

Final California Crosspoint School Transportation Assessment

Prepared for:
City of Hayward, Department of Public Works-
Transportation
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OK16-0093



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1 SETTING

This report summarizes the transportation assessment prepared for the proposed California Crosspoint High School (CCHS) project at 25500 Industrial Boulevard in Hayward. The site previously housed Heald College, a commuter college with approximately 1,400 students. The site is 5.5 acres and currently has one, two-story educational building that is approximately 60,000 square feet.

Initially, California Crosspoint intends to utilize the existing facility to house its 200 students. Over time, the school intends to further develop the site in four phases to eventually house a community center/gymnasium and a dormitory. At full buildout, the site will house approximately 600 students and 70 staff with 150 people living on site. Phase two will include the addition of a 42,000 square foot community center, phase three will add student and staff housing and phase four will add outdoor athletic facilities and additional parking.

For the purposes of this study, the site was analyzed at full buildout (phase four), including the estimated 670 future occupants, in accordance with the site plan dated December 17, 2015 (Figure 12).

1.1 PROJECT DESCRIPTION

The CCHS project proposes the development of a 400 student high school, 150 student middle school and 50 student preschool with 70 staff on a site located at 25500 Industrial Boulevard in Hayward. The site will have 150 students and staff living on site. The project site and its structures are currently vacant and would be retained and used for school purposes. Key aspects of the project (also shown in **Table 1**) and its operations include the following:

- Population: 600 students, 70 staff;
- School operates 4 buses which serve 200 students;
- School starts at 8:15 AM and ends at 3:20 PM.

Based on the current site plan, the project would use the existing vacant structure for all of the school's functions. This project also considers the addition of a gymnasium/community center and a three story dormitory to the site at full buildout (phase four).

TABLE 1: SITE POPULATION COMMUTE CHARACTERISTICS

	Students	Staff	Total
Living on-site	140	10	150
Commute to site	460	60	520
Total	600	70	670

Trip generation is the process of estimating the number of vehicles that would likely access the project. This project trip generation reflects the currently accepted Institute of Transportation Engineers (ITE) trip generation methodology, and is based on data collected at private schools (K-12). ITE is intended to estimate all trips to and from the site on a given day including but not limited to: student pick-up and drop-off, bus trips, deliveries and staff trips.

Table 2 presents the anticipated traffic for the students at the proposed project site. Of the 600 students, 300 will be using alternative transportation, as detailed in the Shuttle Plan (Section 4), or living on-site. Therefore, the trip generation provided is for 300 students.

The PM peak hour for the project is from 3:20 PM to 4:20 PM when the California Crosspoint School day ends. The project area is surrounded by industrial land-uses where the anticipated PM peak hour is between 4:00 PM to 6:00 PM. **Table 2** compares both PM peak hour rates to find a conservative approach for further analysis. We estimate that the proposed California Crosspoint High School would generate approximately 1,488 daily trips, 486 AM peak hour (7:30A-8:30A) trips, 348 PM peak hour of generator (3:20P-4:20P) trips and 102 trips during the PM peak hour of the adjacent street (5:00P-6:00P) due to after school activities.

TABLE 2: TRIP GENERATION SUMMARY

Land Use	ITE Code	Unit	Quantity	Daily Trips	AM Peak Hour (7:30A-8:30A)			PM Peak Hour (3:20P-4:20P)			PM Peak of Adjacent Street (5:00P-6:00P)		
					In	Out	Total	In	Out	Total	In	Out	Total
Private School (K-12)	536 ¹	Students	600	1,488	296	190	486	146	202	348	44	58	102
<i>Students and Staff Living On-Site</i>				150									
<i>Students Arriving by Bus²</i>				150									
Total			300	744	148	95	243	73	101	174	22	29	51

Notes:

- ITE Trip Generation (9th Edition) land use category 536 (Private School K-12)
Daily Average Rate = 2.48 trips per Student
AM Peak Hour Average Rate = 0.81 trips per Student (61% in, 39% out)
PM Peak Hour Average Rate = 0.58 trips per Student (42% in, 58% out)
PM Peak Hour at Adjacent Street= 0.17 trips per Student (43% in, 57% out)
- See Shuttle Plan (Section 4)

Source: Fehr & Peers, 2016.

1.2 PROJECT TRIP DISTRIBUTION

The school was able to provide residential zip code data for each student. Current students' zip code data and their origin location is summarized in **Table 3**. Using this information and likely paths of travel (assuming the shortest route possible is taken), project trip distribution was developed.

