.9	2.0
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1071	1049	1065	945	1054
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.1	0.1	0.5	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	10.1	4.0	3.1	2.0	9.4	2.1
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.3	0.2	0.2	0.1	1.3	0.2
$d_{re,3}$	Case 3 re-entry delay (s)	1.3	0.2	0.2	0.1	1.3	0.2
$t_c$	Clearance time (s)	10.0	10.2	13.1	10.1	11.3	10.2
$t_{om}$	Operating margin (s)	9.7	6.2	20.5	7.5	13.7	8.7
$B_l$	Loading area design capacity (bus/h)	32	42	27	54	43	59
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.85
$f_l$	Bus stop location factor	0.5	0.5	0.7	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	264	475	524	608	650
$f_{tb}$	Traffic blockage adjustment factor	0.70	0.89	0.89	0.95	0.81	0.96
Output							
$B_s$	Bus stop capacity (bus/h)	21	37	44	51	35	104
$B$	Bus facility capacity (bus/h)	21					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	14	30	16	36	11	15
$g/C$	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
$C$	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	On-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	139	65	48	47	52	53
$v_{rt}$	Right-turning volume (veh/h)	90	0	0	0	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	887	990	1016	1017	1010	1008
$d_{re,1}$	Case 1 re-entry delay (s)	22.8	52.9	75.0	78.5	68.7	67.3
$d_{qs}$	Case 2 queue service delay (s)	5.1	2.2	1.9	1.8	3.5	2.4
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1004	1048	1066	1065	1072	1074
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.1	0.1	0.1	0.1	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	5.3	2.3	1.9	1.9	3.6	2.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.6	0.2	0.1	0.1	0.2	0.1
$d_{re,3}$	Case 3 re-entry delay (s)	0.6	0.2	0.1	0.1	0.2	0.1
$t_c$	Clearance time (s)	10.0	10.0	10.0	10.0	10.0	10.0
$t_{om}$	Operating margin (s)	8.6	19.0	9.9	22.2	7.0	9.5
$B_l$	Loading area capacity (bus/h)	60	36	46	28	42	32
$N_{el}$	Number of effective loading areas	1	1	1.75	2.45	1.75	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	650	668	524	551	374	325
$c_{rt}$	Right turn capacity (veh/h)	501	596	467	491	334	290
$c_{cl}$	Curb lane capacity (veh/h)	554	668	524	551	374	325
$f_{tb}$	Traffic blockage adjustment factor	0.87	0.95	0.95	0.96	0.93	0.92
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>52</b>	<b>33</b>	<b>77</b>	<b>64</b>	<b>68</b>	<b>51</b>
		59	40	89	78	78	60
$B$	<b>Bus facility capacity (bus/h)</b>	<b>33</b>	40	59	59	59	40

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	8	8
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	17.8	20.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1763.7	1881.3
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3516.3	3398.7
$t_{rs}$	Time spent at running speed per mile (s/mi)	119.6	115.6
$t_u$	Unimpeded bus running time (min/mi)	6.21	6.78
$t_l$	Base bus running time losses (min/mi)	1.40	1.40
$t_r$	Base bus running time rate (min/mi)	7.61	8.18
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.46	0.48
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.9</b>	<b>7.3</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Corridor Travel Time (decimal)	6.091539068	6.137684671
Corridor Travel Time (minutes/sec)	06:05	06:08

<b>Step 0: Calculate Average Dwell Time (Optional)</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		11th	8th
<b>Inputs</b>		1	2
Average boarding volume per bus		3	6
Average alighting volume per bus		9	11
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standeers present?		No	No
Number of doors		3	3
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		2	1
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.3	0.6
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.4	2.8
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.4	2.8
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	2.5	5.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	5.1	5.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	4.1	4.8
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	11.7	26.9
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	25.8	24.8
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	21.9	20.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	26	27
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0
<b>Output</b>			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>32</b>	<b>31</b>

Southbound/Westbound Stops (Outbound)		8th	11th
		1	2
<b>Inputs</b>			
	Average boarding volume per bus	12	18
	Average alighting volume per bus	6	8
	Boarding door(s)	All	All
	Fare payment method	Smart card	Smart card
	Boarding height	Level	Level
	Standeers present?	Yes	Yes
	Number of doors	3	3
	Available door channels	3	3
	Percent of boarders using farebox	10%	10%
	Door closing time	4	4
	Number of loading areas	1	3
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.3	1.9
P <sub>b,2</sub>	Boarding passengers through door channel 2	5.5	8.3
P <sub>b,3</sub>	Boarding passengers through door channel 3	5.5	8.3
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.7	4.2
P <sub>a,2</sub>	Alighting passengers through door channel 2	3.4	4.2
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.8	3.5
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	13.1	27.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	19.5	25.2
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	16.6	21.5
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	20	28
t <sub>bl</sub>	Boarding lost time (s)	0.0	4.0
<b>Output</b>			
t <sub>d</sub>	Average dwell time (s)	24	36



Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
Inputs		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	0	32	0	31	0
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	On-line	Off-line	On-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	196.7	57	77	50	234	58
$v_{rt}$	Right-turning volume (veh/h)	0	80	50	0	190	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
Calculations							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	813	1002	973	1013	769	1001
$d_{re,1}$	Case 1 re-entry delay (s)	15.1	61.0	44.7	70.2	12.2	61.0
$d_{qs}$	Case 2 queue service delay (s)	9.9	3.9	3.0	1.9	8.9	2.0
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1029	1071	1049	1065	945	1054
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.1	0.1	0.5	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	10.1	4.0	3.1	2.0	9.4	2.1
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.3	0.2	0.2	0.1	1.3	0.2
$d_{re,3}$	Case 3 re-entry delay (s)	1.3	0.2	0.2	0.1	1.3	0.2
$t_c$	Clearance time (s)	10.0	10.0	10.2	10.0	11.3	10.0
$t_{om}$	Operating margin (s)	0.0	0.0	19.8	0.0	19.2	0.0
$B_l$	Loading area design capacity (bus/h)	72	79	30	116	34	144
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	264	475	524	608	650
$f_{tb}$	Traffic blockage adjustment factor	0.70	0.89	0.92	0.95	0.81	0.96
Output							
$B_s$	Bus stop capacity (bus/h)	50	70	50	110	27	240
$B$	Bus facility capacity (bus/h)	27					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	24	0	36	0	0
$g/C$	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
$C$	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	139	65	48	47	52	53
$v_{rt}$	Right-turning volume (veh/h)	90	0	0	0	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	887	990	1016	1017	1010	1008
$d_{re,1}$	Case 1 re-entry delay (s)	22.8	52.9	75.0	78.5	68.7	67.3
$d_{qs}$	Case 2 queue service delay (s)	5.1	2.2	1.9	1.8	3.5	2.4
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1004	1048	1066	1065	1072	1074
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.1	0.1	0.1	0.1	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	5.3	2.3	1.9	1.9	3.6	2.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.6	0.2	0.1	0.1	0.2	0.1
$d_{re,3}$	Case 3 re-entry delay (s)	0.6	0.2	0.1	0.1	0.2	0.1
$t_c$	Clearance time (s)	10.0	10.2	10.0	10.1	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	14.6	0.0	22.2	0.0	0.0
$B_l$	Loading area capacity (bus/h)	144	43	116	27	83	72
$N_{el}$	Number of effective loading areas	1	1	1.75	2	1.75	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	650	668	524	551	374	325
$c_{rt}$	Right turn capacity (veh/h)	501	596	467	491	334	290
$c_{cl}$	Curb lane capacity (veh/h)	554	668	524	551	374	325
$f_{tb}$	Traffic blockage adjustment factor	0.87	0.95	0.95	0.96	0.93	0.92
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>125</b>	<b>40</b>	<b>193</b>	<b>52</b>	<b>134</b>	<b>115</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>40</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	3	3
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	10.5	9.9
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	587.9	627.1
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	4692.1	4652.9
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	159.6	158.3
t <sub>u</sub>	Unimpeded bus running time (min/mi)	3.76	3.79
t <sub>l</sub>	Base bus running time losses (min/mi)	1.40	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	5.16	5.19
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.36	0.40
f <sub>bb</sub>	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
s <sub>t</sub>	<b>Average Travel Speed (mi/h)</b>	<b>11.6</b>	<b>11.6</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Scenario 4 Corridor Travel Time (decimal)	4.129674294	3.890586106
Scenario 4 Corridor Travel Time (minutes/sec)	04:08	03:53

<b>Step 0: Calculate Average Dwell Time (Optional)</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		1	3	11	7	3
Average alighting volume per bus		1	13	3	1	1
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No
Number of doors		2	2	2	2	2
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		1	2	2	1	1
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.1	0.3	1.1	0.8	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.5	1.2	4.9	3.3	1.3
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.5	1.2	4.9	3.3	1.3
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.3	3.2	0.9	0.3	0.2
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.9	9.6	2.6	1.0	0.5
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.00	2.00	2.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.00	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	3.50	3.50	3.50
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	3.50	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.3	0.8	3.1	2.1	0.8
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.3	16.4	12.9	7.8	3.1
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	4.9	43.2	22.6	10.2	5.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	5	43	23	10	5
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0	2.0	0.0	0.0
<b>Output</b>						
<b>t<sub>d</sub></b>	<b>Average dwell time (s)</b>	<b>9</b>	<b>49</b>	<b>29</b>	<b>14</b>	<b>9</b>

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
Average boarding volume per bus		3	3	9	3
Average alighting volume per bus		3	7	3	3
Boarding door(s)		All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level
Standees present?		No	No	No	No
Number of doors		2	2	2	2
Available door channels		3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%
Door closing time		4	4	4	4
Number of loading areas		2	2	1	1
<b>Calculations</b>					
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.3	0.3	1.0	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.2	1.2	4.2	1.2
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.2	1.2	4.2	1.2
P <sub>b,4</sub>	Boarding passengers through door channel 4				
P <sub>b,5</sub>	Boarding passengers through door channel 5				
P <sub>b,6</sub>	Boarding passengers through door channel 6				
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.7	1.7	0.7	0.7
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.0	5.0	2.0	2.0
P <sub>a,4</sub>	Alighting passengers through door channel 4				
P <sub>a,5</sub>	Alighting passengers through door channel 5				
P <sub>a,6</sub>	Alighting passengers through door channel 6				
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)				
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)				
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.8	0.8	2.7	0.8
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	5.7	10.0	10.8	5.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	11.4	24.1	18.6	11.4
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)				
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)				
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)				
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	11	24	19	11
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	0.0
<b>Output</b>					
t <sub>d</sub>	Average dwell time (s)	17	30	23	15

<b>Step 1: Capacity Calculations</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	9	49	29	14	9
$g/C$	Green time ratio	0.38	0.45	0.29	0.39	0.39
$C$	Traffic signal cycle length (s)	90	90	90	75	75
	Stop type (on-line/off-line)	Off-line	On-line	On-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side	Near-side	Far-side	Near-side
	Bus stop distance to upstream signal (ft)					
$v$	Curb lane traffic volume (veh/h)	257.5	20	175	403	373
$v_{rt}$	Right-turning volume (veh/h)	0	0	0	30	40
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	300	361
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2
<b>Calculations</b>						
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	742	1059	840	596	623
$d_{re,1}$	Case 1 re-entry delay (s)	10.7	196.5	17.5	5.6	6.4
$d_{qs}$	Case 2 queue service delay (s)	10.5	0.6	7.7	15.2	13.6
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	943	1076	1012	864	878
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.5	0.1	0.3	0.9	0.8
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	11.0	0.7	8.0	16.1	14.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.7	0.1	0.9	3.8	3.1
$d_{re,3}$	Case 3 re-entry delay (s)	1.7	0.1	0.9	3.8	3.1
$t_c$	Clearance time (s)	11.7	10.0	10.0	13.8	24.5
$t_{om}$	Operating margin (s)	5.5	30.6	17.8	8.8	5.7
$B_l$	Loading area design capacity (bus/h)	67	26	29	50	42
$N_{el}$	Number of effective loading areas	1.00	1.75	1.75	1.00	1.00
$f_l$	Bus stop location factor	0.5	0.7	0.7	0.5	0.7
$C_{th}$	Through movement capacity (veh/h)	618	731	469	628	634
$C_{rt}$	Right turn capacity (veh/h)	551	653	419	477	463
$C_{cl}$	Curb lane capacity (veh/h)	618	731	469	617	616
$f_{tb}$	Traffic blockage adjustment factor	0.79	0.98	0.74	0.67	0.58
<b>Output</b>						
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>52</b>	<b>44</b>	<b>37</b>	<b>33</b>	<b>23</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>23</b>				

