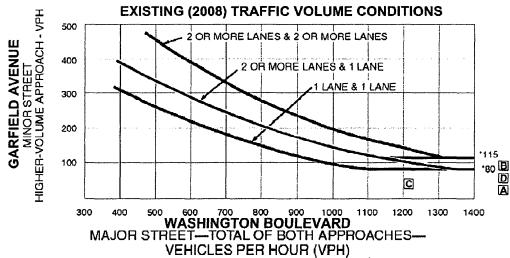
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume
WASHINGTON BLVD. & GARFIELD AVE.
EXISTING (2008) TRAFFIC VOLUME CONDITION



\*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

A 7-8 AM (1501, 65)

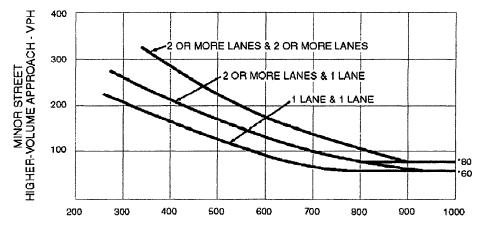
B 8-9 AM (1501, 85)

C 2-3 PM (1222, 56)

D 3-4 PM (1504, 72)

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

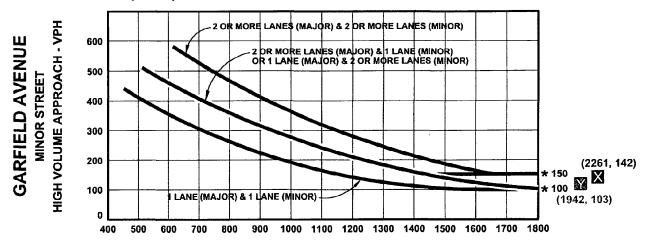
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

\*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

## WASHINGTON BLVD. & GARFIELD AVE. FUTURE (2022) WITH PROJECT TRAFFIC VOLUMES CONDITIONS



# WASHINGTON BOULEVARD MAJOR STREET - TOTAL OF BOTH APPROACHES VEHICLES PER HOUR (VPH)

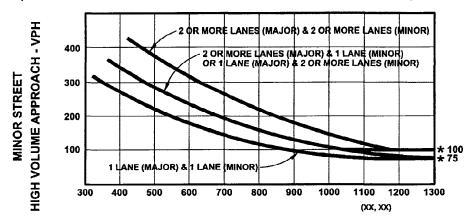
\* NOTE:

150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

A.M. PEAK HOUR (2261, 142)
P.M. PEAK HOUR (1942, 103)

NOTE: TRAFFIC VOLUMES WILL SATISFY TRAFFIC SIGNAL WARRANT.

Figure 4C-4. Warrant 3, Peak Hour (70%) Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70km/h OR ABOVE 40 mph On Major Street)



### MAJOR STREET - TOTAL OF BOTH APPROACHES VEHICLES PER HOUR (VPH)

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

<sup>\*</sup> NOTE:

# APPENDIX F ICU AND HCM CALCULATION WORKSHEETS

		ALL-WA	Y STOP C	ONTROL.	ANALYSIS	3		
General Information				Site Inform	nation		· · · · · · · · · · · · · · · · · · ·	
Analyst	J/L			Intersection		1		
Agency/Co.		. Associates		Jurisdiction			Pasadena	
Date Performed	1/25/20			Analysis Year		2008		
Analysis Time Period		ak Hour		<u> </u>				
Project ID Existing Traffic Con				· · · · · · · · · · · · · · · · · · ·	<del> </del>			
East/West Street: Howard St				North/South S	treet: Marengo A	Ave.		
Volume Adjustments	and Site Ch	aracterist						
Approach Movement	L		Eastbound T	R			stbound	R
Volume (veh/h)	<u> </u>		0	0	43		Ö	27
%Thrus Left Lane								<del></del>
Approach			Northbound		<del>-                                     </del>	Sou	thbound	
Movement	L		Ť I	R	Ļ		Ť	R
Volume (veh/h)	0		65	11	22		142	0
%Thrus Left Lane								
	East	bound	Wes	stbound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration		1	LTR		TR		LT	
PHF			1.00	1	1.00		1.00	
low Rate (veh/h)		†	70	1	76		164	<del></del>
% Heavy Vehicles	<del></del>		0		0		0	
No. Lanes	1	)		1		i		1
Geometry Group				1		1	1	1
Duration, T				1.	00		<u>*</u>	
Saturation Headway	Adjustment '	Workshee	t					
Prop. Left-Turns	1	T	0.6	T	0.0		0.1	
Prop. Right-Turns	<b></b>	<u>†</u>	0.4	<u>†</u>	0.1	ļ	0.0	
Prop. Heavy Vehicle	-		0.0	<del>                                     </del>	0.0		0.0	
nLT-adj	-	<del> </del>	0.2	0.2	0.2	0.2	0.2	0.2
nRT-adj	<del> </del>	<del> </del>	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
<del></del>		<del> </del>	1.7	1.7	1.7	1.7	1.7	1.7
nHV-adj		<u> </u>		1.7		1.7	<del></del>	1.7
nadj, computed		<u></u>	-0.1	<u>. L</u>	-0.1	L	0.0	<u> </u>
Departure Headway a	nd Service	<u> </u>						
nd, initial value (s)		<u> </u>	3.20	<u> </u>	3.20		3.20	
k, initial		<u> </u>	0.06	<b>.</b>	0.07		0.15	<u> </u>
nd, final value (s)		<u> </u>	4.31	<u> </u>	4.14		4.17	<u> </u>
r, final value			0.08	1	0.09		0.19	<u> </u>
Move-up time, m (s)		Т		2.0	2.	0	2.	<u>0</u>
Service Time, t <sub>s</sub> (s)			2.3	<u></u>	2.1		2.2	<u> </u>
Capacity and Level of	Service						· · · · · · · · · · · · · · · · · · ·	
	East	bound	Wes	tbound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)			320		326		414	
Delay (s/veh)			7.71		7.54		8.14	
.os	1	1	A	1	A		A	
Approach: Delay (s/veh)		<u> </u>		71	7.5	54	8.	1.1
		<del></del>			<del></del>		<del>}</del>	
LOS				<u> </u>	<u> </u>	<u> </u>	ļ ,	<del>-</del>
ntersection Delay (s/veh)					90			<del></del>
ntersection LOS	1				4			