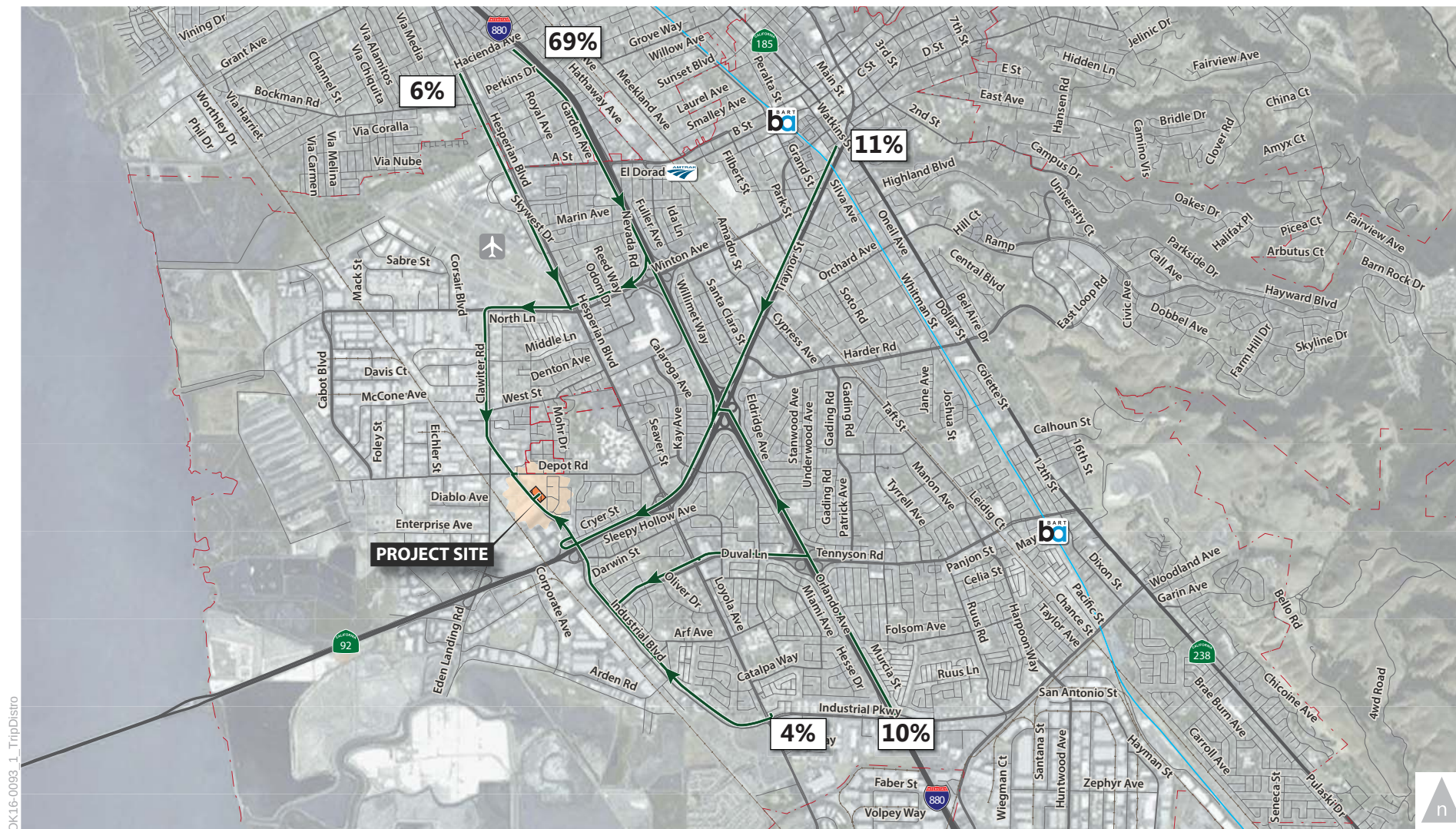
TABLE 3: CURRENT STUDENT ZIP CODE DATA

Zip code	Percentage of Current Students	Region
94501	16.3%	City of Alameda
94502	7.9%	City of Alameda
94506	0.5%	City of Danville
94536	1.0%	City of Fremont
94539	1.0%	City of Fremont
94541	2.5%	City of Hayward
94542	1.0%	City of Hayward
94544	3.5%	City of Hayward

