

MEMORANDUM

Date: October 24, 2011
To: Steve Buster, Catellus
From: Ben Larson, PE

Subject: *Transportation Analysis for the Revised Alameda Landing Land Use Plan*
SF11-0580

Fehr & Peers analyzed the impact of implementing the revised Alameda Landing (Project) land use plan compared to the plan presented and analyzed in the Alameda Landing Mixed Use Development Project Environmental Impact Report (EIR) certified in 2006 (amended in 2007 and 2008). The original EIR analyzed the following land use configuration:

Office:	400 KSF	
Residential:	300 dwelling units	- 50 low-rise apartments - 50 duplexes - 200 single-family
Retail:	320 KSF	- 2.5 KSF Fast Food - 20 KSF Health Club - 297.5 KSF Retail

The revised Project maintains the office and residential uses, and generally the retail uses, but shifts the retail use so that there would be 285 KSF south of Mitchell Avenue and 15 KSF north of Mitchell Avenue. This compares to the originally proposed 50 KSF north of Mitchell Avenue and 250 KSF south of Mitchell Avenue. A large component of the retail has been identified as a Target store, which has a substantially higher trip generation rate than a typical shopping center. The land use totals are as follows:

Office:	400 KSF	
Residential:	300 dwelling units	- 50 low-rise apartments - 50 duplexes - 200 single-family
Retail:	160 KSF	
Target:	140 KSF	
Health Club:	20 KSF	

Using the land use flex mechanism identified in the Master Plan, which states that "Additional uses may be added to a sub-area permitted land use program; provided that a corresponding reduction in the authorized amount of another use is made to ensure that no new or substantially more severe environmental impacts (including traffic impacts) would result from the change," the Project sponsor has proposed the changes described above. This memorandum summarizes the changes in trip generation and its effects on the impact analysis presented in the EIR.

TRIP GENERATION

Table IV.H-4a in the EIR presents the trip generation for the Project as approved. The results of this table are presented in Table 1 and compared to the trip generation for the proposed land use. Tenant specific trip generation was used from the Target Developer Guide for this particular land use due to its unique trip generation. The rate used by Target is 17.5 percent higher than ITE's recommended "Free-Standing Discount Superstore" (which also has considerably higher generation than a typical "Shopping Center"). The remaining uses are consistent with those found in the Institute of Transportation Engineer's (ITE) *Trip Generation*.

As shown in **Table 1**, the new land use description would result in an additional 3,303 net new daily vehicle trips (+14.6 percent), 95 net new AM peak hour vehicle trips (+7.8 percent), and 340 net new PM peak hour vehicle trips (+16.9 percent). These additional trips were then distributed onto the roadway network consistent with the analysis presented in the EIR as discussed in the following section.

TRIP DISTRIBUTION AND ASSIGNMENT

The additional trips identified above were assigned to the roadway network based on the distribution presented in **Figure 1**, which is consistent to that which was analyzed in the EIR. This includes the addition of the Target store. The distribution resulted in the net new Project trips assigned to each intersection presented in **Figure 2**. Some of the turning movements identified show a reduction in Project trips. This is due to shifting of land uses within the Project site.

INTERSECTION ANALYSIS

The Project trips shown in **Figure 2** were added to the roadway network in the Synchro analysis. The resulting intersection delay and LOS for the mitigated scenarios are presented in **Table 2** and compared to the results presented in the EIR. As shown, the operations vary slightly, but LOS is generally maintained.

The Project sponsor has revised the Project description to configure the northern leg of the Tinker Avenue/5th Street intersection. The intersection would be configured with a southbound left-turn, a through, and a shared through-right turn. With this configuration, the intersection would operate at an acceptable LOS D during the cumulative AM and PM peak hours. This is a feasible configuration without additional construction as it is part of the Project site and there are two receiving lanes that already exist on the southern leg of 5th Street.

Intersections previously found to be significant and unavoidable would remain the same or increase slightly in delay.

All mitigations identified in the EIR are still applicable and would mitigate the indicated impacts.

CONCLUSION

As discussed above, the trip generation calculation for the new Project description resulted in an approximate 15 percent increase in traffic generation over the approved land use plan. However, the increase in vehicle trips associated with the revised Project description did not cause any new significant impacts based on the significance criteria identified in the EIR. Furthermore, the mitigations previously identified are still applicable to the impacts that do occur. Reorganization of the land-uses on-site will require a detailed analysis of the on-site intersections to determine the appropriate lane configurations and traffic control, but this level of detail was not previously presented in the EIR and will be incorporated into a circulation study as a part of the Design Review process.

If you have any questions, please feel free to contact Ben Larson at (415) 348-0300.