		ALL-WA	Y STOP CO	ONTROL	ANALYSIS	,		
General Information		<del></del>		Site Inform	ation			
Analyst	UL			Intersection		1		
Agency/Co.		Associates		Jurisdiction		City of	Pasadena	
Date Performed	1/31/20	08		Analysis Year		2022		
Analysis Time Period	AM Pea	ak Hour						
Project ID Future Without Projec	ct Traffic Conditi	ons						
East/West Street: Howard St.				North/South Str	reet: Marengo A	ive.		
Volume Adjustments a	and Site Ch	aracteristic	s					
Approach		E	astbound			Wes	stbound	
Movement	<u> </u>		7	R	L	_	<u>T</u>	R
Volume (veh/h)	0		0	0	53		0	33
%Thrus Left Lane								
Approach		N.	orthbound	<del></del>		Sou	thbound	0
Movement Volume (veh/h)	0		80 80	R 14	27		175	R 0
<del></del>	<del>-                                     </del>	<del></del>	- 00	17	+		***	
%Thrus Left Lane	<u> </u>		<u></u>		1		<del>                                     </del>	
<u> </u>		oound	<del></del>	tbound	Northi		<del> </del>	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LTR		TR		LT	
PHF			1.00		1.00		1.00	
Flow Rate (veh/h)			86		94		202	
6 Heavy Vehicles			0		0		0	
lo. Lanes	- (	)		1	1			1
Geometry Group			·	1	1			1
Duration, T			-1	1.0	00			
Saturation Headway A	diustment \	Vorksheet						
Prop. Left-Turns	l	1	0.6	T	0.0		0.1	
			0.4	<u> </u>	0.1		0.0	<del>                                     </del>
Prop. Right-Turns				<u> </u>			<u> </u>	<del> </del>
Prop. Heavy Vehicle			0.0	<u> </u>	0.0		0.0	
nLT-adj			0.2	0.2	0.2	0.2	0.2	0.2
nRT-adj			-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
nHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
nadj, computed			-0.1		-0.1		0.0	
Departure Headway an	d Service 1	ime						
nd, initial value (s)			3.20	Ī	3.20		3.20	
r, initial		<del>                                     </del>	0.08		0.08		0.18	
nd, final value (s)	<u> </u>		4.44	1	4.23		4.23	
, final value			0.11		0.11		0.24	
Nove-up time, m (s)		·	<del></del>	.0	2.0	0		0
Service Time, t <sub>s</sub> (s)			2.4		2.2		2.2	
Capacity and Level of	Service	<u></u>						<u> </u>
		oound	West	tbound	North	oound	South	nbound
<u> </u>	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	L1	- "	336		344		452	
							<del></del>	<del> </del>
Delay (s/veh)			7.97		7.75		8.55	
-0\$			Α	<u> </u>	Α		Α	<u> </u>
Approach: Delay (s/veh)				97	7.7		8.:	
LOS			1		Α		1	1
ntersection Delay (s/veh)				8.2	22			
ntersection LOS				A	1			

		ALL-WAY	STOP CO	ONTROL A	ANALYSIS			· · · · · · · · · ·
General Information				Site Inform	ation			
Analyst	JL			Intersection		1		
Agency/Co.		Associates		Jurisdiction			Pasadena	
Date Performed	1/31/20			Analysis Year		2022		
Analysis Time Period	AM Pea	ık Hour						
Project ID Future With Project T	raffic Conditions	<u> </u>						
East/West Street: Howard St.				North/South St	reet: Marengo A	lve.		
Volume Adjustments a	nd Site Cha	aracteristic	S			<u>.                                    </u>		
Approach			astbound			We	stbound	
Movement	<u> </u>		<u> </u>	R	L		7	R
Volume (veh/h)	0		0	0	53		0	34
%Thrus Left Lane			<u></u>					
Approach		No.	orthbound			Sou	thbound	
Movement	0		80	R 14	L 		175	0 0
Volume (veh/h)	<del>                                     </del>		- 00		23		173	<u> </u>
%Thrus Left Lane					<u> </u>		<u></u>	
	Eastl	oound	West	bound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration		-	LTR		TR		LT	
PHF	•		1.00	<u> </u>	1.00		1.00	
Flow Rate (veh/h)			87		94		204	
% Heavy Vehicles			0		0		0	1
No. Lanes	0	<u> </u>		1	1		1	1
Geometry Group				1	1			1
Duration, T			<u> </u>		00		-l	<u> </u>
Saturation Headway A	dinatment V	Vorkoboot		7.\	00			
	ajustinent v	AOLKZIJAGE					T 04	T
Prop. Left-Turns			0.6		0.0		0.1	<u> </u>
Prop. Right-Turns			0.4		0.1		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
hLT-adj			0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj			-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed			-0.1		-0.1		0.0	
Departure Headway an	d Service T	ime	1	<u> </u>				
hd, initial value (s)	0017100 1		3.20	r	3.20		3.20	T
x, initial			0.08		0.08		0.18	<del> </del>
hd, final value (s)			4.44	<del> </del>	4.23		4.24	<del>}</del>
	-		0.11		0.11		0.24	
x, final value		<u> </u>		0	2.	0		.0
Move-up time, m (s)				I			<del></del>	i i
Service Time, t <sub>s</sub> (s)			2.4		2.2		2.2	<u>L</u>
Capacity and Level of	Service							
	Eastb	ound	West	bound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)			337		344		454	
Delay (s/veh)			7.98		7.76		8.57	
LOS			A A		7.70 A		A	<del> </del>
			·	1 08	7.7	 76	+	<u>5</u> 7
Approach: Delay (s/veh)			7.			······································	<del>;</del>	
LOS				1	A			٩
Intersection Delay (s/veh)					24			
Intersection LOS				<i>F</i>	<u> </u>			

		ALL-WA	Y STOP C	ONTROL	ANALYSIS	3		
General Information				Site Inforn	nation	<del></del>		<del></del>
Analyst	J/L			Intersection		1		
Agency/Co.	Crain 8	Associates		Jurisdiction			f Pasadena	
Date Performed	1/25/20	008 PM Peak Hou		Analysis Year		2008		
Analysis Time Period		РМ Реак пои	r	ᆀ				
Project ID Existing Traffic Cond	itions			h		4		
East/West Street: Howard St.				North/South St	treet: Marengo /	ave.		
Volume Adjustments a	and Site Ch		Eastbound		<del></del>	\\/o	stbound	<del></del>
Movement	L	1	T	R	L.	- 1,0	T	R
Volume (veh/h)	0		0	0	28		0	22
%Thrus Left Lane								
Approach		N	lorthbound			Sou	ithbound	
Movement				R	L L		T	R
Volume (veh/h)	0		65	29	16		86	0
%Thrus Left Lane	<u></u>			/	<u> </u>		<u> </u>	
	East	bound	Wes	tbound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LTR		TR		LT	
PHF	İ		1.00		1.00		1.00	
Flow Rate (veh/h)			50		94		102	
% Heavy Vehicles			0	<u> </u>	0		0	<u>L</u>
No. Lanes	(	)	<del></del>	1	1		<del></del>	1
Geometry Group				1	1			1
Duration, T			·	1.	00			
Saturation Headway A	djustment \	<b>Norksheet</b>						
Prop. Left-Turns			0.6		0.0		0.2	
Prop. Right-Turns			0.4		0.3		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
hLT-adj			0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj			-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj			1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed			-0.2		-0.2		0.0	
Departure Headway ar	d Service 7	ime		<u> </u>				<u> </u>
hd, initial value (s)	<u> </u>	Ī	3.20	<u> </u>	3.20		3.20	Ť
×, initial			0.04		0.08		0.09	
hd, final value (s)			4.16		3.93		4.13	
x, final value			0.06		0.10		0.12	
Move-up time, m (s)		<u> </u>	2.	.0	2.	0	2.	o
Service Time, t <sub>s</sub> (s)			2.2		1.9		2.1	
Capacity and Level of	Service	<u> </u>						
		ound	West	lbound	North	bound	I South	bound
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)			300		344		352	
- · · · · · · · · · · · · · · · · · · ·								<u> </u>
Delay (s/veh)			7.42	<b></b>	7.38		7.68	
LOS			A	<u> </u>	Α		Α	<u> </u>
Approach: Delay (s/veh)				42	7.3		7.0	
LOS			<i>A</i>		A	l	<i>P</i>	1
Intersection Delay (s/veh)				7.			** *****	
Intersection LOS					4			