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	17	30	23	15
$g/C$	Green time ratio	0.44	0.48	0.48	0.37
$C$	Traffic signal cycle length (s)	75	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Influenced	Far-side	Far-side
	Bus stop distance to upstream signal (ft)		170		
$v$	Curb lane traffic volume (veh/h)	553	617	617	413
$v_{rt}$	Right-turning volume (veh/h)	110	180	180	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	392	303	303	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2
<b>Calculations</b>					
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	474	431	431	587
$d_{re,1}$	Case 1 re-entry delay (s)	3.2	2.6	2.5	5.4
$d_{qs}$	Case 2 queue service delay (s)	21.7	28.7	28.7	19.3
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	758	702	702	868
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.5	1.8	1.8	0.9
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	23.1	30.6	30.6	20.2
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	7.3	10.4	10.4	4.8
$d_{re,3}$	Case 3 re-entry delay (s)	7.3	9.4	10.4	4.8
$t_c$	Clearance time (s)	33.1	19.4	20.4	10.0
$t_{om}$	Operating margin (s)	10.8	18.7	14.1	9.6
$B_l$	Loading area capacity (bus/h)	31	33	38	53
$N_{el}$	Number of effective loading areas	1.85	1.85	1	1
$f_l$	Bus stop location factor	0.7	0.7	0.5	0.5
$C_{th}$	Through movement capacity (veh/h)	715	776	776	601
$C_{rt}$	Right turn capacity (veh/h)	513	588	588	537
$C_{cl}$	Curb lane capacity (veh/h)	675	721	721	601
$f_{tb}$	Traffic blockage adjustment factor	0.43	0.40	0.57	0.66
<b>Output</b>					
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>24</b>	<b>24</b>	<b>21</b>	<b>34</b>
		26	27	24	39
$B$	<b>Bus facility capacity (bus/h)</b>	<b>21</b>	24	24	26

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	4	4
	Average stop spacing (stops/mi)	8	13
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	22.0	21.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1959.6	3135.4
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3320.4	2144.6
$t_{rs}$	Time spent at running speed per mile (s/mi)	112.9	72.9
$t_u$	Unimpeded bus running time (min/mi)	7.16	9.52
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	10.16	12.52
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.16	0.17
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$t$	<b>Average Travel Speed (mi/h)</b>	<b>5.9</b>	<b>4.8</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.60	0.30
Scenario 4 Corridor Travel Time (decimal)	6.096177157	3.754596511
Scenario 4 Corridor Travel Time (minutes/sec)	06:06	03:45



Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	9th	8th	7th	6th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		2	2	9	11	12	6
Average alighting volume per bus		2	5	8	14	12	11
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	2	2	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.2	1.0	1.1	1.3	0.6
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.7	0.7	4.1	4.8	5.5	2.8
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.7	0.7	4.1	4.8	5.5	2.8
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.4	1.2	1.9	3.5	3.1	2.7
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.2	3.5	5.8	10.4	9.2	8.1
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.4	0.4	2.6	3.1	3.5	1.8
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	3.3	6.5	18.0	26.1	26.1	17.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	6.5	16.2	34.1	55.1	51.9	40.4
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	6	16	34	55	52	40
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	2.0	2.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	10	20	40	61	58	46

Southbound/Westbound Stops (Outbound)		6th	7th	8th	Hayes/Larkin	Van Ness	Gough
Inputs		1	2	3	4	5	6
Average boarding volume per bus		11	11	8	5	3	2
Average alighting volume per bus		6	8	3	2	2	5
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	2	2	2	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.1	1.1	0.8	0.5	0.3	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	4.8	4.8	3.4	2.1	1.4	0.7
P <sub>b,3</sub>	Boarding passengers through door channel 3	4.8	4.8	3.4	2.1	1.4	0.7
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.5	1.9	0.8	0.4	0.4	1.2
P <sub>a,3</sub>	Alighting passengers through door channel 3	4.6	5.8	2.3	1.2	1.2	3.5
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	3.00	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.80	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	3.6	3.6	2.6	1.6	1.0	0.5
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	18.2	23.6	11.7	6.7	5.0	7.6
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	36.5	42.1	21.4	11.7	9.6	18.6
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	37	42	21	12	10	19
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	43	48	27	18	16	25

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		Gough	Van Ness	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>	6th <sup>1</sup>
<b>Inputs</b>		1	2	3	4	5	6
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	25.0%	15.0%	15.0%
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	10	20	40	61	58	46
g/C	Green time ratio	0.21	0.23	0.32	0.29	0.33	0.32
C	Traffic signal cycle length (s)	75	75	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Far-side	Near-side	Near-side	Near-side	Near-side
	Bus stop distance to upstream signal (ft)						
v	Curb lane traffic volume (veh/h)	295	370	33	57	51	42
v <sub>rt</sub>	Right-turning volume (veh/h)	140	260	0	0	0	0
v <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	40	70	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
N <sub>la</sub>	Number of physical loading areas	1	1	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	1	2	2	2	2	2
<b>Calculations</b>							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	0.67	1.04	1.04
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	702	626	1039	1002	1011	1025
d <sub>re,1</sub>	Case 1 re-entry delay (s)	8.9	6.5	112.8	62.2	70.2	86.7
d <sub>qs</sub>	Case 2 queue service delay (s)	13.1	17.0	1.3	2.3	2.0	1.6
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	993	959	1074	1065	1064	1069
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.3	0.5	0.1	0.1	0.1	0.1
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	13.4	17.4	1.3	2.4	2.1	1.7
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	2.6	4.2	0.1	0.1	0.1	0.1
d <sub>re,3</sub>	Case 3 re-entry delay (s)	2.6	4.2	0.1	0.1	0.1	0.1
t <sub>c</sub>	Clearance time (s)	10.0	14.2	10.0	10.0	10.0	10.0
t <sub>om</sub>	Operating margin (s)	6.5	12.5	24.9	24.7	36.0	28.9
B <sub>l</sub>	Loading area design capacity (bus/h)	41	27	24	20	18	22
N <sub>el</sub>	Number of effective loading areas	1.00	1.00	1.75	1.75	1.75	1.75
f <sub>l</sub>	Bus stop location factor	0.9	0.5	0.7	0.7	0.7	0.7
c <sub>th</sub>	Through movement capacity (veh/h)	347	379	524	469	531	524
c <sub>rt</sub>	Right turn capacity (veh/h)	303	326	467	419	474	467
c <sub>cl</sub>	Curb lane capacity (veh/h)	326	342	524	469	531	524
f <sub>tb</sub>	Traffic blockage adjustment factor	0.19	0.46	0.96	0.92	0.93	0.94
<b>Output</b>							
<b>B<sub>s</sub></b>	<b>Bus stop capacity (bus/h)</b>	<b>7</b>	<b>12</b>	<b>40</b>	<b>31</b>	<b>29</b>	<b>35</b>
		8	14	49	31	36	43
<b>B</b>	<b>Bus facility capacity (bus/h)</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>14</b>

Southbound/Westbound Stops (Outbound)		6th	7th	8th	Hayes/Larkii Van Ness	Gough	
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	43	48	27	18	16	25
$g/C$	Green time ratio	0.32	0.33	0.29	0.33	0.25	0.29
$C$	Traffic signal cycle length (s)	90	90	90	90	75	75
	Stop type (on-line/off-line)	On-line	On-line	On-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Near-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	218					
$v$	Curb lane traffic volume (veh/h)	185	284	175	110	82.5	360
$v_{rt}$	Right-turning volume (veh/h)	10	130	0	50	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	331	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	1	2	1
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	828	713	840	926	965	636
$d_{re,1}$	Case 1 re-entry delay (s)	16.4	9.5	17.5	30.0	41.4	6.8
$d_{qs}$	Case 2 queue service delay (s)	7.8	12.8	7.7	4.4	3.0	15.2
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	998	950	1012	1034	1058	935
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.5	0.3	0.2	0.1	0.6
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	8.2	13.3	8.0	4.6	3.1	15.8
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.0	2.3	0.9	0.4	0.2	3.5
$d_{re,3}$	Case 3 re-entry delay (s)	3.5	2.3	0.9	0.4	0.2	3.5
$t_c$	Clearance time (s)	10.0	10.0	10.0	10.4	10.2	13.5
$t_{om}$	Operating margin (s)	26.5	29.9	17.0	11.0	9.7	15.3
$B_l$	Loading area capacity (bus/h)	23	21	30	44	37	29
$N_{el}$	Number of effective loading areas	1.75	1.75	1.75	1.85	1.85	1.85
$f_l$	Bus stop location factor	0.7	0.7	0.7	0.8	0.5	0.8
$c_{th}$	Through movement capacity (veh/h)	524	531	469	536	401	466
$c_{rt}$	Right turn capacity (veh/h)	467	474	419	399	358	416
$c_{cl}$	Curb lane capacity (veh/h)	521	505	469	474	401	466
$f_{tb}$	Traffic blockage adjustment factor	0.75	0.61	0.74	0.81	0.90	0.38
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>30</b>	<b>22</b>	<b>38</b>	<b>65</b>	<b>61</b>	<b>20</b>
		37	27	46	76	72	23
$B$	<b>Bus facility capacity (bus/h)</b>	<b>20</b>	23	37	37	37	23

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	6.7	6.7
	Average stop spacing (stops/mi)	6	7
	Running way type	Bus lane, no right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	39.3	26.7
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1485.2	1659.9
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	3794.8	3620.1
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	129.1	123.1
t <sub>u</sub>	Unimpeded bus running time (min/mi)	7.98	7.07
t <sub>l</sub>	Base bus running time losses (min/mi)	0.60	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	8.58	8.47
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.83	0.33
f <sub>bb</sub>	Bus-bus interference factor	0.77	1.00
<b>Outputs</b>			
s <sub>t</sub>	<b>Average Travel Speed (mi/h)</b>	<b>5.4</b>	<b>7.1</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.95	0.85
Scenario 4 Corridor Travel Time (decimal)	10.58184258	7.202526545
Scenario 4 Corridor Travel Time (minutes/sec)	10:35	07:12

**Step 0: Calculate Average Dwell Time (Optional)**

Highlight indicates that input may have changed from existing conditions

<b>Northbound/Eastbound Stops (Inbound)</b>		Gough	Van Ness	Hyde	Leavenworth <sup>1</sup>	6th	
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		4	16	2	5	4	
Average alighting volume per bus		4	20	5	23	7	
Boarding door(s)		All	All	All	All	All	
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	
Boarding height		Level	Level	Level	Level	Level	
Standees present?		No	No	No	No	No	
Number of doors		2	2	2	2	2	
Available door channels		3	3	3	3	3	
Percent of boarders using farebox		10%	10%	10%	10%	10%	
Door opening and closing time		4	4	4	4	4	
Number of loading areas		2	3	1	3	2	
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.4	1.7	0.2	0.6	0.4	
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.6	7.2	0.8	2.4	1.6	
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.6	7.2	0.8	2.4	1.6	
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.9	4.9	1.3	5.8	1.8	
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.7	14.8	4.0	17.5	5.4	
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75	
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40	
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40	
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50	
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	1.0	4.6	0.5	1.5	1.0	
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	7.6	38.1	7.6	30.3	11.4	
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	15.2	79.6	18.9	79.3	26.5	
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	15	80	19	79	26	
t <sub>bl</sub>	Boarding lost time (s)	2.0	4.0	0.0	4.0	2.0	
<b>Output</b>							
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>21</b>	<b>88</b>	<b>23</b>	<b>87</b>	<b>32</b>	