**TABLE 1
VEHICLE TRIP GENERATION FOR PROPOSED PROJECT (EIR VERSUS PROPOSED)**

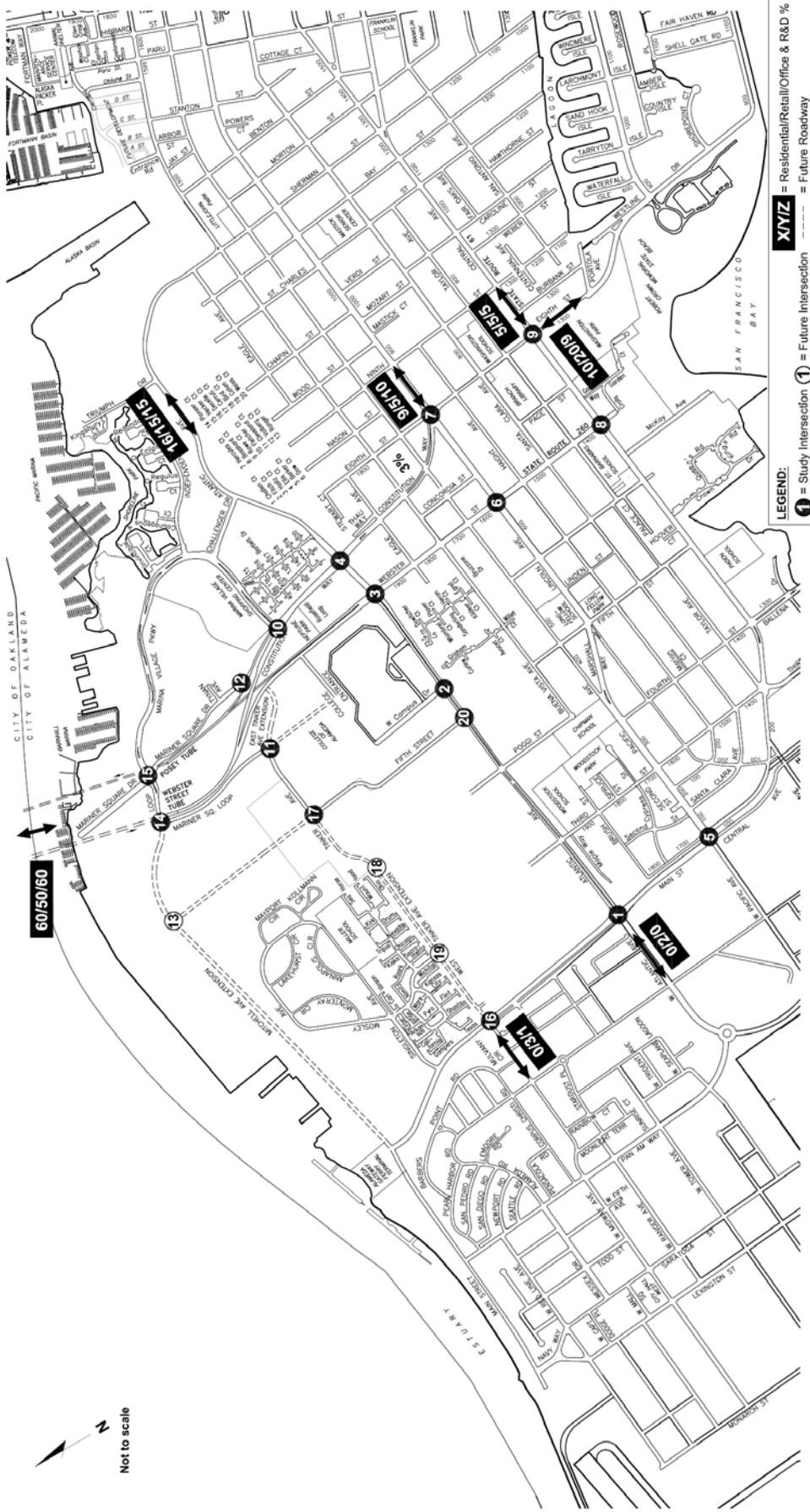
Land Use/ITE Code	Size (ksf/d u)	Trip Rates							Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
		Daily	AM Peak Hour	% in	% out	PM Peak Hour	% in	% out		Total	In	Out	Total	In	Out
EIR APPROVED															
Single Family Detached (LU 210)	200	9.57	0.75	25	75	1.01	63	37	1,914	150	38	113	202	127	75
Low-Rise Apartments (LU 221)	50	6.59	0.46	21	79	0.58	65	35	330	23	5	18	29	19	10
Duplexes ¹	50	8	0.64	20	80	0.8	70	30	400	32	6	26	40	28	12
Shopping Center (LU 820)	317.5	$EQ=EXP(0.65*LN(A29)+5.83)$	$EQ=EXP(0.6*LN(A29)+2.29)$	61	39	$EQ=EXP(0.66*LN(A29)+3.4)$	48	52	14,390	313	191	122	1,342	644	698
Fast Food w/ Drive Thru (LU 934)	2.5	496.12	53.11	51	49	34.64	52	48	1,240	133	68	65	87	45	42
Office (LU 710)	400.0	11.01	1.55	88	12	1.49	17	83	4,404	620	546	74	596	101	495
TOTAL (Weekday)									22,678	1,271	853	418	2,296	965	1,331
Internal trips AM	4.0%									-51	-34	-17			
Internal trips PM	12.5%												-287	-121	-166
GRAND TOTAL (Weekday)										1,220	819	401	2,009	844	1,165
PROPOSED															
Single Family Detached (LU 210)	200	9.57	0.75	25	75	1.01	63	37	1,914	150	38	113	202	127	75
Low-Rise Apartments (LU 221)	50	6.59	0.46	21	79	0.58	65	35	330	23	5	18	29	19	10
Duplexes ¹	50	8	0.64	20	80	0.8	70	30	400	32	6	26	40	28	12
Health Club (LU 492)	20	32.93	1.21	42	58	4.05	51	49	659	24	10	14	81	41	40

Shopping Center (LU 820)	160	$EQ=EXP(0.65*LN(A29)+5.83)$	$EQ=EXP(0.6*LN(A29)+2.29)$	61	39	$EQ=EXP(0.66*LN(A29)+3.4)$	48	52	10,625	246	150	96	979	470	509
Target ²	140	$EQ=EXP(1.35*LN(B12)+2.11)$	1.67	67	33	4.61	49	51	7,650	275	184	91	758	372	387
Office (LU 710)	400.0	11.01	1.55	88	12	1.49	17	83	4,404	620	546	74	596	101	495
TOTAL (Weekday)									25,981	1,370	938	431	2,685	1,158	1,527
Internal trips AM	4.0%									-55	-38	-17			
Internal trips PM	12.5%												-336	-145	-191
GRAND TOTAL (Weekday)										1,315	900	414	2,349	1,013	1,336
NET DIFFERENCE															
Total Increase in Auto Trips									3,303	95	81	13	340	169	171

Source: Fehr & Peers, 2011

1 Multiple Dwelling Unit Rate from San Diego Trip Generation, May 2003 for AM and PM Peak and Weekend from ITE Land Use code 231.