94545	4.5%	City of Hayward
94546	8.9%	City of Castro Valley
94547	1.0%	City of Hercules
94552	4.5%	City of Castro Valley
94555	3.0%	City of Fremont
94568	1.5%	City of Dublin
94577	8.4%	City of San Leandro
94578	5.4%	City of San Leandro
94579	9.9%	City of San Leandro
94580	2.5%	City of San Lorenzo
94582	1.0%	City of San Ramon
94587	2.5%	City of Union City
94598	0.5%	City of Walnut Creek
94601	1.0%	City of Oakland
94602	2.0%	City of Oakland
94603	1.0%	City of Oakland
94605	1.5%	City of Oakland
94606	1.5%	City of Oakland
94607	0.5%	City of Oakland
94610	1.0%	City of Oakland
94611	2.0%	City of Oakland
94619	2.0%	City of Oakland
94804	0.5%	City of Richmond

Note: The percentages in the table sum up to 100.30% as a result of rounding

Figures 1A, 1B, 1C and 1D present the anticipated project trip distribution pattern based on the location of residence for each student. The predominant movement to the project site is expected to be to and from north via the I-880 freeway. **Figure 2** shows the project trip assignment for the weekday AM, and PM at the study intersections.



OK16-0093 1_TripDistro

LEGEND



Project Site



Inbound Route



Project Trip Distribution



Figure 1A

AM Project Trip Distribution (Inbound)



Project Site



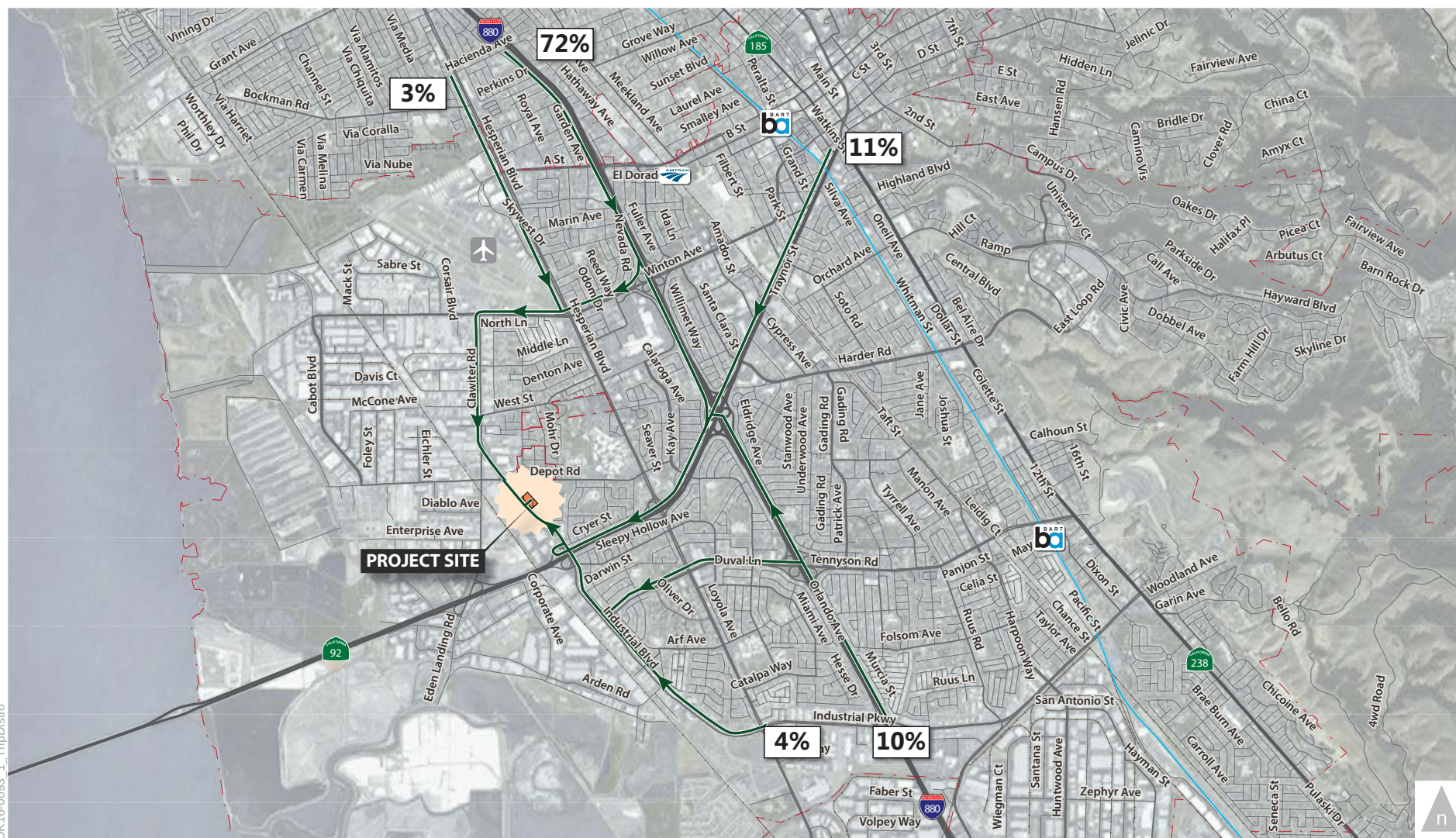
Outbound Route



Project Trip Distribution



AM Project Trip Distribution (Outbound)