<b>Southbound/Westbound Stops (Outbound)</b>		6th	Jones <sup>1</sup>	Hyde	Larkin	Van Ness	Gough
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		2	13	9	5	29	4
Average alighting volume per bus		2	7	4	2	13	4
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standeers present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	1	2	3	1
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	1.3	0.9	0.6	3.0	0.4
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.8	5.6	4.0	2.4	12.9	1.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.8	5.6	4.0	2.4	12.9	1.6
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.4	1.8	0.9	0.4	3.1	0.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.3	5.4	2.7	1.3	9.4	2.7
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.00	2.50	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.00	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.6	4.2	3.0	1.8	9.7	1.2
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	4.6	21.3	13.6	7.8	44.8	9.1
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	8.9	42.8	25.0	13.7	83.9	17.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	9	43	25	14	84	18
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	2.0	4.0	0.0
<b>Output</b>							
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>15</b>	<b>49</b>	<b>29</b>	<b>20</b>	<b>92</b>	<b>22</b>

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>							
		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
<b>Inputs</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	21	88	23	87	32	
g/C	Green time ratio	0.21	0.23	0.31	0.31	0.37	
C	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	Off-line	Off-line	On-line	Off-line	On-line	
				Metro			
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Influenced	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
v	Curb lane traffic volume (veh/h)	190	70	130	70	35	
V <sub>rt</sub>	Right-turning volume (veh/h)	20	0	100	0	20	
V <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
N <sub>la</sub>	Number of physical loading areas	2	2	1	3	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	1	2	
<b>Calculations</b>							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	822	983	899	983	1036	
d <sub>re,1</sub>	Case 1 re-entry delay (s)	15.8	49.6	24.6	50.4	105.8	
d <sub>qs</sub>	Case 2 queue service delay (s)	7.9	2.6	4.5	2.3	1.2	
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	1029	1065	1028	1057	1070	
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.2	0.1	0.1	
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	8.1	2.7	4.7	2.5	1.3	
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	1.0	0.2	0.5	0.2	0.1	
d <sub>re,3</sub>	Case 3 re-entry delay (s)	1.0	0.2	2.9	0.2	36.6	
t <sub>c</sub>	Clearance time (s)	11.0	10.2	10.0	12.5	10.0	
t <sub>om</sub>	Operating margin (s)	13.2	54.5	14.2	54.3	20.2	
B <sub>l</sub>	Loading area design capacity (bus/h)	26	10	35	12	32	
N <sub>el</sub>	Number of effective loading areas	1.85	1.85	1.00	2.00	1.75	
f <sub>l</sub>	Bus stop location factor	0.8	0.5	0.9	0.9	0.7	
c <sub>th</sub>	Through movement capacity (veh/h)	336	379	498	498	601	
c <sub>rt</sub>	Right turn capacity (veh/h)	284	261	445	445	173	
c <sub>cl</sub>	Curb lane capacity (veh/h)	330	379	457	498	357	
f <sub>tb</sub>	Traffic blockage adjustment factor	0.54	0.91	0.74	0.87	0.93	
<b>Output</b>							
<b>B<sub>s</sub></b>	<b>Bus stop capacity (bus/h)</b>	<b>26</b>	<b>16</b>	<b>26</b>	<b>20</b>	<b>51</b>	
		31	21	31	25	61	
<b>B</b>	<b>Bus facility capacity (bus/h)</b>	<b>16</b>	21	31	25	31	21



Southbound/Westbound Stops (Outbound)		6th <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60		0.60	0.60
	Failure rate	15.0%	15.0%	15.0%		15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	15	49	29		20	92
$g/C$	Green time ratio	0.37	0.31	0.31		0.48	0.23
$C$	Traffic signal cycle length (s)	90	75	75		75	75
	Stop type (on-line/off-line)	On-line	Off-line	Off-line		On-line	On-line
				Metro			Metro
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD		Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Influenced	Far-side		Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289	289				
$v$	Curb lane traffic volume (veh/h)	50	135	315		450	195
$v_{rt}$	Right-turning volume (veh/h)	10	0	0		360	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	205	487	0		610	0
	Arrival type (random/typical/platooned)	Random	Random	Random		Random	Random
$N_{ia}$	Number of physical loading areas	2	2	1		2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear		Linear	Linear
	Bus lane type	2	1	2		2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04		1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	1013	892	681		555	815
$d_{re,1}$	Case 1 re-entry delay (s)	71.7	23.8	8.2		4.7	15.4
$d_{qs}$	Case 2 queue service delay (s)	1.8	4.7	12.5		15.0	7.8
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1061	1026	945		792	1020
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.2	0.5		1.3	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	1.9	4.9	13.0		16.3	8.1
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.1	0.5	2.5		4.0	1.0
$d_{re,3}$	Case 3 re-entry delay (s)	15.8	5.6	2.5		4.0	1.0
$t_c$	Clearance time (s)	10.0	15.6	12.5		10.0	10.0
$t_{om}$	Operating margin (s)	9.3	30.3	18.0		12.3	57.1
$B_l$	Loading area capacity (bus/h)	54	18	28		54	9
$N_{el}$	Number of effective loading areas	1.75	1.85	1		1.75	1.75
$f_l$	Bus stop location factor	0.7	0.9	0.5		0.5	0.5
$C_{th}$	Through movement capacity (veh/h)	601	498	498		775	379
$C_{rt}$	Right turn capacity (veh/h)	482	336	445		480	338
$C_{cl}$	Curb lane capacity (veh/h)	577	498	498		539	379
$f_{tb}$	Traffic blockage adjustment factor	0.94	0.76	0.68		0.58	0.74
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>88</b>	<b>25</b>	<b>19</b>		<b>55</b>	<b>12</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>11</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	6.7
	Average stop spacing (stops/mi)	7	8
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	50.3	37.7
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1679.7	1763.7
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3600.3	3516.3
$t_{rs}$	Time spent at running speed per mile (s/mi)	122.5	119.6
$t_u$	Unimpeded bus running time (min/mi)	9.93	8.70
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	12.93	11.70
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.79	0.51
$f_{bb}$	Bus-bus interference factor	0.82	0.97
<b>Outputs</b>			
$t$	<b>Average Travel Speed (mi/h)</b>	<b>3.8</b>	<b>5.0</b>

Conversion from Speed to Minutes

Corridor Length (miles)		0.70	0.80
Scenario 2 Corridor Travel Time (decimal)	11.10789866	9.688758233	
Scenario 2 Corridor Travel Time (minutes/sec)	11:06	09:41	

<b>Step 0: Calculate Average Dwell Time (Optional)</b>				
Highlight indicates that input may have changed from existing conditions				
<b>Northbound/Eastbound Stops (Inbound)</b>		Van Ness	Leavenworth <sup>1</sup>	6th
<b>Inputs</b>		1	2	3
Average boarding volume per bus		11	4	3
Average alighting volume per bus		13	16	6
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standees present?		No	No	No
Number of doors		3	3	3
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door opening and closing time		4	4	4
Number of loading areas		2	2	2
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.1	0.4	0.3
P <sub>b,2</sub>	Boarding passengers through door channel 2	4.9	1.7	1.3
P <sub>b,3</sub>	Boarding passengers through door channel 3	4.9	1.7	1.3
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	3.6	8.9	3.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	7.3	8.9	3.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	6.0	7.3	2.5
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	19.1	38.9	13.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	46.7	37.6	12.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	41.1	30.8	10.4
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	47	39	14
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0
<b>Output</b>				
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>53</b>	<b>45</b>	<b>20</b>

Southbound/Westbound Stops (Outbound)		Mason	Jones <sup>1</sup>	Van Ness
		1	2	3
<b>Inputs</b>				
	Average boarding volume per bus	3	9	20
	Average alighting volume per bus	1	5	8
	Boarding door(s)	All	All	All
	Fare payment method	Smart card	Smart card	Smart card
	Boarding height	Level	Level	Level
	Standees present?	Yes	Yes	Yes
	Number of doors	3	3	3
	Available door channels	3	3	3
	Percent of boarders using farebox	10%	10%	10%
	Door closing time	4	4	4
	Number of loading areas	2	1	2
<b>Calculations</b>				
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.3	0.9	2.1
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.2	3.8	8.9
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.2	3.8	8.9
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.3	1.4	4.6
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.6	2.7	4.6
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.5	2.2	3.7
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	2.5	10.0	30.0
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	3.4	15.4	27.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	2.9	13.0	23.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	3	15	30
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0	2.0
<b>Output</b>				
t <sub>d</sub>	Average dwell time (s)	9	19	36

Step 1: Capacity Calculations							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	Hyde	Leavenworth <sup>1&amp;2</sup>	6th <sup>3</sup>	
Inputs		1	2	3	4	5	6
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	0	53	0	45	20	
g/C	Green time ratio	0.21	0.23	0.31	0.31	0.37	
C	Traffic signal cycle length (s)	75	75	75	75	90	
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD	Metro CBD	Metro CBD	
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	d	Near-side	Influenced	
	Bus stop distance to upstream signal (ft)			135		456	
v	Curb lane traffic volume (veh/h)	190	70	130	70	35	
v <sub>rt</sub>	Right-turning volume (veh/h)	20	0	100	0	20	
v <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	104	456	0	0	1354	
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	
N <sub>la</sub>	Number of physical loading areas	2	2	1	2	2	
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	
	Bus lane type	1	2	1	2	2	
Calculations							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	822	983	899	983	1036	
d <sub>re,1</sub>	Case 1 re-entry delay (s)	15.8	49.6	24.6	49.6	105.8	
d <sub>qs</sub>	Case 2 queue service delay (s)	7.9	2.6	4.5	2.3	1.2	
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	1029	1065	1028	1057	1070	
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.2	0.1	0.1	
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	8.1	2.7	4.7	2.5	1.3	
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	1.0	0.2	0.5	0.2	0.1	
d <sub>re,3</sub>	Case 3 re-entry delay (s)	1.0	0.2	2.9	0.2	36.6	
t <sub>c</sub>	Clearance time (s)	10.0	10.2	10.0	12.5	10.0	
t <sub>om</sub>	Operating margin (s)	0.0	32.8	0.0	27.9	12.3	
B <sub>l</sub>	Loading area design capacity (bus/h)	74	15	110	20	45	
N <sub>el</sub>	Number of effective loading areas	1.75	1.85	1.00	1.85	1.75	
f <sub>l</sub>	Bus stop location factor	0.8	0.5	0.9	0.7	0.7	
c <sub>th</sub>	Through movement capacity (veh/h)	336	379	498	498	601	
c <sub>rt</sub>	Right turn capacity (veh/h)	284	261	445	445	173	
c <sub>cl</sub>	Curb lane capacity (veh/h)	330	379	457	498	357	
f <sub>tb</sub>	Traffic blockage adjustment factor	0.54	0.91	0.74	0.90	0.93	
Output							
B <sub>s</sub>	<b>Bus stop capacity (bus/h)</b>	<b>70</b>	<b>25</b>	<b>82</b>	<b>34</b>	<b>73</b>	
B	<b>Bus facility capacity (bus/h)</b>	<b>25</b>					