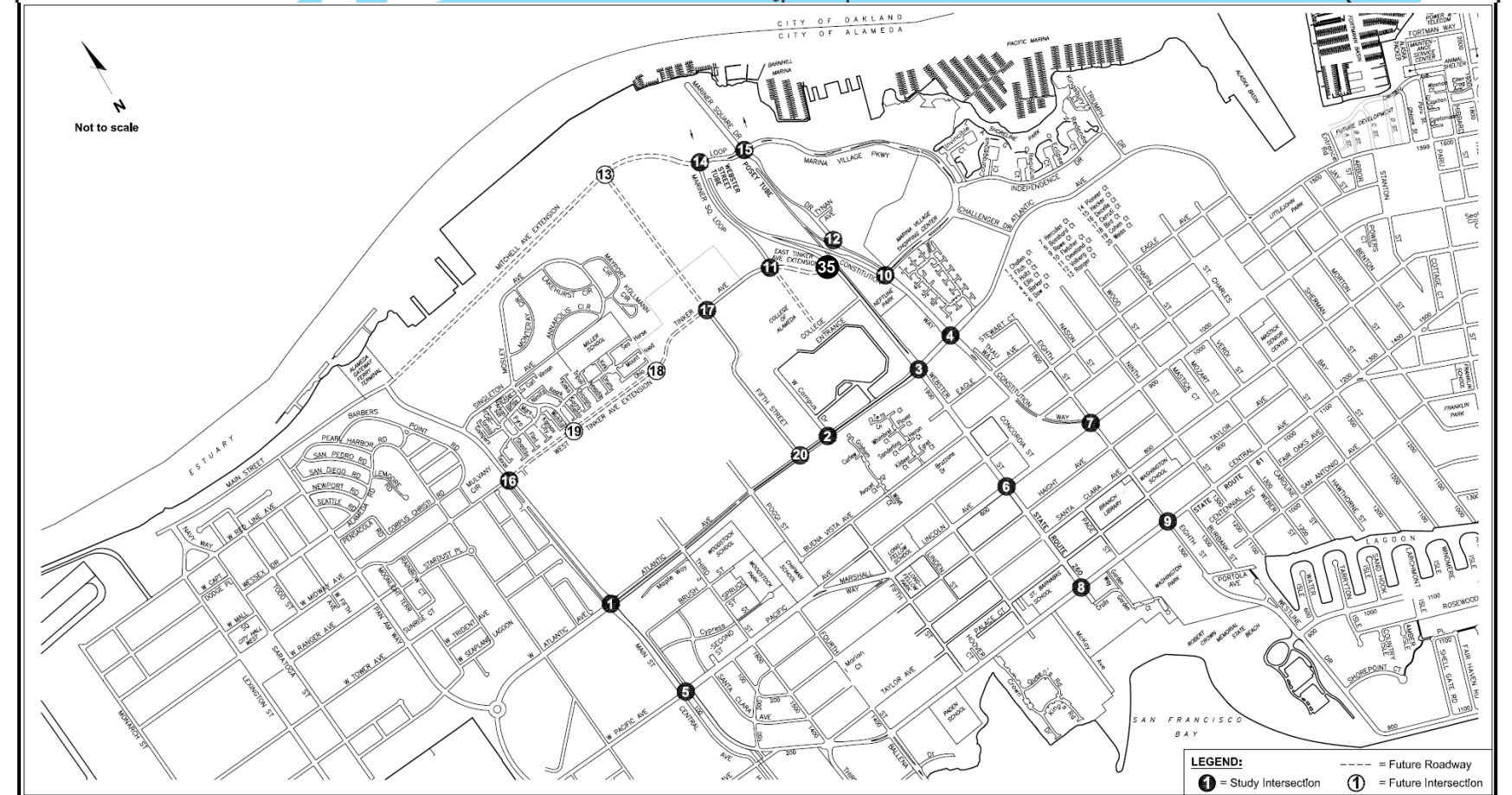
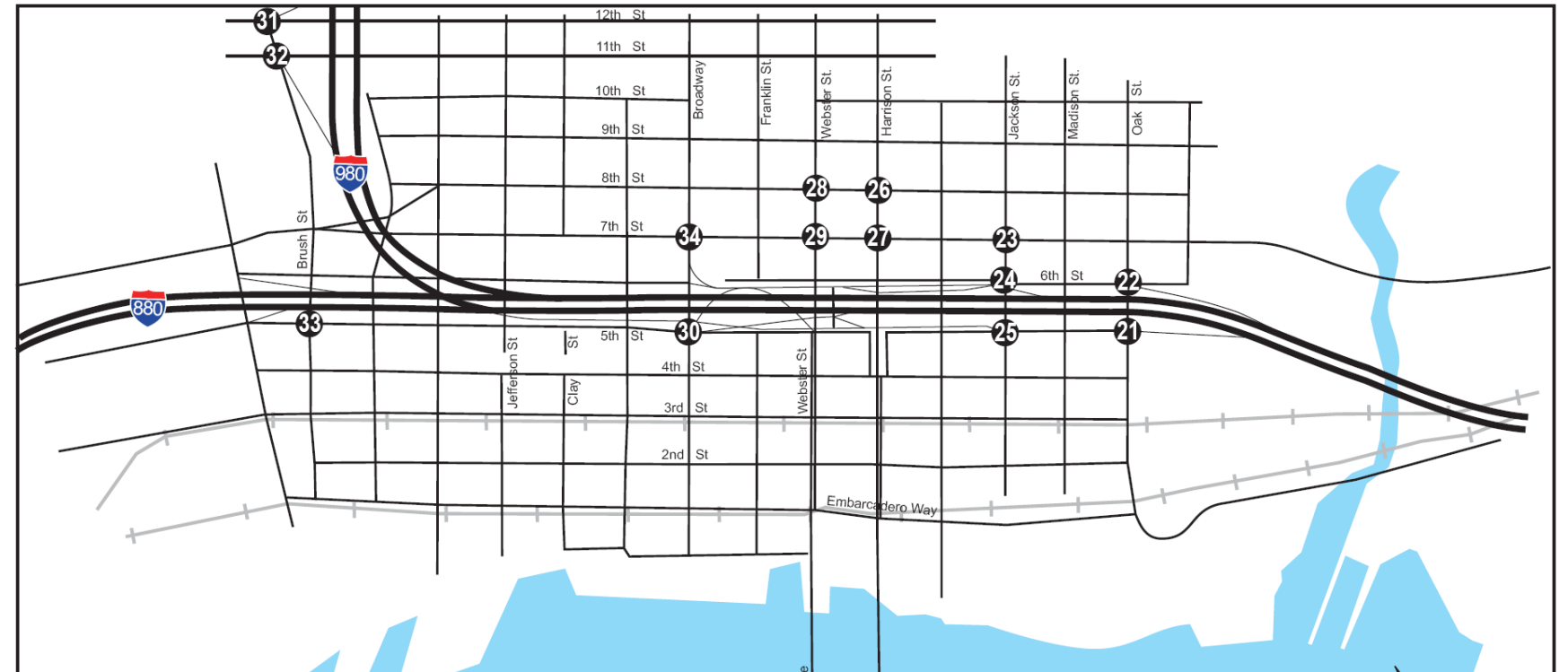
2 Free-Standing Discount Superstore ITE equations used then factored to reach daily volumes identified by Target Developer Guide, Edition 2.5