			ALL-V	NAY	STOP CO	ONTROL	ANALYSIS	<del></del>		
General Information						Site Inforn	nation			
Analyst	Į,	JL				Intersection		1		
Agency/Co.		Crain &	Associat	es		Jurisdiction			of Pasadena	
Date Performed		1/31/20				Analysis Year		2022		- ··· -
Analysis Time Period			PM Peak	Hour						
Project ID Future Without Proje	ct Traffic (	Conditie	ons							
East/West Street: Howard St.						North/South St	reet: Marengo	Ave.		
Volume Adjustments a	and Site	e Cha	racter							
Approach Movement				Eas	tbound	R		w	estbound	
Volume (veh/h)		L	<del></del>		0	0	34		o	R 27
%Thrus Left Lane		U			<del>-</del>		34		<del></del>	
							<del>_</del>			
Approach Movement		L		Non	hbound T	R	<del>                                     </del>	So	uthbound T	R
Volume (veh/h)	-	0	+		80	36	20		106	0
%Thrus Left Lane	<del>-  </del>		<del></del>		00	- 30		_	100	
	<del></del> _	Faeth	ound	I	West	bound	North	bound	South	hbound
									<del></del>	<del></del>
O a Savardia a	L1		L2		L1	L2	L1	L2	L1	L2
Configuration	ļ				LTR	<b></b>	TR	ļ	LT	<del> </del>
PHF	<u> </u>				1.00	<b></b>	1.00		1.00	<b></b>
Flow Rate (veh/h)					61	ļ	116		126	
% Heavy Vehicles					0	<u> </u>	0	<u> </u>	0	<u> </u>
No. Lanes	İ	0					1	1		1
Geometry Group					1	1	1	<u> </u>		1
Duration, T	<u> </u>		_			1.	00			
Saturation Headway A	djustm	ent V	Vorksh	eet						
Prop. Left-Turns					0.6	1	0.0		0.2	T
Prop. Right-Turns		-			0.4		0.3	<u> </u>	0.0	
Prop. Heavy Vehicle					0.0		0.0		0.0	<del> </del>
hLT-adj	<del></del>			$\dashv$	0.2	0.2	0.2	0.2	0.2	0.2
<del></del>				-+			<del></del>			<del></del>
hRT-adj				_	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj					1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	<u> </u>				-0.2		-0.2	<u>.                                    </u>	0.0	
Departure Headway an	d Serv	ice T	ime							
hd, initial value (s)					3.20		3.20		3.20	
x, initial					0.05		0.10		0.11	
hd, final value (s)					4.26		3.98		4.18	
x, final value					0.07		0.13		0.15	
Move-up time, m (s)					2.	0	2.	0	2.	.0
Service Time, t <sub>s</sub> (s)					2.3		2.0		2.2	
Capacity and Level of	Service	9								<del></del>
		Eastb	ound	T	West	bound	North	bound	South	nbound
	L1		L2		L1	L2	L1	L2	L1	L2
Capacity (veh/h)					311		366		376	
Delay (s/veh)					7.59		7.57		7.90	
LOS					Α		Α		A	<b>T</b>
Approach: Delay (s/veh)					7.5	59	7.5	57	<del></del>	90
LOS				$\dashv$	A	<del></del>	A		/	·
Intersection Delay (s/veh)						7.				
Intersection LOS	-	•								
							•			

		ALL-W	AY STOP C	ONTROL	ANALYSIS	S		
General Information				Site Inform	nation			
Analyst	UL			Intersection		1		
Agency/Co.		& Associates		Jurisdiction			Pasadena	
Date Performed	1/31/2	008 I PM Peak Ho		Analysis Year		2022		
Analysis Time Period			our	4	<del> </del>			
Project ID Future With Project		is		N		A		
East/West Street: Howard St				North/South S	treet: Marengo	Ave.		
Volume Adjustments	and Site Ch	aracterist				10/5	all arrad	
Approach Movement			Eastbound T	R	L	vve	stbound T	R
Volume (veh/h)	- o		0	0	34		0	28
%Thrus Left Lane			····					
Approach		<del></del>	Northbound			Sou	thbound	
Movement	L		T	R	L		T	R
Volume (veh/h)		)	80	36	21		106	0
%Thrus Left Lane								
	Eas	tbound	Wes	tbound	North	rbound	Sout	hbound
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LTR		TR		LT	
PHF			1.00		1.00		1.00	
Flow Rate (veh/h)			62	1	116	1	127	
% Heavy Vehicles			0		0		0	
No. Lanes		0		1		1	1	
Geometry Group				1		1		1
Duration, T				1.	.00			
Saturation Headway	Adjustment	Workshee	et					
Prop. Left-Turns			0.5		0.0		0.2	
Prop. Right-Turns			0.5		0.3	<u> </u>	0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	<u> </u>
hLT-adj		<del>                                     </del>	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-	<del> </del>	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	<del> </del>	<del> </del>	1.7	1.7	1.7	1.7	1.7	1.7
	<del> </del>	<del> </del>	-0.2	1.7	-0.2	1.7		<del> '-'-</del>
hadj, computed	<del></del>	<u> </u>	-0.2	<del></del>	1 -0.2	<u> </u>	0.0	<u> </u>
Departure Headway a	ind Service	Time						
hd, initial value (s)		<u> </u>	3.20		3.20		3.20	ļ
x, initial			0.06	<b></b>	0.10	<u> </u>	0.11	ļ
hd, final value (s)	<del>- </del>		4.26	ļ	3.98	<del> </del>	4.19	ļ
x, final value			0.07	<u> </u>	0.13	<u> </u>	0.15	<u> </u>
Move-up time, m (s)		т	<del></del>	2.0	2.	.0	1	.0
Service Time, t <sub>s</sub> (s)		L	2.3	<u></u>	2.0	<u> </u>	2.2	<u> </u>
Capacity and Level o	f Service							
	Eas	bound	Wes	tbound	North	bound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)			312		366		377	
Delay (s/veh)			7.59		7.57		7.91	
LOS			A		A		Α	
Approach: Delay (s/veh)		<del>'</del>		59		57	<del> </del>	91
LOS	<del>                                     </del>			4	1 7.5		<del></del>	4
Intersection Delay (s/veh)	<del> </del>				72	1	<u> </u>	
Intersection LOS	1 -				Δ			