Southbound/Westbound Stops (Outbound)		6th <sup>3</sup>	Jones <sup>1&amp;2</sup>	Hyde	Larkin	Van Ness	Gough
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60		0.60	0.60
	Failure rate	15.0%	15.0%	15.0%		15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	9	19	0		0	36
$g/C$	Green time ratio	0.37	0.31	0.31		0.48	0.23
$C$	Traffic signal cycle length (s)	90	75	75		75	75
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
				Metro			
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	289					
$v$	Curb lane traffic volume (veh/h)	50	135	315		450	195
$v_{rt}$	Right-turning volume (veh/h)	10	0	0		360	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	205	487	0		610	0
	Arrival type (random/typical/platooned)	Random	Random	Random		Random	Random
$N_{la}$	Number of physical loading areas	2	1	1		2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear		Linear	Linear
	Bus lane type	2	1	2		2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04		1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	1013	892	681		555	815
$d_{re,1}$	Case 1 re-entry delay (s)	71.7	23.6	8.2		4.7	15.4
$d_{qs}$	Case 2 queue service delay (s)	1.8	4.7	12.5		15.0	7.8
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1061	1026	945		792	1020
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.2	0.5		1.3	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	1.9	4.9	13.0		16.3	8.1
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.1	0.5	2.5		4.0	1.0
$d_{re,3}$	Case 3 re-entry delay (s)	15.8	0.5	2.5		4.0	1.0
$t_c$	Clearance time (s)	10.0	10.5	10.0		10.0	10.0
$t_{om}$	Operating margin (s)	5.8	12.1	0.0		0.0	22.4
$B_l$	Loading area capacity (bus/h)	69	39	110		172	21
$N_{el}$	Number of effective loading areas	1.75	1	1		1.75	1.75
$f_l$	Bus stop location factor	0.7	0.8	0.5		0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	601	498	498		775	379
$c_{rt}$	Right turn capacity (veh/h)	482	336	445		480	338
$c_{cl}$	Curb lane capacity (veh/h)	577	498	498		539	379
$f_{tb}$	Traffic blockage adjustment factor	0.94	0.78	0.68		0.58	0.74
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>113</b>	<b>30</b>	<b>75</b>		<b>174</b>	<b>26</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>26</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
Inputs		NB/EB	SB/WB
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	16.7	16.7
	Average stop spacing (stops/mi)	4	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	23.5	11.1
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1007.8	881.8
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4272.2	4398.2
$t_{rs}$	Time spent at running speed per mile (s/mi)	145.3	149.6
$t_u$	Unimpeded bus running time (min/mi)	5.24	4.19
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	8.24	7.19
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.52	0.64
$f_{bb}$	Bus-bus interference factor	0.96	0.92
<b>Outputs</b>			
$\bar{v}_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.0</b>	<b>7.7</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.70	0.80
Scenario 2 Corridor Travel Time (decimal)	5.985420318	6.251599436
Scenario 2 Corridor Travel Time (minutes/sec)	05:59	06:15

<b>Step 0: Calculate Average Dwell Time (Optional)</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard <sup>1</sup>	Market
<b>Inputs</b>		1	2
Average boarding volume per bus		2	7
Average alighting volume per bus		1	36
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standeers present?		No	No
Number of doors		2	2
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		1	2
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.7
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.7	3.2
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.7	3.2
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.1	9.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.4	26.9
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.5	2.1
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	2.0	45.4
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	3.5	120.9
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	4	121
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0
<b>Output</b>			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>8</b>	<b>127</b>



Southbound/Westbound Stops (Outbound)		11th	Mission	Howard
Inputs		1	2	3
Average boarding volume per bus		27	4	2
Average alighting volume per bus		7	2	2
Boarding door(s)		All	All	All
Fare payment method		Smart card	Smart card	Smart card
Boarding height		Level	Level	Level
Standeers present?		Yes	Yes	Yes
Number of doors		2	2	2
Available door channels		3	3	3
Percent of boarders using farebox		10%	10%	10%
Door closing time		4	4	4
Number of loading areas		2	3	1
Calculations				
P <sub>b,1</sub>	Boarding passengers through door channel 1	2.8	0.4	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	12.1	1.6	0.8
P <sub>b,3</sub>	Boarding passengers through door channel 3	12.1	1.6	0.8
P <sub>b,4</sub>	Boarding passengers through door channel 4			
P <sub>b,5</sub>	Boarding passengers through door channel 5			
P <sub>b,6</sub>	Boarding passengers through door channel 6			
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.8	0.4	0.4
P <sub>a,3</sub>	Alighting passengers through door channel 3	5.4	1.3	1.3
P <sub>a,4</sub>	Alighting passengers through door channel 4			
P <sub>a,5</sub>	Alighting passengers through door channel 5			
P <sub>a,6</sub>	Alighting passengers through door channel 6			
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)			
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)			
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	9.1	1.2	0.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	37.4	5.8	4.6
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	62.1	11.3	8.9
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)			
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)			
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)			
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	62	11	9
t <sub>bl</sub>	Boarding lost time (s)	2.0	4.0	0.0
Output				
t <sub>d</sub>	Average dwell time (s)	68	19	13

<b>Step 1: Capacity Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard	Market
<b>Inputs</b>		<b>1</b>	<b>2</b>
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	8	127
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	590	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2
<b>Calculations</b>			
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	448	847
$d_{re,1}$	Case 1 re-entry delay (s)	2.8	18.1
$d_{qs}$	Case 2 queue service delay (s)	29.4	5.3
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	748	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.5	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	30.9	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	10.6	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	10.6	0.7
$t_c$	Clearance time (s)	20.6	10.0
$t_{om}$	Operating margin (s)	4.7	78.9
$B_l$	Loading area design capacity (bus/h)	54	12
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$C_{th}$	Through movement capacity (veh/h)	695	813
$C_{rt}$	Right turn capacity (veh/h)	620	269
$C_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.58	0.56
<b>Output</b>			
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>31</b>	<b>11</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>11</b>	

Southbound/Westbound Stops (Outbound)		11th <sup>1</sup>	Mission	Howard
Inputs		1	2	3
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	68	19	13
$g/C$	Green time ratio	0.40	0.28	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	40	300	135
$v_{rt}$	Right-turning volume (veh/h)	0	0	30
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{ia}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
Calculations				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	1028	696	892
$d_{re,1}$	Case 1 re-entry delay (s)	91.4	8.8	23.6
$d_{qs}$	Case 2 queue service delay (s)	1.4	14.6	4.7
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1065	962	1001
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.5	0.3
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	1.4	15.1	5.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.1	2.8	0.5
$d_{re,3}$	Case 3 re-entry delay (s)	0.1	2.8	0.5
$t_c$	Clearance time (s)	10.1	12.8	10.5
$t_{om}$	Operating margin (s)	42.3	12.0	8.0
$B_l$	Loading area capacity (bus/h)	18	34	64
$N_{el}$	Number of effective loading areas	1.85	2	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$c_{th}$	Through movement capacity (veh/h)	650	458	695
$c_{rt}$	Right turn capacity (veh/h)	580	409	578
$c_{cl}$	Curb lane capacity (veh/h)	650	458	669
$f_{tb}$	Traffic blockage adjustment factor	0.95	0.48	0.90
Output				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>31</b>	<b>31</b>	<b>57</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>31</b>		

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	10	12
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	67.2	33.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	2351.6	2821.9
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	2928.4	2458.1
$t_{rs}$	Time spent at running speed per mile (s/mi)	99.6	83.6
$t_u$	Unimpeded bus running time (min/mi)	15.53	11.28
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	18.53	14.28
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.89	0.34
$f_{bb}$	Bus-bus interference factor	0.70	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>2.3</b>	<b>4.2</b>

Conversion from Speed to Minutes

Corridor Length (miles)		0.20	0.25
Corridor Travel Time (decimal)		5.304571896	3.56893299
Corridor Travel Time (minutes/sec)		05:18	03:34

<b>Step 0: Calculate Average Dwell Time (Optional)</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		11th	9th	8th	7th	6th
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		13	7	7	9	5
Average alighting volume per bus		5	5	11	11	9
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.3	0.7	0.7	0.9	0.6
P <sub>b,2</sub>	Boarding passengers through door channel 2	5.6	3.2	3.2	4.0	2.4
P <sub>b,3</sub>	Boarding passengers through door channel 3	5.6	3.2	3.2	4.0	2.4
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.4	3.0	5.9	5.9	4.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.8	3.0	5.9	5.9	4.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	2.3	2.4	4.8	4.8	4.0
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	10.1	14.9	27.4	28.0	22.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	30.1	12.4	24.9	24.9	20.7
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	28.0	10.2	20.4	20.4	17.0
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	30	15	27	28	23
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>36</b>	<b>21</b>	<b>33</b>	<b>34</b>	<b>29</b>

Southbound/Westbound Stops (Outbound)		6th	7th	Hyde	Larkin	11th
Inputs		1	2	3	4	5
Average boarding volume per bus		7	11	9	5	20
Average alighting volume per bus		4	5	5	5	5
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4
Number of loading areas		2	2	2	2	2
Calculations						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.7	1.1	0.9	0.6	2.1
P <sub>b,2</sub>	Boarding passengers through door channel 2	3.2	4.8	4.0	2.4	8.9
P <sub>b,3</sub>	Boarding passengers through door channel 3	3.2	4.8	4.0	2.4	8.9
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.0	1.5	3.0	3.0	3.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.0	3.0	3.0	3.0	3.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.6	2.4	2.4	2.4	2.4
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.50
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.00
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	7.7	11.5	17.9	16.4	22.2
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	11.4	17.1	16.6	15.7	19.5
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	9.7	14.5	14.1	13.1	14.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	11	17	18	16	22
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0
Output						
t <sub>d</sub>	Average dwell time (s)	17	23	24	22	28

<b>Step 1: Capacity Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		Howard	11th
<b>Inputs</b>		1	2
$c_v$	Coefficient of variation of dwell times	0.60	0.60
	Failure rate	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	36
$g/C$	Green time ratio	0.43	0.50
$C$	Traffic signal cycle length (s)	90	90
	Stop type (on-line/off-line)	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side
	Bus stop distance to upstream signal (ft)		
$v$	Curb lane traffic volume (veh/h)	400	170
$v_{rt}$	Right-turning volume (veh/h)	0	170
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	1258
	Arrival type (random/typical/platooned)	Random	Random
$N_{la}$	Number of physical loading areas	1	2
	Loading area design (linear/non-linear)	Linear	Linear
	Bus lane type	2	2
<b>Calculations</b>			
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	599	847
$d_{re,1}$	Case 1 re-entry delay (s)	5.7	18.1
$d_{qs}$	Case 2 queue service delay (s)	16.8	5.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	845	961
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.0	0.5
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	17.8	5.7
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	3.9	0.7
$d_{re,3}$	Case 3 re-entry delay (s)	3.9	0.7
$t_c$	Clearance time (s)	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	22.5
$B_l$	Loading area design capacity (bus/h)	154	36
$N_{el}$	Number of effective loading areas	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.7
$c_{th}$	Through movement capacity (veh/h)	695	813
$c_{rt}$	Right turn capacity (veh/h)	620	269
$c_{cl}$	Curb lane capacity (veh/h)	695	269
$f_{tb}$	Traffic blockage adjustment factor	0.71	0.56
<b>Output</b>			
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>109</b>	<b>34</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>34</b>	

Southbound/Westbound Stops (Outbound)		11th <sup>1</sup>	Mission	Howard
		1	2	3
<b>Inputs</b>				
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	28	0	0
$g/C$	Green time ratio	0.40	0.28	0.43
$C$	Traffic signal cycle length (s)	90	90	90
	Stop type (on-line/off-line)	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)			
$v$	Curb lane traffic volume (veh/h)	40	210	110
$v_{rt}$	Right-turning volume (veh/h)	0	0	30
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	135
	Arrival type (random/typical/platooned)	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	3	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear
	Bus lane type	1	1	2
<b>Calculations</b>				
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	1028	797	926
$d_{re,1}$	Case 1 re-entry delay (s)	91.4	14.1	29.7
$d_{qs}$	Case 2 queue service delay (s)	1.4	9.6	3.7
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1065	999	1017
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.3	0.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	1.4	9.9	4.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.1	1.3	0.4
$d_{re,3}$	Case 3 re-entry delay (s)	0.1	1.3	0.4
$t_c$	Clearance time (s)	10.1	10.0	10.0
$t_{om}$	Operating margin (s)	17.6	0.0	0.0
$B_l$	Loading area capacity (bus/h)	37	101	154
$N_{el}$	Number of effective loading areas	1.85	2.45	1
$f_l$	Bus stop location factor	0.8	0.8	0.5
$c_{th}$	Through movement capacity (veh/h)	650	458	695
$c_{rt}$	Right turn capacity (veh/h)	580	409	578
$c_{cl}$	Curb lane capacity (veh/h)	650	458	663
$f_{tb}$	Traffic blockage adjustment factor	0.95	0.63	0.92
<b>Output</b>				
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>65</b>	<b>157</b>	<b>141</b>
		77	157	
$B$	<b>Bus facility capacity (bus/h)</b>	<b>65</b>	<b>77</b>	