ALAMEDA LANDING PROJECT TRIP DISTRIBUTION
FIGURE 1

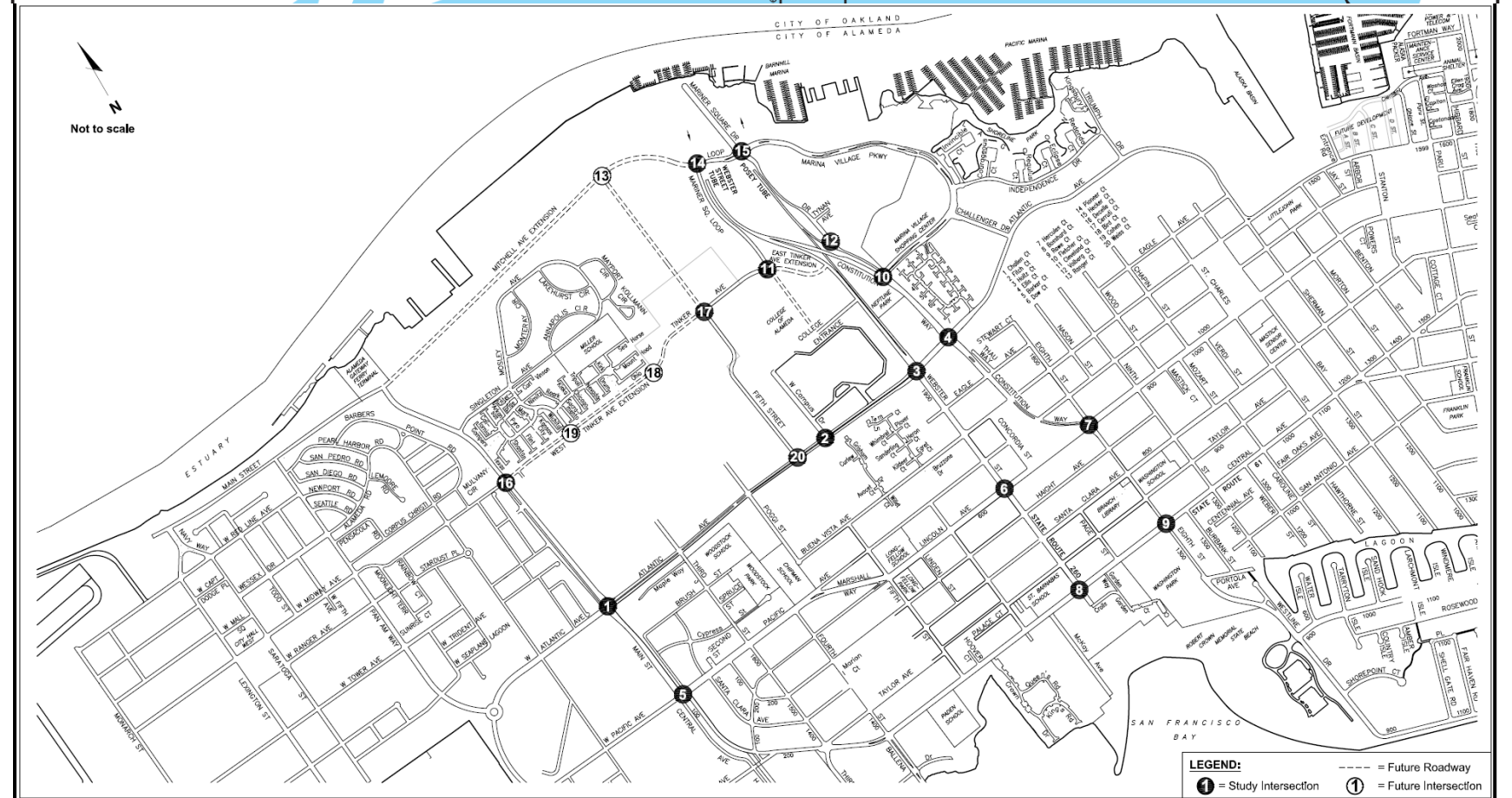
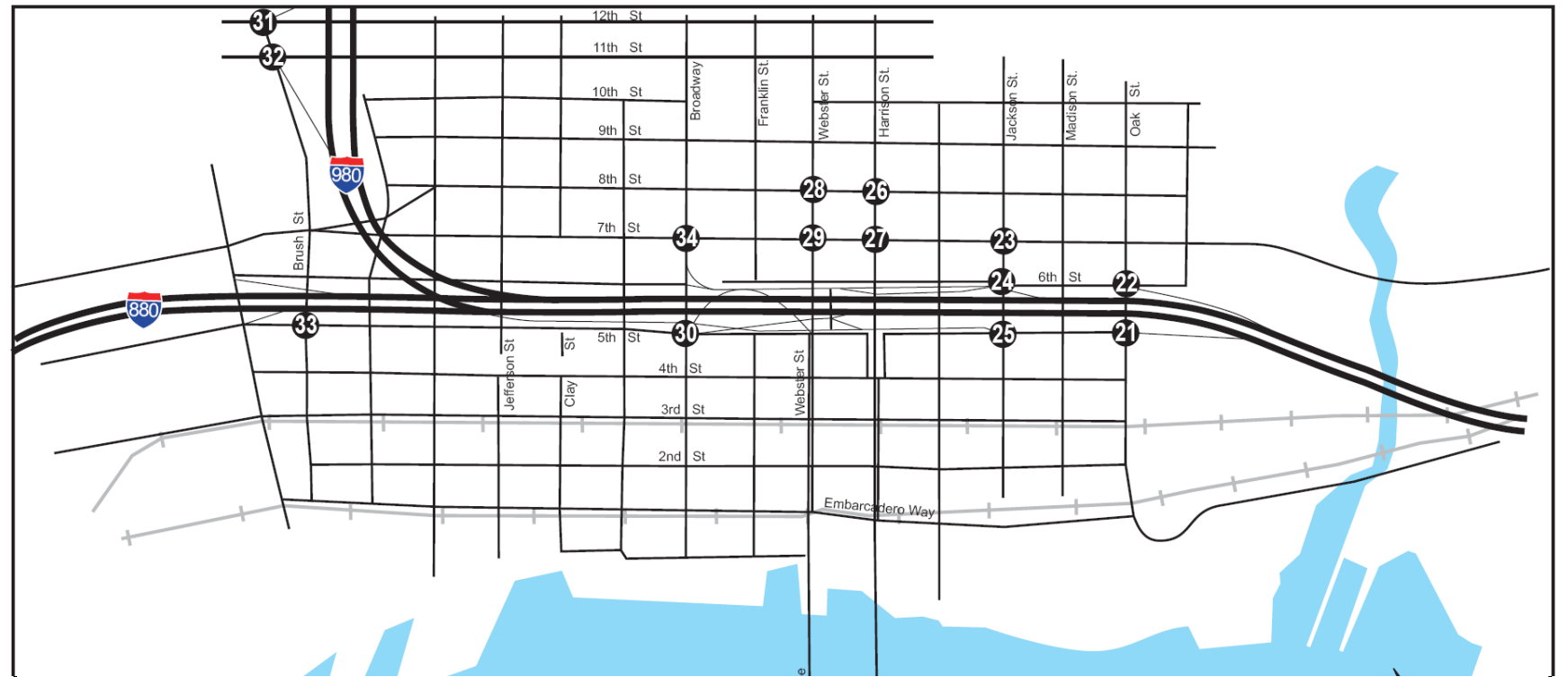
Not to scale

#1: Atlantic Avenue & Main Street 	#2: Atlantic Avenue & West Campus Drive 	#3: Atlantic Avenue & Webster Street 	#4: Atlantic Avenue & Constitution Way 	#5: Pacific Street & Main Street
#6: Lincoln Avenue & Webster Street 	#7: Lincoln Ave & Constitution Way/8th St 	#8: Central Avenue & Webster Street 	#9: Central Avenue & 8th Street 	#10: Marina Village Pkwy & Constitution Way
#11: Tinker Avenue & Mariner Square Loop 	#12: Mariner Square Drive & Constitution Way 	#13: Mitchell Avenue/5th Street 	#14: Mariner Village Pkwy & Mariner Square Loop 	#15: Marina Village Pkwy & Mariner Square Drive
#16: Tinker Avenue & Main Street 	#17: Tinker Avenue & 5th Street 	#18: Tinker Avenue & Coral Sea Drive 	#19: Tinker Avenue & Mosely Drive 	#20: Atlantic Avenue & 5th Street
#21: 5th Street & Oak Street 	#22: 6th Street & Oak Street 	#23: 7th Street & Jackson Street 	#24: 6th Street & Jackson Street 	#25: 5th Street & Jackson Street
#26: 8th Street & Harrison Street 	#27: 7th Street & Harrison Street 	#28: 8th Street & Webster Street 	#29: 7th Street & Webster Street 	#30: 5th Street & Broadway
#31: 12th St & Brush St/1-900 Southbound Off-Ramp 	#32: 11th Street & Brush Street 	#33: 5th Street & Brush Street 	#34: 7th Street & Broadway 	#35: Tinker Avenue & Webster Street