#### TWO-WAY STOP CONTROL SUMMARY Site Information General Information Analyst Intersection Agency/Co. Date Performed Crain & Associates City of Pasadena Jurisdiction 1/31/2008 Analysis Year 2008 Analysis Time Period AM Peak Hour Project Description Existing Traffic Conditions North/South Street: Garfield Ave. East/West Street: Howard St. Intersection Orientation: East-West Study Period (hrs): 1.00 Vehicle Volumes and Adjustments Eastbound Westbound Major Street Movement 1 2 3 4 5 6 L $\overline{\mathsf{R}}$ R Volume (veh/h) 5 22 11 52 21 53 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 5 22 11 53 52 21 (veh/h) Percent Heavy Vehicles 0 0 ---\_\_ \_\_ --Undivided Median Type RT Channelized 0 0 Lanes 0 1 0 0 1 0 LTR LTR Configuration $\overline{o}$ Upstream Signal 0 Minor Street Southbound Northbound Movement 9 10 12 8 11 L T R L T R Volume (veh/h) 11 15 33 6 33 8 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 11 15 33 6 33 8 (veh/h) Percent Heavy Vehicles ō 0 0 0 0 0 Percent Grade (%) 0 0 Flared Approach Ν Ν Storage 0 0 RT Channelized 0 0 Lanes 0 0 1 Ō Configuration LTR LTR Delay, Queue Length, and Level of Service Approach Eastbound Westbound Northbound Southbound Movement 7 8 10 11 12 Lane Configuration **LTR** LTR LTR LTR v (veh/h) 5 53 59 47 C (m) (veh/h) 1540 1592 839 706 0.00 0.03 0.07 0.07 v/c 95% queue length 0.01 0.10 0.23 0.21 Control Delay (s/veh) 7.3 7.3 10.5 9.6 LOS В Α Α Α Approach Delay (s/veh) 9.6 10.5 Approach LOS Α В

#### TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information Analyst Intersection Crain & Associates Agency/Co. Jurisdiction City of Pasadena 1/31/2008 2022 Date Performed Analysis Year AM Peak Hour Analysis Time Period Project Description Future Without Project Traffic Conditions East/West Street: Howard St. North/South Street: Garfield Ave. Intersection Orientation: East-West Study Period (hrs): 1.00 Vehicle Volumes and Adjustments **Major Street** Eastbound Westbound Movement 1 2 3 4 6 R R Volume (veh/h) 27 26 6 14 65 64 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 6 27 14 65 64 26 (veh/h) Percent Heavy Vehicles 0 0 \_\_ --Median Type Undivided RT Channelized 0 o 0 1 0 0 1 Õ Lanes LTR Configuration LTR Upstream Signal 0 0 Minor Street Northbound Southbound Movement 7 9 10 12 8 11 L T R L T R Volume (veh/h) 14 18 41 41 10 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 14 7 18 41 41 10 (veh/h) Percent Heavy Vehicles 0 0 0 0 0 Ō Percent Grade (%) 0 0 Flared Approach Ν Ν Storage 0 0 RT Channelized 0 0 anes 0 0 0 0 1 Configuration LTR LTR Delay, Queue Length, and Level of Service Westbound Approach Eastbound Northbound Southbound Movement 1 4 7 9 8 10 12 11 Lane Configuration LTR LTR LTR LTR (veh/h) 6 65 73 58 799 C (m) (veh/h) 1518 1581 659 0.00 0.04 0.09 v/c 0.09 95% queue length 0.01 0.30 0.29 0.13 Control Delay (s/veh) 7.4 7.4 10.0 11.0 .os Α Α Α В Approach Delay (s/veh) 10.0 11.0 Approach LOS Α В

#### TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information Analyst Intersection Crain & Associates Jurisdiction City of Pasadena Agency/Co. Date Performed 1/31/2008 Analysis Year 2022 Analysis Time Period AM Peak Hour Project Description Future With Project Traffic Conditions East/West Street: Howard St. North/South Street: Garfield Ave. East-West Intersection Orientation: Study Period (hrs): 1.00 Vehicle Volumes and Adjustments Eastbound Westbound **Major Street** Movement 4 1 2 3 5 6 L R Ĺ R Volume (veh/h) 6 27 77 65 27 16 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 6 27 16 77 65 27 (veh/h) Percent Heavy Vehicles 0 0 -----\_\_ --Undivided Median Type RT Channelized 0 0 0 1 0 0 1 0 Lanes LTR Configuration LTR Upstream Signal 0 ō Minor Street Northbound Southbound Movement 9 10 11 12 8 R L T L Т R Volume (veh/h) 14 18 43 7 42 10 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 14 7 18 43 42 10 veh/h) Percent Heavy Vehicles 0 0 0 0 0 0 Percent Grade (%) 0 0 Flared Approach N Ν Storage 0 0 RT Channelized 0 0 anes ō 1 0 0 1 Ō Configuration LTR LTR Delay, Queue Length, and Level of Service Approach Eastbound Westbound Northbound Southbound Movement 4 7 8 9 10 12 11 Lane Configuration LTR LTR LTR **LTR** / (veh/h) 6 77 75 59 C (m) (veh/h) 1515 1579 783 633 0.05 v/c 0.00 0.10 0.09 95% queue length 0.01 0.15 0.32 0.31 Control Delay (s/veh) 7.4 7.4 10.1 11.3 \_OS Α Α В В Approach Delay (s/veh) 10.1 11.3

Approach LOS

В

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В

#### TWO-WAY STOP CONTROL SUMMARY **General Information** Site Information Analyst Intersection City of Pasadena Agency/Co. Crain & Associates Jurisdiction Date Performed 1/25/2008 Analysis Year 2008 Analysis Time Period School PM Peak Hour Project Description Existing Traffic Conditions North/South Street: Garfield Ave. East/West Street: Howard St. Intersection Orientation: East-West Study Period (hrs): 1.00 Vehicle Volumes and Adjustments Eastbound Westbound Major Street Movement 2 3 4 6 5 1 R T R L T L Volume (veh/h) 8 32 10 25 30 35 1.00 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 8 32 10 25 30 35 (veh/h) 0 0 Percent Heavy Vehicles \_\_ Median Type Undivided RT Channelized 0 0 Lanes 0 1 0 0 1 0 LTR LTR Configuration 0 0 Upstream Signal Minor Street Northbound Southbound 12 Movement 9 10 11 8 L T R L T R Volume (veh/h) 3 20 27 14 25 8 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 3 20 27 14 25 8 (veh/h) Percent Heavy Vehicles 0 0 0 0 0 0 0 Percent Grade (%) 0 Flared Approach Ν Ν 0 0 Storage RT Channelized 0 0 0 0 0 Lanes 0 1 LTR LTR Configuration Delay, Queue Length, and Level of Service Eastbound Westbound Northbound Southbound Approach Movement 7 9 10 12 1 4 8 11 ane Configuration LTR LTR **LTR LTR** 25 50 47 v (veh/h) 8 C (m) (veh/h) 1550 1580 863 768 0.02 0.06 0.06 v/c 0.01 95% queue length 0.02 0.05 0.18 0.20 Control Delay (s/veh) 7.3 7.3 9.4 10.0 .OS Α Α A Α 9.4 10.0 Approach Delay (s/veh) Approach LOS Α Α