<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	12.5	12.5
	Average stop spacing (stops/mi)	5	4
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	18.1	9.4
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1175.8	940.6
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	4104.2	4339.4
$t_{rs}$	Time spent at running speed per mile (s/mi)	139.6	147.6
$t_u$	Unimpeded bus running time (min/mi)	5.17	4.15
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	8.17	7.15
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.30	0.19
$f_{bb}$	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
$s_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.3</b>	<b>8.4</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.20	0.25
Corridor Travel Time (decimal)	1.633145819	1.78848233
Corridor Travel Time (minutes/sec)	01:38	01:47

Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		13th	S Van Ness	11th	9th	8th	7th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		4	2	9	4	7	4
Average alighting volume per bus		4	1	20	5	13	5
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	1	1	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.4	0.2	0.9	0.4	0.7	0.4
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.6	0.9	4.0	1.6	3.2	1.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.6	0.9	4.0	1.6	3.2	1.6
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.0	0.4	10.9	3.0	6.9	3.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.0	0.4	10.9	3.0	6.9	3.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.6	0.3	8.9	2.4	5.7	2.4
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30	3.30	3.30	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00	0.00	0.00	0.00	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	5.4	2.3	48.7	13.7	31.5	13.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	13.6	1.6	45.6	12.4	29.0	12.4
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	12.1	1.3	37.3	10.2	23.8	10.2
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	14	2	49	14	32	14
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	0.0	0.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	18	6	55	18	36	20

<b>Southbound/Westbound Stops (Outbound)</b>		7th	8th	9th	11th	12th	Otis
<b>Inputs</b>		1	2	3	4	5	6
Average boarding volume per bus		7	18	5	22	4	4
Average alighting volume per bus		4	9	4	9	2	4
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		3	3	3	3	3	3
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	3	2	2
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.7	1.9	0.6	2.2	0.4	0.4
P <sub>b,2</sub>	Boarding passengers through door channel 2	3.2	8.0	2.4	9.7	1.6	1.6
P <sub>b,3</sub>	Boarding passengers through door channel 3	3.2	8.0	2.4	9.7	1.6	1.6
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	1.0	4.9	2.0	4.9	1.0	2.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	2.0	4.9	2.0	4.9	1.0	2.0
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.6	4.0	1.6	4.0	0.8	1.6
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90	3.90	3.90	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60	0.60	0.60	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	7.7	31.0	11.7	32.4	6.2	10.9
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	11.4	28.5	10.9	29.5	5.7	10.4
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	9.7	24.2	9.2	25.2	4.8	8.7
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	11	31	12	32	6	11
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	4.0	2.0	2.0
<b>Output</b>							
t <sub>d</sub>	Average dwell time (s)	15	35	18	40	12	17

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
<b>Inputs</b>		1	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	18	10	33	12	22	14
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	Off-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	193.3	57	87	60	260	66
$v_{rt}$	Right-turning volume (veh/h)	0	80	60	0	210	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	817	1002	958	998	740	989
$d_{re,1}$	Case 1 re-entry delay (s)	15.4	61.0	39.1	57.7	10.6	52.9
$d_{qs}$	Case 2 queue service delay (s)	9.7	3.9	3.4	2.3	10.1	2.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1030	1071	1044	1060	930	1049
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.2	0.1	0.6	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	9.9	4.0	3.5	2.4	10.7	2.4
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.2	0.2	0.3	0.2	1.6	0.2
$d_{re,3}$	Case 3 re-entry delay (s)	1.2	0.2	0.3	0.2	1.6	0.2
$t_c$	Clearance time (s)	10.0	10.2	13.5	10.2	11.6	10.2
$t_{om}$	Operating margin (s)	10.9	6.2	20.5	7.5	13.7	8.7
$B_l$	Loading area design capacity (bus/h)	29	42	27	54	43	59
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.85
$f_l$	Bus stop location factor	0.5	0.5	0.7	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	264	470	524	608	650
$f_{tb}$	Traffic blockage adjustment factor	0.70	0.89	0.87	0.94	0.79	0.95
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>20</b>	<b>37</b>	<b>43</b>	<b>50</b>	<b>33</b>	<b>103</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>20</b>					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	2	3	4	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	15	35	18	40	12	17
$g/C$	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
$C$	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	On-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	162	77	58	58	64	54
$v_{rt}$	Right-turning volume (veh/h)	100	0	0	0	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	857	973	1001	1001	992	1007
$d_{re,1}$	Case 1 re-entry delay (s)	19.1	44.1	61.0	62.1	54.8	65.9
$d_{qs}$	Case 2 queue service delay (s)	6.0	2.6	2.3	2.2	4.4	2.5
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	991	1041	1061	1059	1067	1074
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.2	0.1	0.1	0.1	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	6.3	2.8	2.4	2.3	4.5	2.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.7	0.2	0.2	0.2	0.2	0.1
$d_{re,3}$	Case 3 re-entry delay (s)	0.7	0.2	0.2	0.2	0.2	0.1
$t_c$	Clearance time (s)	10.0	10.0	10.0	10.0	10.0	10.0
$t_{om}$	Operating margin (s)	9.6	21.8	11.0	25.2	7.6	10.5
$B_l$	Loading area capacity (bus/h)	56	32	43	25	41	30
$N_{el}$	Number of effective loading areas	1	1	1.75	2.45	1.75	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	650	668	524	551	374	325
$c_{rt}$	Right turn capacity (veh/h)	501	596	467	491	334	290
$c_{cl}$	Curb lane capacity (veh/h)	558	668	524	551	374	325
$f_{tb}$	Traffic blockage adjustment factor	0.85	0.94	0.94	0.95	0.91	0.92
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>47</b>	<b>30</b>	<b>71</b>	<b>57</b>	<b>64</b>	<b>48</b>
		54	36	83	70	74	57
$B$	<b>Bus facility capacity (bus/h)</b>	<b>30</b>	36	54	54	54	36

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	8	8
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	18.1	22.9
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1763.7	1881.3
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3516.3	3398.7
$t_{rs}$	Time spent at running speed per mile (s/mi)	119.6	115.6
$t_u$	Unimpeded bus running time (min/mi)	6.26	7.12
$t_l$	Base bus running time losses (min/mi)	1.40	1.40
$t_r$	Base bus running time rate (min/mi)	7.66	8.52
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.48	0.53
$f_{bb}$	Bus-bus interference factor	1.00	0.96
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>7.8</b>	<b>6.8</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Corridor Travel Time (decimal)	6.124542978	6.643775799
Corridor Travel Time (minutes/sec)	06:07	06:39

<b>Step 0: Calculate Average Dwell Time (Optional)</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Northbound/Eastbound Stops (Inbound)</b>		11th	8th
<b>Inputs</b>		1	2
Average boarding volume per bus		4	7
Average alighting volume per bus		11	13
Boarding door(s)		All	All
Fare payment method		Smart card	Smart card
Boarding height		Level	Level
Standeers present?		No	No
Number of doors		3	3
Available door channels		3	3
Percent of boarders using farebox		10%	10%
Door opening and closing time		4	4
Number of loading areas		2	1
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.4	0.7
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.6	3.2
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.6	3.2
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	3.0	6.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	5.9	6.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	4.8	5.7
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.30	3.30
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	3.30	0.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.30	0.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.20	4.20
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	13.7	31.5
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	30.2	29.0
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	25.7	23.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	30	32
t <sub>bl</sub>	Boarding lost time (s)	2.0	0.0
<b>Output</b>			
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>36</b>	<b>36</b>

Southbound/Westbound Stops (Outbound)		8th	11th
		1	2
<b>Inputs</b>			
	Average boarding volume per bus	14	22
	Average alighting volume per bus	7	9
	Boarding door(s)	All	All
	Fare payment method	Smart card	Smart card
	Boarding height	Level	Level
	Standeers present?	Yes	Yes
	Number of doors	3	3
	Available door channels	3	3
	Percent of boarders using farebox	10%	10%
	Door closing time	4	4
	Number of loading areas	1	3
<b>Calculations</b>			
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.5	2.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	6.4	9.7
P <sub>b,3</sub>	Boarding passengers through door channel 3	6.4	9.7
P <sub>b,4</sub>	Boarding passengers through door channel 4		
P <sub>b,5</sub>	Boarding passengers through door channel 5		
P <sub>b,6</sub>	Boarding passengers through door channel 6		
P <sub>a,1</sub>	Alighting passengers through door channel 1	2.0	4.9
P <sub>a,2</sub>	Alighting passengers through door channel 2	4.0	4.9
P <sub>a,3</sub>	Alighting passengers through door channel 3	3.2	4.0
P <sub>a,4</sub>	Alighting passengers through door channel 4		
P <sub>a,5</sub>	Alighting passengers through door channel 5		
P <sub>a,6</sub>	Alighting passengers through door channel 6		
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.90	3.90
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	0.60	0.60
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	0.60	0.60
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)		
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.80	4.80
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.80	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)		
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	15.3	32.4
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	22.8	29.5
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	19.4	25.2
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)		
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)		
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)		
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	23	32
t <sub>bl</sub>	Boarding lost time (s)	0.0	4.0
<b>Output</b>			
t <sub>d</sub>	Average dwell time (s)	27	40



<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		13th	S Van Ness	11th <sup>1</sup>	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>
<b>Inputs</b>		1	2	1	4	2	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	0	36	0	36	0
$g/C$	Green time ratio	0.20	0.22	0.34	0.32	0.41	0.40
$C$	Traffic signal cycle length (s)	90	139	90	90	90	90
	Stop type (on-line/off-line)	On-line	On-line	Off-line	On-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	193.3	57	87	60	260	66
$v_{rt}$	Right-turning volume (veh/h)	0	80	60	0	210	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	171	235	0	7	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	1	1	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	817	1002	958	998	740	989
$d_{re,1}$	Case 1 re-entry delay (s)	15.4	61.0	39.1	57.7	10.6	52.9
$d_{qs}$	Case 2 queue service delay (s)	9.7	3.9	3.4	2.3	10.1	2.3
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1030	1071	1044	1060	930	1049
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.2	0.1	0.2	0.1	0.6	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	9.9	4.0	3.5	2.4	10.7	2.4
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	1.2	0.2	0.3	0.2	1.6	0.2
$d_{re,3}$	Case 3 re-entry delay (s)	1.2	0.2	0.3	0.2	1.6	0.2
$t_c$	Clearance time (s)	10.0	10.0	10.3	10.0	11.6	10.0
$t_{om}$	Operating margin (s)	0.0	0.0	22.5	0.0	22.1	0.0
$B_l$	Loading area design capacity (bus/h)	72	79	27	116	31	144
$N_{el}$	Number of effective loading areas	1.00	1.00	1.85	1.00	1.00	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	325	357	551	524	668	650
$c_{rt}$	Right turn capacity (veh/h)	290	291	434	467	594	580
$c_{cl}$	Curb lane capacity (veh/h)	325	264	470	524	608	650
$f_{tb}$	Traffic blockage adjustment factor	0.70	0.89	0.91	0.94	0.79	0.95
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>50</b>	<b>70</b>	<b>45</b>	<b>109</b>	<b>24</b>	<b>239</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>24</b>					