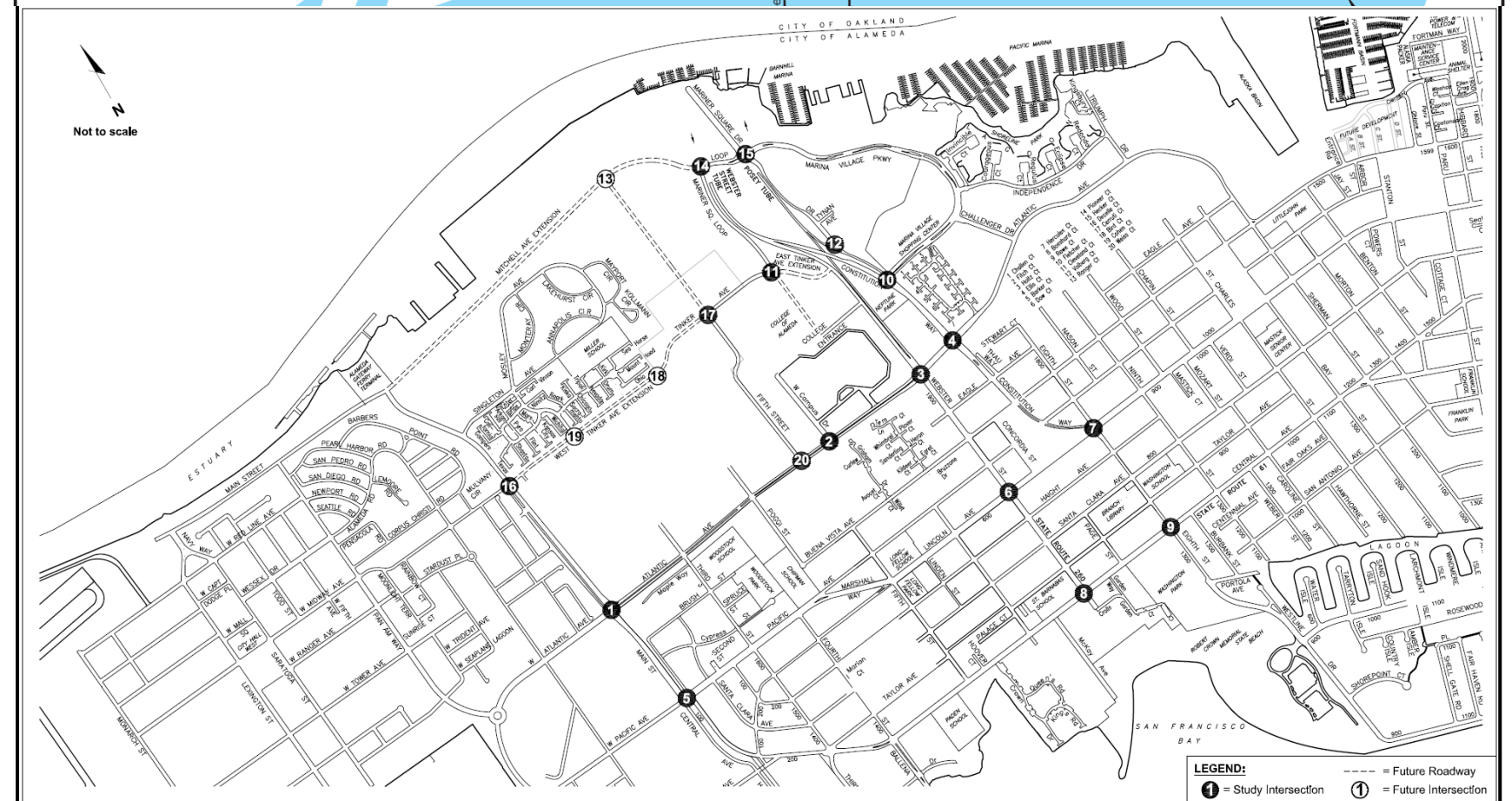
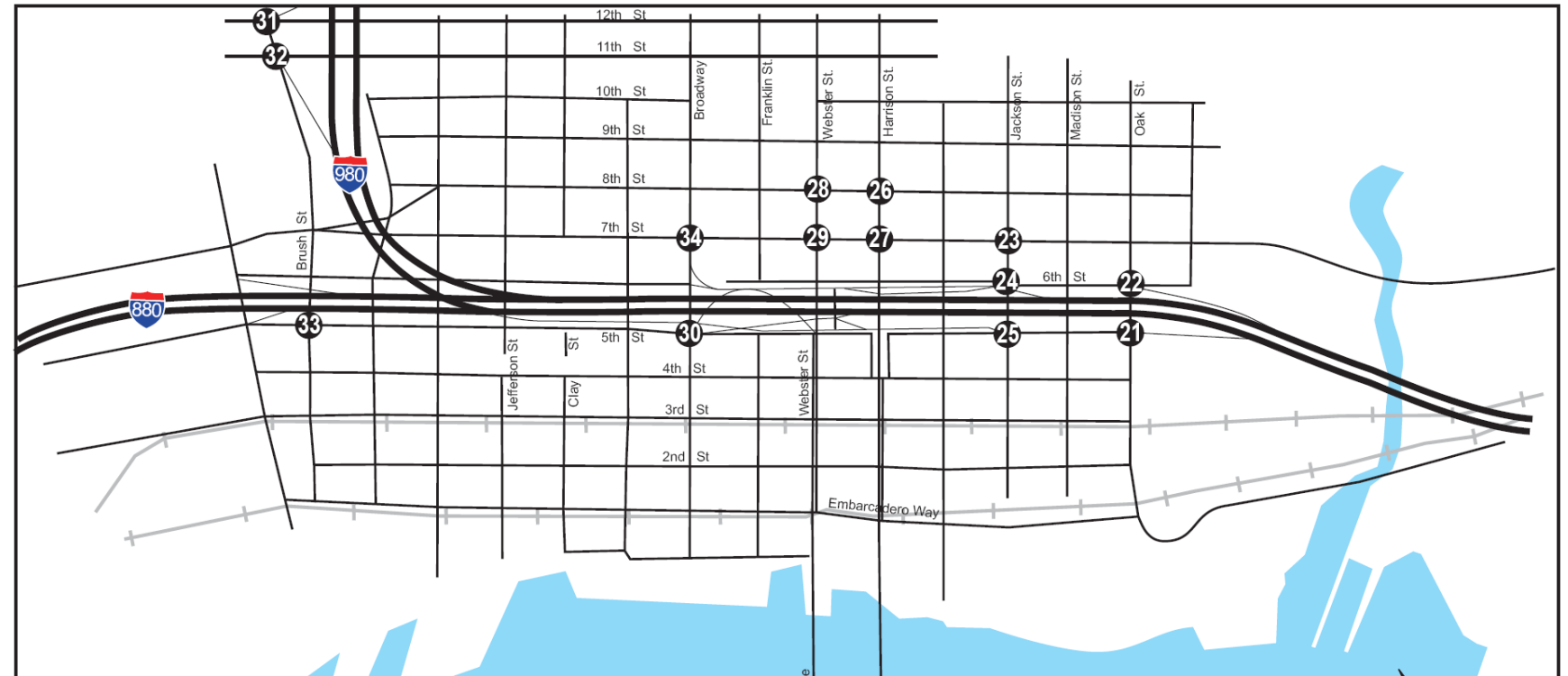
Approved Project Trips Subtracted from Proposed Project Trips
 KEY: XX (YY) = AM (PM) Peak Hour Traffic Volumes