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	TW	O-WAY STOP	CONTR	OL SUM	MARY			
General Information	n		Site I	nformati	on			
Analyst	JL.		Inters	ection		2		
Agency/Co.	Crain & A	ssociates	Jurisd	iction		City of P	asadena	
Date Performed	1/31/200		Analys	sis Year		2022		
Analysis Time Period		M Peak Hour		······				
Project Description Fi		roject Traffic Con						
East/West Street: How				South Stree		ld Ave.		
Intersection Orientation:	East-West		Study	Period (hrs	s): 1.00			
Vehicle Volumes a	nd Adjustme			<u> </u>				
Major Street	<del></del> _	Eastbound		$\longrightarrow$		Westbou	ınd	
Movement	1	2	3		4	5 T		6
Valuma (vah/h)	10	39	12		L 31	37		R 43
Volume (veh/h) Peak-Hour Factor, PHF		1.00	1.00	<del>  </del>	1.00	1.00		1.00
Hourly Flow Rate, HFR			<del>                                     </del>	<del>'</del>		1		
(veh/h)	10	39	12		31	37		43
Percent Heavy Vehicles	0							
Median Type				Undivide	d			
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration	LTR				LTR			
Upstream Signal		0				0		
Minor Street		Northbound				Southboo	ınd	
Movement	7	8	9		10	11		12
	L	T	R		L	T		R
Volume (veh/h)	4	25	33		17			10
Peak-Hour Factor, PHF	1.00	1.00	1.00		1.00	1.00		1.00
Hourly Flow Rate, HFR (veh/h)	4	25	33		17	31		10
Percent Heavy Vehicles	0	0	0		0	0		0
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length,	and Level of Se	ervice			<u>-</u>			
Approach	Eastbound	Westbound		Northbound	Ł	S	outhbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	10	31		62			58	
C (m) (veh/h)	1531	1568		829			729	
v/c	0.01	0.02		0.07		Ţ	0.08	
95% queue length	0.02	0.06		0.24			0.26	
Control Delay (s/veh)	7.4	7.3		9.7	<del>                                     </del>	†	10.4	<b> </b>
Los	Α	A		A	†	<del>                                     </del>	В	
Approach Delay (s/veh)				9.7	I	<del> </del>	10.4	<u> </u>
Approach LOS	_			A			B	
	-		L			L		

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#### TWO-WAY STOP CONTROL SUMMARY General Information Site Information Analyst Intersection Agency/Co. Crain & Associates Jurisdiction City of Pasadena Date Performed 1/31/2008 Analysis Year 2022 Analysis Time Period School PM Peak Hour Project Description Future With Project Traffic Conditions East/West Street: Howard St. North/South Street: Garfield Ave. Intersection Orientation: East-West Study Period (hrs): 1.00 Vehicle Volumes and Adjustments Eastbound Westbound Maior Street Movement 1 2 3 4 6 5 T R T L L R Volume (veh/h) 10 39 13 40 38 44 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 10 39 13 40 38 44 (veh/h) Percent Heavy Vehicles 0 0 --Median Type Undivided RT Channelized 0 0 Lanes 0 0 0 1 1 0 Configuration LTR LTR Upstream Signal 0 0 Minor Street Northbound Southbound Movement 9 10 12 R L T L Т R Volume (veh/h) 4 25 35 17 32 10 Peak-Hour Factor, PHF 1.00 1.00 1.00 1.00 1.00 1.00 Hourly Flow Rate, HFR 4 25 35 17 32 10 (veh/h) Percent Heavy Vehicles 0 0 0 0 0 0 Percent Grade (%) 0 0 Flared Approach Ν Ν 0 Storage 0 RT Channelized 0 0 0 1 0 0 Lanes ō Configuration LTR LTR Delay, Queue Length, and Level of Service Approach Eastbound Westbound Northbound Southbound Movement 4 7 9 10 11 12 Lane Configuration LTR LTR LTR LTR v (veh/h) 10 40 64 59 1567 C (m) (veh/h) 1528 818 705 v/c 0.01 0.03 0.08 0.08 95% queue length 0.02 0.08 0.25 0.27 Control Delay (s/veh) 7.4 9.8 7.4 10.6 LOS Α Α Α В Approach Delay (s/veh) 9.8 10.6 Approach LOS

Α

В

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INTERSECTION: 3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: EXISTING (2008)

		**	INPUT	VOLUMES	**		
APPROACH				**	ŧ	RIGHT TURN	s **
	LEFT		THROUGH	M)	IN ON G	REEN M	AX ON RED
WESTBOUND	0		0		0		0
EASTBOUND	13		0		154		0
NORTHBOUND	56		331		0		0
SOUTHBOUND	0		579		29		0
		**	NUMBER	OF LANES	3 **		
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	LATOT
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	0	0	0	0	0	1	1
NORTHBOUND	1	0	1	0	0	0	2
SOUTHBOUND	0	0	0	1	0	0	1
		**	ASSIGNED	CAPACI	TIES **		
APPROACH	LEFT	LEFT	_	DUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARI			SHARED	ONLY	SHARED
WESTBOUND	N/A	N/I		A/A	N/A	N/A	N/A
EASTBOUND	N/A	N/I	A I	A/A	N/A	N/A	1700
NORTHBOUND	1700	N/2	A 1.	700	N/A	N/A	N/A
SOUTHBOUND	N/A	N/2	A 1	I/A	1700	N/A	N/A
		**	3 GG TGNIDI	/ci	TOO 44		
3 D D D O 3 G I I	T ETIM	LEFT		OV/CRAT OUGH	RIGHT	RIGHT	L/T/R
APPROACH	LEFT						SHARED
t ID Comportant	ONLY	SHARI N/A		NLY S N/A	SHARED N/A	ONLY N/A	N/A
WESTBOUND	N/A	•		•	•	N/A N/A	0.098
EASTBOUND NORTHBOUND	N/A 0.033	N/I N/I		N/A L95	N/A N/A	N/A N/A	0.098 N/A
		N/1 N/1			N/A 0.358	N/A N/A	N/A N/A
SOUTHBOUND	N/A	IN / I	- <b>7</b> 1	V/A	1.358	N/A	N/A
	EAST-WEST CR	TOTAL V	/C DATE			0 099	
	NORTH-SOUTH						
	CLEARANCE IN		•				
	CHRIMINION IN	CTVALT.				5.200	
	ICU VALUE					0.589	
		- · · · · · · ·				-	
	LEVEL OF SER	VICE		. <i></i>		A	

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School\Data\ICAP7\Total PCS 2-08.xls, Worksheet: SortedTotal, Row: 2
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INTERSECTION: 3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: FUTURE (2022) WITHOUT PROJECT

		**	INPUT '	VOLUMES	**		
APPROACH				* *		RIGHT TURN	IS **
	LEFT		THROUGH	MI	N ON	GREEN M	MAX ON RED
WESTBOUND	0		0			0	0
EASTBOUND	16		0		19	0	0
NORTHBOUND	69		408			0	0
SOUTHBOUND	0		713		3	6	0
		**	NUMBER	OF LANES	; **	•	
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGH	T L/T/R	TOTAL
	ONLY	SHARED	ONLY	SHARED	ONL	Y SHARED	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	0	0	0	0	0	1	1
NORTHBOUND	1	0	1	0	0	0	2
SOUTHBOUND	0	0	0	1	0	0	1 .
		**	ASSIGNE	CAPACIT	TIES *	*	
APPROACH	LEFT	LEFT	r THRO	DUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARI	IO OI	NLY S	HARED	ONLY	SHARED
WESTBOUND	N/A	N/2	. A	A/N	N/A	N/A	N/A
EASTBOUND	N/A	N/A	A 1	I/A	N/A	N/A	1700
NORTHBOUND	1700	N/2	A 1'	700	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A	. A	I/A	1700	N/A	N/A
		**		V/C RAT			
APPROACH	LEFT	LEFT			RIGHT		L/T/R
	ONLY	SHARI			HARED		SHARED
WESTBOUND	N/A	N/A		I/A	N/A	N/A	N/A
EASTBOUND	N/A	N/I		1/A	N/A	N/A	0.121
NORTHBOUND	0.041	N/2			N/A	N/A	N/A
SOUTHBOUND	N/A	N/1	. I	I/A 0	.441	N/A	N/A
	EAST-WEST CRI						
	NORTH-SOUTH C						
	CLEARANCE INT	ERVAL	• • • • • • •		• • • • •	. 0.100	
	ICU VALUE	· · · · · · · ·	· • • • • • • •		• • • • •	. 0.702	
	1 DUDI OF CO	T.O.					
	LEVEL OF SERV	1CE	· • • • • • • •		• • • • •	. С	