Southbound/Westbound Stops (Outbound)		7th <sup>2</sup>	8th <sup>2</sup>	9th <sup>2</sup>	11th <sup>2</sup>	12th <sup>2</sup>	Otis <sup>2</sup>
		1	1	3	2	5	6
<b>Inputs</b>							
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	0	27	0	40	0	0
$g/C$	Green time ratio	0.40	0.41	0.32	0.34	0.23	0.20
$C$	Traffic signal cycle length (s)	90	90	90	90	139	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	Off-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Far-side	Far-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)						
$v$	Curb lane traffic volume (veh/h)	162	77	58	58	64	54
$v_{rt}$	Right-turning volume (veh/h)	100	0	0	0	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	272	0	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	1	2	3	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2	2
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	857	973	1001	1001	992	1007
$d_{re,1}$	Case 1 re-entry delay (s)	19.1	44.1	61.0	62.1	54.8	65.9
$d_{qs}$	Case 2 queue service delay (s)	6.0	2.6	2.3	2.2	4.4	2.5
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	991	1041	1061	1059	1067	1074
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.3	0.2	0.1	0.1	0.1	0.1
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	6.3	2.8	2.4	2.3	4.5	2.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.7	0.2	0.2	0.2	0.2	0.1
$d_{re,3}$	Case 3 re-entry delay (s)	0.7	0.2	0.2	0.2	0.2	0.1
$t_c$	Clearance time (s)	10.0	10.2	10.0	10.2	10.0	10.0
$t_{om}$	Operating margin (s)	0.0	16.7	0.0	25.2	0.0	0.0
$B_l$	Loading area capacity (bus/h)	144	39	116	25	83	72
$N_{el}$	Number of effective loading areas	1	1	1.75	2	1.75	1.75
$f_l$	Bus stop location factor	0.5	0.5	0.5	0.5	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	650	668	524	551	374	325
$c_{rt}$	Right turn capacity (veh/h)	501	596	467	491	334	290
$c_{cl}$	Curb lane capacity (veh/h)	558	668	524	551	374	325
$f_{tb}$	Traffic blockage adjustment factor	0.85	0.94	0.94	0.95	0.91	0.92
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>123</b>	<b>36</b>	<b>191</b>	<b>47</b>	<b>132</b>	<b>115</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>36</b>					

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	11.5	19
	Average stop spacing (stops/mi)	3	3
	Running way type	Bus lane w/right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	12.0	11.2
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	587.9	627.1
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	4692.1	4652.9
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	159.6	158.3
t <sub>u</sub>	Unimpeded bus running time (min/mi)	3.82	3.85
t <sub>l</sub>	Base bus running time losses (min/mi)	1.40	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	5.22	5.25
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.41	0.44
f <sub>bb</sub>	Bus-bus interference factor	1.00	1.00
<b>Outputs</b>			
s <sub>t</sub>	<b>Average Travel Speed (mi/h)</b>	<b>11.5</b>	<b>11.4</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.80	0.75
Scenario 4 Corridor Travel Time (decimal)	4.179563479	3.935274326
Scenario 4 Corridor Travel Time (minutes/sec)	04:11	03:56

<b>Step 0: Calculate Average Dwell Time (Optional)</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
Average boarding volume per bus		6	6	6	6	6
Average alighting volume per bus		1	2	9	6	2
Boarding door(s)		All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level
Standeers present?		No	No	No	No	No
Number of doors		2	2	2	2	2
Available door channels		3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4
Number of loading areas		1	2	2	1	1
<b>Calculations</b>						
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.6	0.6	0.6	0.6	0.6
P <sub>b,2</sub>	Boarding passengers through door channel 2	2.7	2.7	2.7	2.7	2.7
P <sub>b,3</sub>	Boarding passengers through door channel 3	2.7	2.7	2.7	2.7	2.7
P <sub>b,4</sub>	Boarding passengers through door channel 4					
P <sub>b,5</sub>	Boarding passengers through door channel 5					
P <sub>b,6</sub>	Boarding passengers through door channel 6					
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.2	0.5	2.1	1.4	0.5
P <sub>a,3</sub>	Alighting passengers through door channel 3	0.6	1.6	6.4	4.3	1.6
P <sub>a,4</sub>	Alighting passengers through door channel 4					
P <sub>a,5</sub>	Alighting passengers through door channel 5					
P <sub>a,6</sub>	Alighting passengers through door channel 6					
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.00	2.00	2.40	2.40	2.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.00	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)					
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	3.50	3.50	4.20	4.20	3.50
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	3.50	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)					
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	1.7	1.7	1.7	1.7	1.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	6.1	7.2	15.4	12.5	7.3
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	7.4	13.2	33.4	24.7	13.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)					
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)					
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)					
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	7	13	33	25	13
t <sub>bl</sub>	Boarding lost time (s)	0.0	2.0	2.0	0.0	0.0
<b>Output</b>						
t <sub>d</sub>	<b>Average dwell time (s)</b>	<b>11</b>	<b>19</b>	<b>39</b>	<b>29</b>	<b>17</b>

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
Average boarding volume per bus		2	2	8	2
Average alighting volume per bus		2	6	2	2
Boarding door(s)		All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level
Standeers present?		No	No	No	No
Number of doors		2	2	2	2
Available door channels		3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%
Door closing time		4	4	4	4
Number of loading areas		2	2	1	1
<b>Calculations</b>					
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.2	0.9	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	1.1	1.1	3.8	1.1
P <sub>b,3</sub>	Boarding passengers through door channel 3	1.1	1.1	3.8	1.1
P <sub>b,4</sub>	Boarding passengers through door channel 4				
P <sub>b,5</sub>	Boarding passengers through door channel 5				
P <sub>b,6</sub>	Boarding passengers through door channel 6				
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.6	1.5	0.6	0.6
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.8	4.5	1.8	1.8
P <sub>a,4</sub>	Alighting passengers through door channel 4				
P <sub>a,5</sub>	Alighting passengers through door channel 5				
P <sub>a,6</sub>	Alighting passengers through door channel 6				
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.00	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)				
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	3.50	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)				
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.7	0.7	2.4	0.7
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	5.1	8.9	9.6	5.1
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	10.1	21.4	16.6	10.1
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)				
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)				
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)				
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	10	21	17	10
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	0.0	0.0
<b>Output</b>					
t <sub>d</sub>	Average dwell time (s)	16	27	21	14

<b>Step 1: Capacity Calculations</b>						
Highlight indicates that input may have changed from existing conditions						
<b>Northbound/Eastbound Stops (Inbound)</b>		Mission/7th	Market/7th	Market/Hyde	Larkin/Grove	Larkin/McAllister
<b>Inputs</b>		1	2	3	4	5
$C_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	11	19	39	29	17
$g/C$	Green time ratio	0.38	0.45	0.29	0.39	0.39
$C$	Traffic signal cycle length (s)	90	90	90	75	75
	Stop type (on-line/off-line)	Off-line	On-line	On-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Far-side	Near-side	Near-side	Far-side	Near-side
	Bus stop distance to upstream signal (ft)					
$v$	Curb lane traffic volume (veh/h)	317.5	20	25	490	540
$v_{rt}$	Right-turning volume (veh/h)	0	0	0	0	60
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	0	361
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	1	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2	2
<b>Calculations</b>						
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04
$C_{re,1}$	Case 1 re-entry movement capacity (veh/h)	678	1059	1051	522	484
$d_{re,1}$	Case 1 re-entry delay (s)	8.1	196.5	153.1	4.1	3.4
$d_{qs}$	Case 2 queue service delay (s)	13.5	0.6	1.0	19.9	22.8
$C_{re,2}$	Case 2 re-entry movement capacity (veh/h)	911	1076	1079	822	797
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.7	0.1	0.0	1.1	1.2
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	14.2	0.7	1.0	20.9	24.0
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	2.6	0.1	0.1	6.1	7.8
$d_{re,3}$	Case 3 re-entry delay (s)	2.6	0.1	0.1	6.1	7.8
$t_c$	Clearance time (s)	12.6	10.0	10.0	16.1	34.0
$t_{om}$	Operating margin (s)	7.1	12.0	24.5	17.8	10.8
$B_l$	Loading area design capacity (bus/h)	57	53	23	31	27
$N_{el}$	Number of effective loading areas	1.00	1.75	1.75	1.00	1.00
$f_l$	Bus stop location factor	0.5	0.7	0.7	0.5	0.7
$C_{th}$	Through movement capacity (veh/h)	618	731	469	628	634
$C_{rt}$	Right turn capacity (veh/h)	551	653	419	561	463
$C_{cl}$	Curb lane capacity (veh/h)	618	731	469	628	615
$f_{tb}$	Traffic blockage adjustment factor	0.74	0.98	0.96	0.61	0.39
<b>Output</b>						
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>42</b>	<b>90</b>	<b>38</b>	<b>18</b>	<b>10</b>
$B$	<b>Bus facility capacity (bus/h)</b>	<b>10</b>				

Southbound/Westbound Stops (Outbound)		Hyde/McAllister	Hyde/Grove	Market/8th	Mission/8th
		1	2	3	4
<b>Inputs</b>					
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	16	27	21	14
$g/C$	Green time ratio	0.44	0.48	0.48	0.37
$C$	Traffic signal cycle length (s)	75	90	90	90
	Stop type (on-line/off-line)	Off-line	Off-line	Off-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Influenced	Far-side	Far-side
	Bus stop distance to upstream signal (ft)		170		
$v$	Curb lane traffic volume (veh/h)	627	667	667	480
$v_{rt}$	Right-turning volume (veh/h)	130	200	200	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	392	303	303	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	1	1
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	2
<b>Calculations</b>					
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	424	399	399	530
$d_{re,1}$	Case 1 re-entry delay (s)	2.5	2.1	2.1	4.2
$d_{qs}$	Case 2 queue service delay (s)	26.4	32.7	32.7	23.8
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	722	677	677	837
$d_{gt}$	Case 2 gap-in-traffic delay (s)	1.7	2.0	2.0	1.0
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	28.1	34.7	34.7	24.8
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	10.4	13.2	13.2	7.0
$d_{re,3}$	Case 3 re-entry delay (s)	10.4	11.7	13.2	7.0
$t_c$	Clearance time (s)	38.1	21.7	23.2	10.0
$t_{om}$	Operating margin (s)	10.0	17.1	12.8	8.8
$B_l$	Loading area capacity (bus/h)	29	33	38	55
$N_{el}$	Number of effective loading areas	1.85	1.85	1	1
$f_l$	Bus stop location factor	0.7	0.7	0.5	0.5
$c_{th}$	Through movement capacity (veh/h)	715	776	776	601
$c_{rt}$	Right turn capacity (veh/h)	513	588	588	537
$c_{cl}$	Curb lane capacity (veh/h)	673	720	720	601
$f_{tb}$	Traffic blockage adjustment factor	0.35	0.35	0.54	0.60
<b>Output</b>					
$B_s$	Bus stop capacity (bus/h)	18	21	20	33
		19	24	22	38
$B$	Bus facility capacity (bus/h)	18	19	19	19