PROJECT TRIP ADJUSTMENT (NET NEW TRIPS COMPARED TO APPROVED PROJECT)
FIGURE 2



Approved Project 2010 Trips
 KEY: XX (YY) = AM (PM) Peak Hour Traffic Volumes

APPROVED PROJECT 2010 TRIPS
FIGURE 3



Approved Project 2025 Trips
 KEY: XX (YY) = AM (PM) Peak Hour Traffic Volumes

APPROVED PROJECT 2025 TRIPS
FIGURE 4

**TABLE 2
 AM AND PM PEAK HOUR MITIGATED INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (seconds/vehicle) COMPARISON**

No.	Intersection	Traffic Control	2010 AM Peak Hour						2010 PM Peak Hour						2025 AM Peak Hour				2025 PM Peak Hour			
			Baseline		With Old Project Mitigated		With New Project Mitigated		Baseline		With Old Project Mitigated		With New Project Mitigated		With Old Project Mitigated		With New Project Mitigated		With Old Project Mitigated		With New Project Mitigated	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
#1	Atlantic Avenue & Main Street	Signal	B	12.0	B	11.8	B	11.8	B	12.4	B	12.4	B	12.4	D	40.1	D	40.1	C	26.7	C	26.8
#2	Atlantic Avenue & West Campus Drive	Signal	A	6.2	A	6.2	A	6.2	A	5.9	A	5.8	A	5.7	A	8.1	A	8.3	A	6.9	A	7.2
#3	Atlantic Avenue & Webster Street	Signal	C	30.9	D	36.6	D	37.8	C	27.9	C	25.2	C	27.0	E	58.8	E	60.1	F	157.8	F	161.6
#4	Atlantic Avenue & Constitution Way	Signal	C	22.3	C	28.0	C	29.8	C	22.2	C	26.2	C	27.0	E	77.6	E	78.4	F	223.0	F	241.7
#5	Pacific Street & Main Street	Signal	B	16.1	B	16.1	B	16.1	B	15.1	B	15.1	B	15.1	B	19.6	B	19.6	C	25.5	C	25.5
#6	Lincoln Avenue & Webster Street	Signal	B	14.7	B	15.0	B	15.1	B	16.5	B	17.9	B	18.6	C	21.8	C	22.0	B	19.3	B	20.0
#7	Lincoln Ave & Constitution Way/8th St.	Signal	B	16.4	B	19.4	B	19.6	B	19.1	C	24.2	C	27.9	C	34.9	D	36.3	F	146.6	F	154.6
#8	Central Avenue & Webster Street	Signal	B	16.4	B	16.7	B	16.7	B	18.4	B	18.9	B	19.1	D	40.3	D	40.7	C	30.1	C	30.9
#9	Central Avenue & 8th Street	Signal	D	35.4	D	45.7	47.5	D	D	48.5	C	30.1	C	31.1	F	184.4	F	187.7	F	282.6	F	294.3
#10	Marina Village Pkwy & Constitution Way	Signal	D	40.0	D	51.6	D	51.6	C	29.1	C	31.8	C	31.9	D	50.7	D	50.7	E	73.8	E	73.8
#11	Tinker Avenue & Mariner Square Loop	SSSC	C	17.1	B ^s	17.9 ^s	B ^s	17.9 ^s	B	13.6	B ^s	19.1 ^s	B ^s	19.3 ^s	B ^s	19.2 ^s	B ^s	19.4 ^s	D ^s	37.2 ^s	D	40.4
#12	Mariner Square Drive & Constitution Way	SSSC	F	>70	C ^s	25.9 ^s	C ^s	24.7 ^s	F	>70	C ^s	34.8 ^s	D ^s	48.6 ^s	F	>100	F	>100	F	>100	F	>100
#13	Mitchell Avenue/5th Street	SSSC	N/A ^a	N/A ^a	B ^s	19.8 ^s	C ^s	20.6 ^s	N/A ^a	N/A ^a	B ^s	17.6 ^s	B ^s	17.9 ^s	B ^s	14.4 ^s	B ^s	14.8 ^s	B ^s	14.3 ^s	B ^s	15.2 ^s
#14	Marina Village Pkwy & Mariner Square Loop	SSSC	B	11.3	B ^s	18.5 ^s	B ^s	18.6 ^s	B	12.8	B ^s	12.3 ^s	B ^s	12.6 ^s	C ^s	23.4 ^s	C ^s	23.8 ^s	C ^s	34.1 ^s	D ^s	43.3 ^s
#15	Marina Village Pkwy & Mariner Square Drive	AWSC	A	8.1	A	9.2	A	9.2	A	8.8	B ^c	11.2 ^c	C ^c	18.0 ^c	A ^s	7.0 ^s	A ^s	6.9 ^s	B ^s	19.5 ^s	C ^s	30.0 ^s
#16	Tinker Avenue & Main Street	Signal	C	28.7	C	32.9	C	32.7	C	27.0	C	27.2	C	27.1	D	39.5	D	39.4	D	50.2	D	50.5