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INTERSECTION: 3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: FUTURE (2022) WITH PROJECT

		**	INPUT	VOLUMES	**		
APPROACH				**	F	RIGHT TURN	S **
	LEFT		THROUGH	MI	N ON GE	REEN MA	AX ON RED
WESTBOUND	0		0		0		0
EASTBOUND	18		0		216		0
NORTHBOUND	74		408		0		0
SOUTHBOUND	0		713		39		0
		**	NUMBER	OF LANES	**		
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	0	0	0	0	0	1	1
NORTHBOUND	1	0	1	0	0	0	2
SOUTHBOUND	0	0	0	1	0	0	1
		**	ASSIGNE	CAPACIT	IES **		
APPROACH	LEFT	LEFT	r THRO	OUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARE	ED OI	NLY S	HARED	ONLY	SHARED
WESTBOUND	N/A	N/A	A 1	N/A	N/A	N/A	N/A
EASTBOUND	A/N	N/I	<b>4</b> 1	A/N	N/A	N/A	1700
NORTHBOUND	1700	N/A	A 1.	700	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A	A 1	A/r	1700	N/A	N/A
		* *	ASSIGNE	V/C RAT	CIOS **		
APPROACH	LEFT	LEFT	r THRO	OUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARE	ED OI	NLY S	HARED	ONLY	SHARED
WESTBOUND	N/A	N/A	A 1	A/N	N/A	N/A	N/A
EASTBOUND	N/A	N/A	A 1	N/A	N/A	N/A	0.138
NORTHBOUND	0.044	N/A	A 0.2	240	N/A	N/A	N/A
SOUTHBOUND	N/A	N/P	A 1	N/A 0	.442	N/A	N/A
	EAST-WEST CRI						
	NORTH-SOUTH C	RITICAL	V/C RAT			0.486	
	CLEARANCE INT	ERVAL				0.100	
	ICU VALUE		· • • • • • • • •			0.724	
	LEVEL OF SERV	ICE		<i></i>		C	

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INTERSECTION:3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: SCHOOL PM PEAK HOUR

CASE: EXISTING (2008)

		**	INPUT V	OLUMES	**		
APPROACH				**	+	RIGHT TUR	NS **
	LEFT		THROUGH	M	IN ON G	REEN I	MAX ON RED
WESTBOUND	0		0		0		0
EASTBOUND	19		0		117		0
NORTHBOUND	56		437		0		0
SOUTHBOUND	0		371		15		0
		**	NUMBER	OF LANES	3 **		
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	0	0	0	0	0	1	1
NORTHBOUND	1	0	1	0	0	0	2
SOUTHBOUND	0	0	0	1	0	0	1
		**		CAPACIT	TIES **		
APPROACH	LEFT	LEFT		DUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARE			HARED	ONLY	SHARED
WESTBOUND	N/A	N/A		I/A	N/A	N/A	N/A
EASTBOUND	N/A	N/A		1/A	N/A	N/A	1700
NORTHBOUND	1700	N/A		700	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A	Y 1	I/A	1700	N/A	N/A
		**	ASSTONE	V/C RAT	* * 20T		
APPROACH	LEFT	LEFT		OUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARE			HARED	ONLY	SHARED
WESTBOUND	N/A	N/A		1/A	N/A	N/A	N/A
EASTBOUND	N/A	N/A		I/A	N/A	N/A	0.080
NORTHBOUND	0.033	N/A		257	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A			.227	N/A	N/A
300111200112	,	,	•	.,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	21,722
	EAST-WEST CR	ITICAL V/	C RATIO			0.080	
	NORTH-SOUTH	CRITICAL	V/C RATI			0.260	
	CLEARANCE IN	TERVAL				0.100	
	ICU VALUE					0.440	
	LEVEL OF SER	VICE				A	

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INTERSECTION: 3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: SCHOOL PM PEAK HOUR

CASE: FUTURE (2022) WITHOUT PROJECT

		**	INPUT V	OLUMES	**		
APPROACH				*		RIGHT TURI	
	LEFT		THROUGH	M	IN ON (		MAX ON RED
WESTBOUND	0		0			0	0
EASTBOUND	23		0		14		0
NORTHBOUND	- <del>-</del>		540			0	0
SOUTHBOUND	0		460		18	8	0
		**	MIMDED	OF LANE	S **		
APPROACH	LEFT	LEFT	THROUGH	RIGHT	_	r L/T/R	TOTAL
III I ROMEN	ONLY	SHARED	ONLY	SHARED		• •	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	Ö	0	0	0	0	1	1
NORTHBOUND		0	1	0	0	0	2
SOUTHBOUND	<del>-</del>	0	0	1	0	0	1
500111500115	· ·	Ü	Ü	-	Ū	J	-
		* *	ASSIGNED	CAPACI	TIES *	*	
APPROACH	LEFT	LEFT	THRC	UGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARE	ED ON	ILY :	SHARED	ONLY	SHARED
WESTBOUND	N/A	N/F	A N	I/A	N/A	N/A	N/A
EASTBOUND	N/A	N/A	A N	I/A	N/A	N/A	1700
NORTHBOUND	1700	N/A	17	00	N/A	N/A	N/A
SOUTHBOUND	N/A	N/F	y N	I/A	1700	N/A	N/A
		**	ASSIGNED	י ע/כי דאי	TTOS **	*	
APPROACH	LEFT	LEFT		•	RIGHT		L/T/R
	ONLY	SHARE			SHARED	ONLY	SHARED
WESTBOUND	N/A	N/A		/A	N/A	N/A	N/A
EASTBOUND	N/A	N/A		/A	N/A	N/A	0.098
NORTHBOUND	0.041	N/A			N/A	N/A	N/A
SOUTHBOUND	N/A	N/A			0.281	N/A	N/A
		·		•		,	,
	EAST-WEST CRI	TICAL V/	C RATIO			. 0.098	
	NORTH-SOUTH C						
	CLEARANCE INT	ERVAL	• • • • • • • •	• • • • • • •		. 0.100	
	ICU VALUE					0 500	
	TCO VALUE					. 0.320	
	LEVEL OF SERV	/ICE				. А	
					• •		

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INTERSECTION: 3, Howard St. & Los Robles Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: SCHOOL PM PEAK HOUR