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			Outbound
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	6	6
	Average stop spacing (stops/mi)	8	13
	Running way type	Mixed traffic	Mixed traffic
	Traffic signal pattern	Typical	Typical
$d_1$	Distance for one-block stop pattern (feet)		
$d_2$	Distance for multiple block stop pattern (feet)		
$v_{max}$	Bus running speed on facility (mi/h)	20	20
$a$	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
$d$	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
$t_{dt}$	Average dwell time (s)	23.2	19.6
$t_{acc}$	Acceleration time (s/stop)	8.6	8.6
$t_{dec}$	Deceleration time (s/stop)	7.4	7.4
$L_{ad}$	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1959.6	3135.4
$L_{rs}$	Distance traveled at running speed per mile (ft/mi)	3320.4	2144.6
$t_{rs}$	Time spent at running speed per mile (s/mi)	112.9	72.9
$t_u$	Unimpeded bus running time (min/mi)	7.33	9.12
$t_l$	Base bus running time losses (min/mi)	3.00	3.00
$t_r$	Base bus running time rate (min/mi)	10.33	12.12
$f_s$	Stop pattern adjustment factor	1.00	1.00
$v_b/B_{max}$	Bus volume to maximum capacity ratio	0.55	0.32
$f_{bb}$	Bus-bus interference factor	0.96	1.00
<b>Outputs</b>			
$S_t$	<b>Average Travel Speed (mi/h)</b>	<b>5.6</b>	<b>5.0</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.60	0.30
Scenario 4 Corridor Travel Time (decimal)	6.480206487	3.634918584
Scenario 4 Corridor Travel Time (minutes/sec)	06:29	03:38



Step 0: Calculate Average Dwell Time (Optional)							
Highlight indicates that input may have changed from existing conditions							
Northbound/Eastbound Stops (Inbound)		Gough	Van Ness	9th	8th	7th	6th
Inputs		1	2	3	4	5	6
Average boarding volume per bus		2	2	11	13	14	7
Average alighting volume per bus		2	5	9	16	14	13
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		No	No	No	No	No	No
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door opening and closing time		4	4	4	4	4	4
Number of loading areas		1	1	2	2	2	2
Calculations							
P <sub>b,1</sub>	Boarding passengers through door channel 1	0.2	0.2	1.1	1.3	1.5	0.7
P <sub>b,2</sub>	Boarding passengers through door channel 2	0.8	0.8	4.8	5.6	6.4	3.2
P <sub>b,3</sub>	Boarding passengers through door channel 3	0.8	0.8	4.8	5.6	6.4	3.2
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	0.4	1.3	2.2	4.0	3.6	3.1
P <sub>a,3</sub>	Alighting passengers through door channel 3	1.3	4.0	6.7	12.1	10.8	9.4
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	2.75	2.75	2.75	2.75	2.75	2.75
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	2.40	2.40	2.40	2.40	2.40	2.40
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	3.50	3.50	3.50	3.50	3.50	3.50
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.20	4.20	4.20	4.20	4.20	4.20
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	0.5	0.5	3.1	3.6	4.1	2.1
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	3.8	7.6	21.0	30.5	30.5	20.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	7.6	18.9	39.9	64.4	60.7	47.3
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	8	19	40	64	61	47
t <sub>bl</sub>	Boarding lost time (s)	0.0	0.0	2.0	2.0	2.0	2.0
Output							
t <sub>d</sub>	Average dwell time (s)	12	23	46	70	67	53

Southbound/Westbound Stops (Outbound)		6th	7th	8th	Hayes/Larkin	Van Ness	Gough
		1	2	3	4	5	6
<b>Inputs</b>							
Average boarding volume per bus		13	13	9	5	4	2
Average alighting volume per bus		7	9	4	2	2	5
Boarding door(s)		All	All	All	All	All	All
Fare payment method		Smart card	Smart card	Smart card	Smart card	Smart card	Smart card
Boarding height		Level	Level	Level	Level	Level	Level
Standees present?		Yes	Yes	Yes	Yes	Yes	Yes
Number of doors		2	2	2	2	2	2
Available door channels		3	3	3	3	3	3
Percent of boarders using farebox		10%	10%	10%	10%	10%	10%
Door closing time		4	4	4	4	4	4
Number of loading areas		2	2	2	2	2	2
<b>Calculations</b>							
P <sub>b,1</sub>	Boarding passengers through door channel 1	1.3	1.3	0.9	0.6	0.4	0.2
P <sub>b,2</sub>	Boarding passengers through door channel 2	5.6	5.6	4.0	2.4	1.6	0.8
P <sub>b,3</sub>	Boarding passengers through door channel 3	5.6	5.6	4.0	2.4	1.6	0.8
P <sub>b,4</sub>	Boarding passengers through door channel 4						
P <sub>b,5</sub>	Boarding passengers through door channel 5						
P <sub>b,6</sub>	Boarding passengers through door channel 6						
P <sub>a,1</sub>	Alighting passengers through door channel 1	0.0	0.0	0.0	0.0	0.0	0.0
P <sub>a,2</sub>	Alighting passengers through door channel 2	1.8	2.2	0.9	0.4	0.4	1.3
P <sub>a,3</sub>	Alighting passengers through door channel 3	5.4	6.7	2.7	1.3	1.3	4.0
P <sub>a,4</sub>	Alighting passengers through door channel 4						
P <sub>a,5</sub>	Alighting passengers through door channel 5						
P <sub>a,6</sub>	Alighting passengers through door channel 6						
t <sub>b,1</sub>	Average boarding service time for door channel 1 (s)	3.25	3.25	3.25	3.25	3.25	3.25
t <sub>b,2</sub>	Average boarding service time for door channel 2 (s)	2.50	3.00	2.50	2.50	2.50	3.00
t <sub>b,3</sub>	Average boarding service time for door channel 3 (s)	3.00	3.00	3.00	3.00	3.00	3.00
t <sub>b,4-6</sub>	Average boarding service time for door channels 4-6 (s)						
t <sub>a,1</sub>	Average alighting service time for door channel 1 (s)	4.00	4.00	4.00	4.00	4.00	4.00
t <sub>a,2</sub>	Average alighting service time for door channel 2 (s)	4.00	4.80	4.00	4.00	4.00	4.80
t <sub>a,3</sub>	Average alighting service time for door channel 3 (s)	4.80	4.80	4.80	4.80	4.80	4.80
t <sub>a,4-6</sub>	Average alighting service time for door channels 4-6 (s)						
t <sub>pf,1</sub>	Passenger flow time for door channel 1 (s)	4.2	4.2	3.0	1.8	1.2	0.6
t <sub>pf,2</sub>	Passenger flow time for door channel 2 (s)	21.3	27.7	13.6	7.8	5.8	8.9
t <sub>pf,3</sub>	Passenger flow time for door channel 3 (s)	42.8	49.2	25.0	13.7	11.3	21.8
t <sub>pf,4</sub>	Passenger flow time for door channel 4 (s)						
t <sub>pf,5</sub>	Passenger flow time for door channel 5 (s)						
t <sub>pf,6</sub>	Passenger flow time for door channel 6 (s)						
t <sub>pf,max</sub>	Maximum passenger flow time of all door channels (s)	43	49	25	14	11	22
t <sub>bl</sub>	Boarding lost time (s)	2.0	2.0	2.0	2.0	2.0	2.0
<b>Output</b>							
t <sub>d</sub>	Average dwell time (s)	49	55	31	20	17	28

<b>Step 1: Capacity Calculations</b>							
Highlight indicates that input may have changed from existing conditions							
<b>Northbound/Eastbound Stops (Inbound)</b>		Gough	Van Ness	9th <sup>1</sup>	8th <sup>1</sup>	7th <sup>1</sup>	6th <sup>1</sup>
<b>Inputs</b>		1	2	3	4	5	6
c <sub>v</sub>	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	25.0%	15.0%	15.0%
t <sub>d</sub>	Average dwell time (s) (see Step 0 to calculate, or use default)	12	23	46	70	67	53
g/C	Green time ratio	0.21	0.23	0.32	0.29	0.33	0.32
C	Traffic signal cycle length (s)	75	75	90	90	90	90
	Stop type (on-line/off-line)	On-line	Off-line	On-line	On-line	On-line	On-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Stop location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Near-side	Far-side	Near-side	Near-side	Near-side	Near-side
	Bus stop distance to upstream signal (ft)						
v	Curb lane traffic volume (veh/h)	290	295	25	30	25	15
v <sub>rt</sub>	Right-turning volume (veh/h)	150	130	0	0	0	0
v <sub>ped</sub>	Conflicting pedestrian volume (ped/h)	40	70	0	0	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
N <sub>la</sub>	Number of physical loading areas	1	1	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	1	2	2	2	2	2
<b>Calculations</b>							
Z	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	0.67	1.04	1.04
c <sub>re,1</sub>	Case 1 re-entry movement capacity (veh/h)	707	702	1051	1043	1051	1067
d <sub>re,1</sub>	Case 1 re-entry delay (s)	9.2	8.9	153.1	125.2	153.1	272.8
d <sub>qs</sub>	Case 2 queue service delay (s)	12.8	12.8	1.0	1.2	0.9	0.6
c <sub>re,2</sub>	Case 2 re-entry movement capacity (veh/h)	995	985	1078	1077	1078	1083
d <sub>gt</sub>	Case 2 gap-in-traffic delay (s)	0.3	0.4	0.0	0.0	0.0	0.0
d <sub>re,2ns</sub>	Case 2 re-entry delay for near-side stops (s)	13.1	13.1	1.0	1.3	1.0	0.6
d <sub>re,2fs</sub>	Case 2 re-entry delay for far-side stops (s)	2.5	2.5	0.1	0.1	0.1	0.0
d <sub>re,3</sub>	Case 3 re-entry delay (s)	2.5	2.5	0.1	0.1	0.1	0.0
t <sub>c</sub>	Clearance time (s)	10.0	12.5	10.0	10.0	10.0	10.0
t <sub>om</sub>	Operating margin (s)	7.2	14.2	28.5	28.5	41.5	33.2
B <sub>l</sub>	Loading area design capacity (bus/h)	39	26	22	18	16	19
N <sub>el</sub>	Number of effective loading areas	1.00	1.00	1.75	1.75	1.75	1.75
f <sub>l</sub>	Bus stop location factor	0.9	0.5	0.7	0.7	0.7	0.7
c <sub>th</sub>	Through movement capacity (veh/h)	347	379	524	469	531	524
c <sub>rt</sub>	Right turn capacity (veh/h)	303	326	467	419	474	467
c <sub>cl</sub>	Curb lane capacity (veh/h)	324	356	524	469	531	524
f <sub>tb</sub>	Traffic blockage adjustment factor	0.19	0.59	0.97	0.96	0.97	0.98
<b>Output</b>							
<b>B<sub>s</sub></b>	<b>Bus stop capacity (bus/h)</b>	<b>7</b>	<b>15</b>	<b>36</b>	<b>29</b>	<b>27</b>	<b>32</b>
	Bus stop maximum capacity (bus/h)	8	18	45	29	33	40
<b>B</b>	<b>Bus facility capacity (bus/h)</b>	<b>7</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>18</b>