#17	Tinker Avenue & 5th Street	SSSC	B	10.9	B ^s	13.4 ^s	B ^s	14.3 ^s	B	11.8	B ^s	10.8 ^s	B ^s	11.7 ^s	B ^s	18.6 ^s	B ^s	18.8 ^s	D ^s	54.0 ^s	D ^{s,d}	38.0 ^{s,d}
#18	Tinker Avenue & Coral Sea Drive	SSSC	B	11.0	B	12.5	B	12.5	B	11.2	B	13.9	B	14.0	C ^s	21.1 ^s	C ^s	21.1 ^s	B ^s	13.6 ^s	B ^s	13.7 ^s
#19	Tinker Avenue & Mosely Drive	SSSC	B	13.7	C	16.1	C	16.2	B	13.6	C	18.1	C	18.2	C ^s	20.2 ^s	C ^s	20.2 ^s	B ^s	17.3 ^s	B ^s	17.5 ^s
#20	Atlantic Avenue & 5th Street	Signal	A	4.2	A	5.9	A	6.7	A	4.9	A	8.1	A	8.8	D	52.0	D	54.5	D	45.6	D	54.6
#21	5th Street & Oak Street	Signal	B	11.9	B	11.8	B	11.8	B	12.8	B	12.8	B	12.9	B	13.7	B	13.7	D	40.3	D	40.4
#22	6th Street & Oak Street	Signal	B	16.9	B	15.6	B	15.6	B	13.6	B	13.2	B	13.1	B	12.3	B	12.3	B	18.4	B	18.3
#23	7th Street & Jackson Street	Signal	B	10.5	B	13.5	B	13.8	B	10.7	B	13.6	B	14.2	E	69.8	E	70.7	F	104.3	F	109.2
#24	6th Street & Jackson Street	Signal	C	* ^b	D	35.7	D	36.0	E	* ^b	B	12.6	B	13.6	F	105.8	F	105.9	F	114.2	F	117.5
#25	5th Street & Jackson Street	Signal	B	10.9	B	10.9	B	10.9	B	10.1	B	10.1	B	10.1	B	10.8	B	10.8	B	10.8	B	10.8
#26	8th Street & Harrison Street	Signal	A	9.5	A	9.8	A	9.8	B	11.7	B	11.9	B	12.0	B	11.3	B	11.4	B	13.5	B	13.6
#27	7th Street & Harrison Street	Signal	A	6.7	A	6.7	A	6.7	A	5.6	A	5.9	A	6.0	A	9.1	A	9.1	E	65.8	E	71.2
#28	8th Street & Webster Street	Signal	B	16.3	B	18.0	B	18.1	E	* ^b	B	17.4	B	17.5	B	17.9	B	18.0	B	19.1	B	19.2
#29	7th Street & Webster Street	Signal	A	9.6	B	10.2	B	10.2	B	12.0	B	12.3	B	12.5	B	12.5	B	12.7	B	15.0	B	15.3
#30	5th Street & Broadway	Signal	C	31.8	D	50.8	D	53.2	F	174.4	F	186.1	F	192.7	E	74.1	E	73.9	F	237.7	F	246.3
#31	12th St & Brush St./I-980 Southbound Off-Ramp	Signal	C	31.8	D	35.0	D	35.3	C	27.2	C	27.5	C	27.7	F	153.6	F	154.6	D	37.0	D	37.4
#32	11th Street & Brush Street	Signal	A	4.8	A	4.8	A	4.8	A	7.8	A	7.8	A	7.9	A	4.0	B	12.5	B	11.3	B	11.4
#33	5th Street & Brush Street	Signal	C	31.5	C	25.9	C	25.9	C	22.8	C	23.1	C	23.3	C	20.8	C	26.2	C	26.6	C	26.8
#34	7th Street & Broadway	Signal	B	13.8	B	14.0	B	14.0	B	16.7	B	17.4	B	17.5	B	12.8	B	12.9	B	16.2	B	16.4
#35	Tinker Avenue & Webster Street	Signal	-	-	A	9.7	A	9.7	-	-	A	9.2	A	9.2	C	21.4	C	21.7	D	41.3	D	41.4

Notes: **BOLD** = unacceptable operations/significant impact; ^s = signalized as mitigation
 a N/A = intersection does not exist under existing conditions
 b See text on page IV.H 12 of the EIR about how field observations show worse LOS than calculated LOS under existing conditions.
 c intersection lane configuration reduced in analysis than what exists due to analysis method limitations
 d includes new configuration for southbound direction: left-turn lane, through lane, shared through-right lane

APPENDIX

- 2010 AM Peak Hour Approved Project
- 2010 AM Peak Hour Proposed Project
- 2010 PM Peak Hour Approved Project
- 2010 PM Peak Hour Proposed Project

- 2025 AM Peak Hour Approved Project
- 2025 AM Peak Hour Proposed Project
- 2025 PM Peak Hour Approved Project
- 2025 PM Peak Hour Proposed Project