CASE: FUTURE (2022) WITH PROJECT

		**	INPUT	VOLUMES	**		
APPROACH				**		RIGHT TURN	S **
	LEFT		THROUGH	MI	N ON G	REEN M	AX ON RED
WESTBOUND	0		0		0		0
EASTBOUND	25		0		164		0
NORTHBOUND	72		540		0		0
SOUTHBOUND	0		460		20		0
		**	NUMBER	OF LANES	**		
APPROACH	LEFT	$_{ m LEFT}$	THROUGH	RIGHT	RIGHT	L/T/R	LATOT
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES
WESTBOUND	0	0	0	0	0	0	0
EASTBOUND	Ö	0	0	0	0	1	1
NORTHBOUND	1	0	1	0	0	0	2
SOUTHBOUND	0	0	0	1	0	0	1
		**		CAPACIT	IES **		
APPROACH	LEFT	LEFT	THRO	DUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARI			HARED	ONLY	SHARED
WESTBOUND	N/A	N/A		1/A	N/A	N/A	N/A
EASTBOUND	N/A	N/I		A/N	$A \setminus N$	N/A	1700
NORTHBOUND		N/Z		700	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A	, i	I/A	1700	N/A	N/A
		**	ASSIGNE	V/C RAT	TOS **		
APPROACH	LEFT	LEFT		•	RIGHT	RIGHT	L/T/R
	ONLY	SHARE			HARED	ONLY	SHARED
WESTBOUND	N/A	N/A		1/A	N/A	N/A	N/A
EASTBOUND	N/A	N/A		I/A	N/A	N/A	0.111
NORTHBOUND	•	N/A		318	N/A	N/A	N/A
SOUTHBOUND	N/A	N/A			.282	N/A	N/A
	<b>,</b>			•			
	EAST-WEST CRI	TICAL V	C RATIO			0.111	
	NORTH-SOUTH C	RITICAL	V/C RATI	01		0.325	
	CLEARANCE INT	ERVAL	. <b></b> .			0.100	
	ICU VALUE 0.536						
	LEVEL OF SERV	ICE			• • • • • •	Α	

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INTERSECTION: 4, Washington Blvd. & Marengo Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: EXISTING (2008)

		**	INPUT	VOLUMES	**			
APPROACH				**	R	IGHT TURN	s **	
	LEFT		THROUGH	MI	N ON GR	EEN M	AX ON RED	
WESTBOUND	0		991		33		0	
EASTBOUND	21		613		0		0	
NORTHBOUND	21		. 25		0		26	
SOUTHBOUND	68		0		105		0	
		**	NUMBER	OF LANES	**			
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL	
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES	
WESTBOUND	0	0	1	1	0	0	2	
EASTBOUND	1	0	2	0	0	0	3	
NORTHBOUND	1	0	1	0	1	0	3	
SOUTHBOUND	0	0	0	0	0	1	1	
		**		CAPACIT	IES **			
APPROACH	LEFT	LEFT	r THRO	DUGH	RIGHT	RIGHT	L/T/R	
	ONLY	SHARI	ED OI	NLY S	HARED	ONLY	SHARED	
WESTBOUND	N/A	N/A	A 16	500	1600	N/A	N/A	
EASTBOUND	1600	N/A		200	N/A	N/A	N/A	
NORTHBOUND		N/A 16		500	N/A	1600	N/A	
SOUTHBOUND	N/A	N/A	A 1	A/A	N/A	N/A	1600	
				/	<b>700</b>			
		**		V/C RAT		D.T.G.1100	- (- (-	
APPROACH	LEFT	LEFT			RIGHT	RIGHT	L/T/R	
	ONLY	SHARI			HARED	ONLY	SHARED	
WESTBOUND	N/A	N/A			.320	N/A	N/A	
EASTBOUND	0.013	N/A		191	N/A	N/A	N/A	
NORTHBOUND		N/A		016	N/A	0.000	N/A	
SOUTHBOUND	N/A	N/I	4 r	I/A	N/A	N/A	0.108	
	EAST-WEST CRI	TOTAL W	/C DATE					
	NORTH-SOUTH							
	CLEARANCE INT							
	CLEARANCE IN	LINVALL				0.100		
ICU VALUE 0.557								
	LEVEL OF SERV	/ICE				A		
Capacity	sed for through	th lanes	firet 5	TT bos TS	lanes -	= 1600		
capacity a	oca for childre	, rancs,	· LIIGU I	ci unu ni	Luncio -	- 1000.		

Northbound and Southbound approaches have opposed signal phases.

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INTERSECTION: 4, Washington Blvd. & Marengo Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: FUTURE (2022) WITHOUT PROJECT

		**	INPUT V	OLUMES	**			
APPROACH				*	* F	RIGHT TURN	S **	
	LEFT		THROUGH	M:	IN ON GE	REEN M	AX ON RED	
WESTBOUND	. 0		1225		41		0	
EASTBOUND	26		757		0		0	
NORTHBOUND	26		31				32	
SOUTHBOUND	84		0		129		0	
		**		OF LANES	S **			
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL	
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES	
WESTBOUND	. 0	0	1	1	0	0	2	
EASTBOUND	1	0	2	0	0	0	3	
NORTHBOUND	<del></del>	0	1	0	1	0	3	
SOUTHBOUND	0	0	0	0	0	1	1	
		**	ASSIGNED		NTDG 44			
APPROACH	LEFT	LEFT			RIGHT	RIGHT	7 /m /n	
AFFROACH	ONLY	SHARE			SHARED	-	L/T/R	
WESTBOUND	N/A	N/A		200	1600	ONLY N/A	SHARED N/A	
EASTBOUND	1600	N/F		200	N/A	N/A N/A	N/A N/A	
NORTHBOUND	1600	N/A		500	N/A N/A	1600	N/A N/A	
SOUTHBOUND	N/A		N/A N/		N/A N/A	N/A	N/A 1600	
BOOTHBOOND	N/A	N/ F	7 IV	I/ A	IV/A	N/A	1600	
		**	ASSIGNED	V/C RAT	TIOS **			
APPROACH	LEFT	LEFT	THRO	UGH	RIGHT	RIGHT	L/T/R	
	ONLY	SHARE	D ON	ILY S	HARED	ONLY	SHARED	
WESTBOUND	N/A	N/A	0.3	96 (	396	N/A	N/A	
EASTBOUND	0.016	N/A	0.2	36	N/A	N/A	N/A	
NORTHBOUND	0.016	N/A	0.0	19	N/A	0.000	N/A	
SOUTHBOUND	N/A	N/A	N A	I/A	N/A	N/A	0.133	
	EAST-WEST CR							
	NORTH-SOUTH							
	CLEARANCE IN	TERVAL	• • • • • • • •			0.100		
ICU VALUE 0.664								
	LEVEL OF SER	VICE				В		
Capacity us	sed for throu	gh lanes,	first R	T and LT	lanes	= 1600.		

Northbound and Southbound approaches have opposed signal phases.