<b>Southbound/Westbound Stops (Outbound)</b>		6th	7th	8th	Hayes/Larkii Van Ness	Gough	
<b>Inputs</b>		0	2	3	4	5	6
$c_v$	Coefficient of variation of dwell times	0.60	0.60	0.60	0.60	0.60	0.60
	Failure rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
$t_d$	Average dwell time (s) (see Step 0 to calculate, or use default)	49	55	31	20	17	28
$g/C$	Green time ratio	0.32	0.33	0.29	0.33	0.25	0.29
$C$	Traffic signal cycle length (s)	90	90	90	90	75	75
	Stop type (on-line/off-line)	On-line	On-line	On-line	Off-line	Off-line	Off-line
	Area type (metro CBD, metro non-CBD, other CBD, other non-CBD)	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD	Metro CBD
	Location (near-side at signal, far-side at signal, influenced by signal, not influenced by signal)	Influenced	Near-side	Near-side	Far-side	Far-side	Far-side
	Bus stop distance to upstream signal (ft)	218					
$v$	Curb lane traffic volume (veh/h)	50	70	25	70	495	466
$v_{rt}$	Right-turning volume (veh/h)	10	30	0	30	0	0
$v_{ped}$	Conflicting pedestrian volume (ped/h)	0	0	0	331	0	0
	Arrival type (random/typical/platooned)	Random	Random	Random	Random	Random	Random
$N_{la}$	Number of physical loading areas	2	2	2	2	2	2
	Loading area design (linear/non-linear)	Linear	Linear	Linear	Linear	Linear	Linear
	Bus lane type	2	2	2	1	2	1
<b>Calculations</b>							
$Z$	Standard normal variable corresponding to failure rate	1.04	1.04	1.04	1.04	1.04	1.04
$c_{re,1}$	Case 1 re-entry movement capacity (veh/h)	1013	983	1051	983	518	542
$d_{re,1}$	Case 1 re-entry delay (s)	71.7	49.6	153.1	49.6	4.0	4.5
$d_{qs}$	Case 2 queue service delay (s)	1.9	2.7	1.0	2.7	18.5	21.5
$c_{re,2}$	Case 2 re-entry movement capacity (veh/h)	1065	1054	1079	1054	909	894
$d_{gt}$	Case 2 gap-in-traffic delay (s)	0.1	0.1	0.0	0.1	0.7	0.7
$d_{re,2ns}$	Case 2 re-entry delay for near-side stops (s)	2.0	2.8	1.0	2.8	18.5	21.5
$d_{re,2fs}$	Case 2 re-entry delay for far-side stops (s)	0.1	0.2	0.1	0.2	5.1	6.7
$d_{re,3}$	Case 3 re-entry delay (s)	11.9	0.2	0.1	0.2	5.1	6.7
$t_c$	Clearance time (s)	10.0	10.0	10.0	10.2	15.1	16.7
$t_{om}$	Operating margin (s)	30.3	34.3	19.3	12.3	10.8	17.3
$B_l$	Loading area capacity (bus/h)	21	19	27	41	30	25
$N_{el}$	Number of effective loading areas	1.75	1.75	1.75	1.85	1.85	1.85
$f_l$	Bus stop location factor	0.7	0.7	0.7	0.8	0.5	0.8
$c_{th}$	Through movement capacity (veh/h)	524	531	469	536	401	466
$c_{rt}$	Right turn capacity (veh/h)	467	474	419	399	358	416
$c_{cl}$	Curb lane capacity (veh/h)	512	506	469	478	401	466
$f_{tb}$	Traffic blockage adjustment factor	0.93	0.90	0.96	0.88	0.38	0.20
<b>Output</b>							
$B_s$	<b>Bus stop capacity (bus/h)</b>	<b>33</b>	<b>29</b>	<b>45</b>	<b>66</b>	<b>20</b>	<b>9</b>
		41	36	55	78	23	10
$B$	<b>Bus facility capacity (bus/h)</b>	<b>9</b>	10	23	41	23	10

<b>Step 3: Speed Calculations</b>			
Highlight indicates that input may have changed from existing conditions			
<b>Inputs</b>		<b>NB/EB</b>	<b>SB/WB</b>
	Skip-stop operation? (If "Yes", complete Step 2 first)	No	No
	Scheduled buses per hour	6.7	6.7
	Average stop spacing (stops/mi)	6	7
	Running way type	Bus lane, no right turns	Bus lane w/right turns
	Traffic signal pattern	Timed for buses	Timed for buses
d <sub>1</sub>	Distance for one-block stop pattern (feet)		
d <sub>2</sub>	Distance for multiple block stop pattern (feet)		
v <sub>max</sub>	Bus running speed on facility (mi/h)	20	20
a	Average bus acceleration rate to running speed (ft/s <sup>2</sup> )	3.4	3.4
d	Average bus deceleration rate from running speed (ft/s <sup>2</sup> )	4.0	4.0
<b>Calculations</b>			
t <sub>dt</sub>	Average dwell time (s)	45.1	30.2
t <sub>acc</sub>	Acceleration time (s/stop)	8.6	8.6
t <sub>dec</sub>	Deceleration time (s/stop)	7.4	7.4
L <sub>ad</sub>	Distance traveled at less than running speed (ft/stop)	235.2	235.2
	Acceleration/deceleration distance per mile (ft/mi)	1485.2	1659.9
L <sub>rs</sub>	Distance traveled at running speed per mile (ft/mi)	3794.8	3620.1
t <sub>rs</sub>	Time spent at running speed per mile (s/mi)	129.1	123.1
t <sub>u</sub>	Unimpeded bus running time (min/mi)	8.59	7.49
t <sub>l</sub>	Base bus running time losses (min/mi)	0.60	1.40
t <sub>r</sub>	Base bus running time rate (min/mi)	9.19	8.89
f <sub>s</sub>	Stop pattern adjustment factor	1.00	1.00
v <sub>b</sub> /B <sub>max</sub>	Bus volume to maximum capacity ratio	0.83	0.74
f <sub>bb</sub>	Bus-bus interference factor	0.77	0.86
<b>Outputs</b>			
<b>S<sub>t</sub></b>	<b>Average Travel Speed (mi/h)</b>	<b>5.0</b>	<b>5.8</b>

Conversion from Speed to Minutes

Corridor Length (miles)	0.95	0.85
Scenario 4 Corridor Travel Time (decimal)	11.33411731	8.811203639
Scenario 4 Corridor Travel Time (minutes/sec)	11:20	08:49

## **APPENDIX D-8**

### **PROJECT CHANGES TO ON-STREET PARKING AND LOADING**

**The Hub Plan - Street Network Changes**  
**Changes to Sidewalks, On-street Vehicle and Motorcycle Parking, Commercial Loading, and Passenger Loading**

	On-Street Vehicle, Commercial Loading, and Passenger Loading Spaces								From Project Description/Team Meeting
	Vehicle Parking		Commercial Loading		Passenger Loading		Motorcycle Spaces		
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed	
<b>1. 12th St: Market to Mission Sts</b>									
east side	10	0	1	0	0	0	0	0	PARKING REMOVED 16 DUAL LOADING SPACES
west side	24	0	2	2	2	2	0	0	
subtotal	34	0	4	2	2	2	0	0	
<b>2. Gough St: Market to Otis Sts</b>									
east side	33	33	0	0	4	4	0	0	MUNUS 5 SPACES AT BOTTOM OF GOUGH ADD 3 SPACES
Stevenson to Otis)	20	12	0	1	0	2	0	0	
subtotal	53	45	0	1	4	6	0	0	
<b>4. SVN Ave: 13th/Howard to Mission</b>									
east side	15	15	0	0	0	0	8	8	retain on-street parking retain on-street parking
west side	7	7	2	2	7	7	0	0	
subtotal	22	22	2	2	7	7	8	8	
<b>5a. Otis St: SVN Ave to Gough St</b>									
north side	9	9	3	3	0	0	10	10	NO CHANGE FROM HUB. GOES AWAY WITH TTRP.14 - Left in Remove on-street parking, widen sidewalk, & LESS 5 OR 6 SPACES leave loading zone
south side	18	12	0	0	0	0	0	0	
subtotal	27	21	3	3	0	0	10	10	
<b>5b. Otis St: Gough St to Duboce Ave</b>									
east side	21	0	0	0	0	0	0	0	REMOVE 21 SPACES NO CHANGE
west side	4	4	1	1	0	0	0	0	
subtotal	25	4	1	1	0	0	0	0	
<b>6a. Duboce: Otis/Mission to Valencia Sts</b>									
north side	4	0	1	1	0	0	0	0	remove on-street parking. MINUS 4 SPACES MINUS 6 SPACES
south side	12	6	2	2	0	0	20	20	
subtotal	16	6	3	3	0	0	20	20	
<b>6b. 13th St: Folsom to SVN Ave</b>									
north side	48	30	0	0	0	0	3	3	replace on-street parking with bicycle lane reconfigure parking
south side	16	9	2	2	0	0	0	0	
subtotal	64	39	2	2	0	0	3	3	
<b>6c. 13th St: SVN Ave to Mission/Otis Sts</b>									
north side	18	18	0	0	0	0	0	0	replace on-street parking with bicycle lane
south side	0	0	0	0	0	0	0	0	
subtotal	18	18	0	0	0	0	0	0	
<b>7. Lily St: Franklin to Gough Sts</b>									
north side	0	0	0	0	0	0	0	0	MINUS 9 SPACES
south side	19	10	0	0	0	0	0	0	
subtotal	19	10	0	0	0	0	0	0	
<b>8. Rose St: Gough to Franklin Sts</b>									
north side	8	6	0	0	2	2	5	5	include flexible loading & motorcycle parking MINUS 2 SPACES
south side	0	0	0	0	0	0	0	0	
subtotal	8	6	0	0	2	2	5	5	
<b>9a. Minna St: 10th to 11th Sts</b>									
north side	0	0	0	0	0	0	0	0	NO CHANGE
south side	5	5	0	0	0	0	0	0	
subtotal	5	5	0	0	0	0	0	0	
<b>9b. Minna St: 11th to Lafayette Sts</b>									
north side	0	0	0	0	0	0	0	0	NO CHANGE
south side	16	16	0	0	0	0	0	0	
subtotal	16	16	0	0	0	0	0	0	
<b>10. Lafayette St: Mission to Howard Sts</b>									
east side	0	0	0	0	0	0	0	0	MINUS 4 SPACES
west side	21	17	0	0	0	0	0	0	
subtotal	21	17	0	0	0	0	0	0	
<b>11. Stevenson St: Brady to Gough Sts</b>									
north side	0	0	0	0	0	0	0	0	remove parking to convert to two-way REMOVE ALL PARKING
south side	6	0	0	0	4	0	0	0	
subtotal	6	0	0	0	4	0	0	0	
<b>12. Stevenson St: Gough St to dead end</b>									
north side	0	0	0	0	0	0	0	0	accommodate loading? How? NO CHANGE
south side	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	
<b>13. Colusa Pl: Colton St to Chase Ct</b>									
east side	0	0	0	0	0	0	0	0	remove on-street parking There is no on-street parking NO CHANGE
west side	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	
<b>14. Chase Ct: Colusa Place to dead end</b>									
north side	4	0	0	0	0	0	0	0	remove on-street parking, minus 4 spaces
south side	0	0	0	0	0	0	0	0	
subtotal	4	0	0	0	0	0	0	0	
<b>15. Colton Pl: Brady to Gough Sts</b>									
north side	0	0	0	0	0	0	0	0	NO CHANGE
south side	0	0	0	0	0	0	0	0	
subtotal	0	0	0	0	0	0	0	0	

**The Hub Plan - Street Network Changes**  
**Changes to Sidewalks, On-street Vehicle and Motorcycle Parking, Commercial Loading, and Passenger Loading**

	On-Street Vehicle, Commercial Loading, and Passenger Loading Spaces								From Project Description/Team Meeting
	Vehicle Parking		Commercial Loading		Passenger Loading		Motorcycle Spaces		
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed	
<b>16. Brady St: Colton to Otis Sts</b>									
east side	0	0	0	0	0	0	0	0	NO CHANGE
west side	11	11	0	0	0	0	0	0	
subtotal	11	11	0	0	0	0	0	0	
<b>17. Plum St: SVN Ave to Mission St</b>									
north side	14	14	2	2	0	0	0	0	NO CHANGE
south side	0	0	0	0	0	0	0	0	
subtotal	14	14	2	2	0	0	0	0	
<b>18. Jessie St: South from McCoppin St</b>									
east side	0	0	0	0	0	0	0	0	NO CHANGE
west side	8	8	0	0	0	0	4	4	
subtotal	8	8	0	0	0	0	4	4	
<b>19 Stevenson St: McCoppin to Duboce</b>									
east side	15	9	0	0	0	0	0	0	MINUS 6 SPACES IN FRONT OF SKATE PARK
west side	7	7	0	0	0	0	0	0	
subtotal	22	16	0	0	0	0	0	0	
<b>Total Plan Streets and Alleys</b>	393	258	17	22	19	23	50	50	
Streets	259	155	15	20	13	21	41	41	
Alleys	134	103	2	2	6	2	9	9	
	393	258	17	22	19	23	50	50	
Streets	-104		5		8		0		
Alleys	-31		0		-4		0		
<b>Total Plan Streets and Alleys</b>	-135		5		4		0		