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INTERSECTION:4, Washington Blvd. & Marengo Ave.
DATE: 1/31/2008 INITIALS: CB PERIOD: AM PEAK HOUR

CASE: FUTURE (2022) WITH PROJECT

		**	INPUT V	OLUMES	**		
APPROACH				**	F	IGHT TURN	S **
	LEFT		THROUGH	MI	N ON GE	REEN MA	AX ON RED
WESTBOUND	0		1235		41		0
EASTBOUND	26		765		0		0
NORTHBOUND	26		31		0		36
SOUTHBOUND	84		0		129		0
		**	NUMBER	OF LANES	**		
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES
WESTBOUND	0	0	1	1	0	0	2
EASTBOUND	1	0	2	0	0	0	3
NORTHBOUND	1	0	1	0	1	0	3
SOUTHBOUND	0	0	0	0	0	1	1
		**	ASSIGNE	CAPACIT	IES **		
APPROACH	LEFT	LEFT	r THRO	DUGH	RIGHT	RIGHT	L/T/R
	ONLY	SHARI	ED OI	NLY S	HARED	ONLY	SHARED
WESTBOUND	N/A	N/A	A 16	500	1600	N/A	N/A
EASTBOUND	1600	N/2	A 32	200	N/A	N/A	N/A
NORTHBOUND	1600	N/R	A 16	500	N/A	1600	N/A
SOUTHBOUND	N/A	N/A	1 A	I/A	N/A	N/A	1600
		**		V/C RAT			
APPROACH	LEFT	LEF"		-	RIGHT	RIGHT	L/T/R
	$\mathtt{ONLY}$	SHARI			HARED	ONLY	SHARED
WESTBOUND	N/A	N/2		-	.399	N/A	N/A
EASTBOUND	0.016	N/A		239	N/A	N/A	N/A
NORTHBOUND	0.016	N/A		19	N/A	0.000	N/A
SOUTHBOUND	N/A	N/I	A 1	I/A	N/A	N/A	0.133
	EAST-WEST CRI	TICAL V	C RATIO	· · · · · · · · ·		0.415	
	NORTH-SOUTH C						
	CLEARANCE INT	ERVAL .	• • • • • • • •		• • • • •	0.100	
TCU VALUE							
	ICU VALUE		• • • • • • • •		• • • • • •	0.000	
	LEVEL OF SERV	ICE				В	
Capacity us	sed for through	h lanes,	, first E	RT and LT	lanes	= 1600.	

Northbound and Southbound approaches have opposed signal phases.

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INTERSECTION: 4, Washington Blvd. & Marengo Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: SCHOOL PM PEAK HOUR

CASE: EXISTING (2008)

		**	INPUT V	OLUMES	**			
APPROACH				*:	* F	IGHT TURN	S **	
	LEFT		THROUGH	M	IN ON GR	EEN M	AX ON RED	
WESTBOUND	0		649		50		0	
EASTBOUND	43		683		0		0	
NORTHBOUND	30		25		4		25	
SOUTHBOUND	65		0				0	
		**	NUMBER	OF LANES	S **			
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL	
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES	
WESTBOUND	0	0	1	1	0	0	2	
EASTBOUND	1	0	2	0	0	0	3	
NORTHBOUND	1	0	1	0	1	0	3	
SOUTHBOUND	0	0	0	0	0	1	1	
3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		**		CAPACIT			- 1- 1-	
APPROACH	LEFT	LEFT			RIGHT	RIGHT	L/T/R	
	ONLY	SHARE			SHARED	ONLY	SHARED	
WESTBOUND	N/A	N/A		00	1600	N/A	N/A	
EASTBOUND	1600	N/A		200	N/A	N/A	N/A	
NORTHBOUND	1600	•	N/A 160		N/A	1600	N/A	
SOUTHBOUND	N/A	N/A	. 1	I/A	N/A	N/A	1600	
		**	ASSIGNED	V/C RAT	TIOS **			
APPROACH	LEFT	LEFT	THRO	UGH	RIGHT	RIGHT	L/T/R	
	ONLY	SHARE	D ON	ILY S	HARED	ONLY	SHARED	
WESTBOUND	N/A	N/A	0.2	19 0	.219	N/A	N/A	
EASTBOUND	0.027	N/A	0.2	14	N/A	N/A	N/A	
NORTHBOUND	0.019	N/A	0.0	16	N/A	0.002	N/A	
SOUTHBOUND	N/A	N/A	. N	I/A	N/A	N/A	0.087	
	EAST-WEST CR							
	NORTH-SOUTH							
	CLEARANCE IN	TERVAL	• • • • • • •	• • • • • • • •	• • • • • •	0.100		
ICU VALUE 0.451								
	LEVEL OF SER	VICE				Α		
Capacity us	ed for through	gh lanes,	first R	T and LT	lanes	= 1600.		

Northbound and Southbound approaches have opposed signal phases.

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INTERSECTION: 4, Washington Blvd. & Marengo Ave.

DATE: 1/31/2008 INITIALS: CB PERIOD: SCHOOL PM PEAK HOUR

CASE: FUTURE (2022) WITHOUT PROJECT

		**	INPUT V	OLUMES	**			
APPROACH				**	F	IGHT TURN	s **	
	LEFT		THROUGH	MI	N ON GE	REEN M	AX ON RED	
WESTBOUND	0		815		62		0	
EASTBOUND	53		862		0		0	
NORTHBOUND	37		31		6			
SOUTHBOUND	80		0		91			
		**		OF LANES	**			
APPROACH	LEFT	LEFT	THROUGH	RIGHT	RIGHT	L/T/R	TOTAL	
	ONLY	SHARED	ONLY	SHARED	ONLY	SHARED	LANES	
WESTBOUND	0	0	1	1	0	0	2	
EASTBOUND	1	0	2	0	0	0	3	
NORTHBOUND		0	1	0	1	0	3	
SOUTHBOUND	0	0	0	0	0	1	1	
		**	A COTONIE	CAPACIT	TEC ++			
APPROACH	LEFT	LEFT			RIGHT	RIGHT	L/T/R	
APPROACH	ONLY	SHARI			HARED	ONLY	SHARED	
WESTBOUND	N/A	SHARI N/A			1600	N/A	N/A	
EASTBOUND	1600	N/A		200	N/A	N/A N/A	N/A N/A	
NORTHBOUND		N/A			N/A	1600	N/A	
SOUTHBOUND		•	N/A N		N/A N/A	N/A	1600	
SOUTHBOUND	N/A	14/ 1	<b>1</b>	I/ A	N/A	N/A	1000	
		**	ASSIGNED	V/C RAT	IOS **			
APPROACH	LEFT	LEFT	r THRO	UGH	RIGHT	RIGHT	L/T/R	
	ONLY	SHARI	ED ON	ILY S	HARED	ONLY	SHARED	
WESTBOUND	N/A	N/I	A 0.2	74 0	.274	N/A	N/A	
EASTBOUND	0.033	N/A	A 0.2	69	N/A	N/A	N/A	
NORTHBOUND	0.023	N/A	A 0.0	19	N/A	0.004	N/A	
SOUTHBOUND	N/A	N/I	y N	I/A	N/A	N/A	0.107	
	EAST-WEST CR							
	NORTH-SOUTH		-					
	CLEARANCE IN	TERVAL	· · · · · · · ·	• • • • • • • •	• • • • • •	0.100		
ICU VALUE 0.537								
	LEVEL OF SER	VICE				A		
Capacity u	sed for throu	gh lanes,	first F	T and LT	lanes	= 1600.		

Northbound and Southbound approaches have opposed signal phases.

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