LEGEND

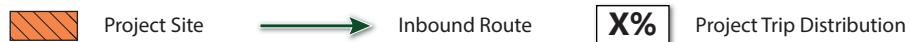
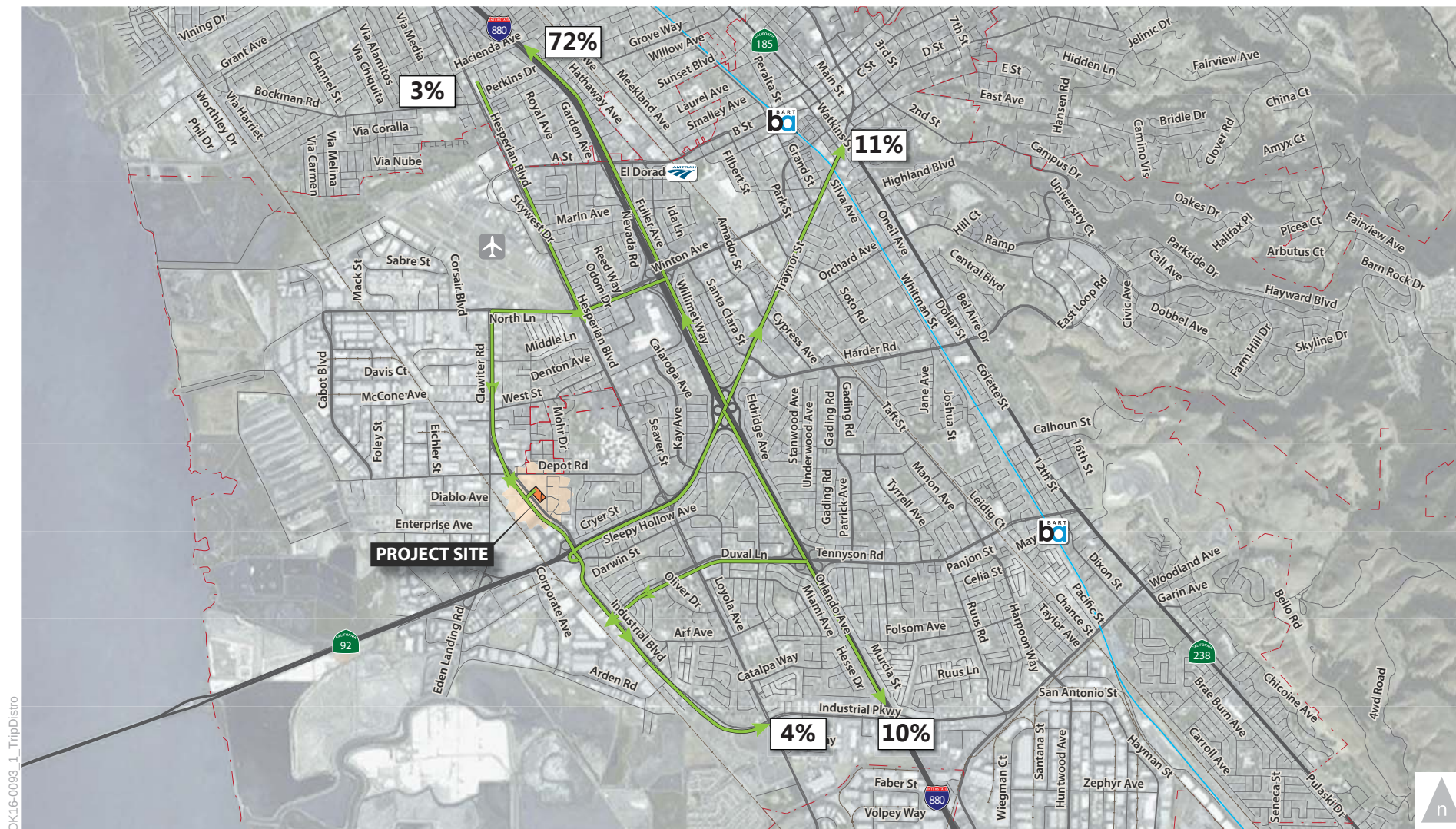


Figure 1C

PM Project Trip Distribution (Inbound)

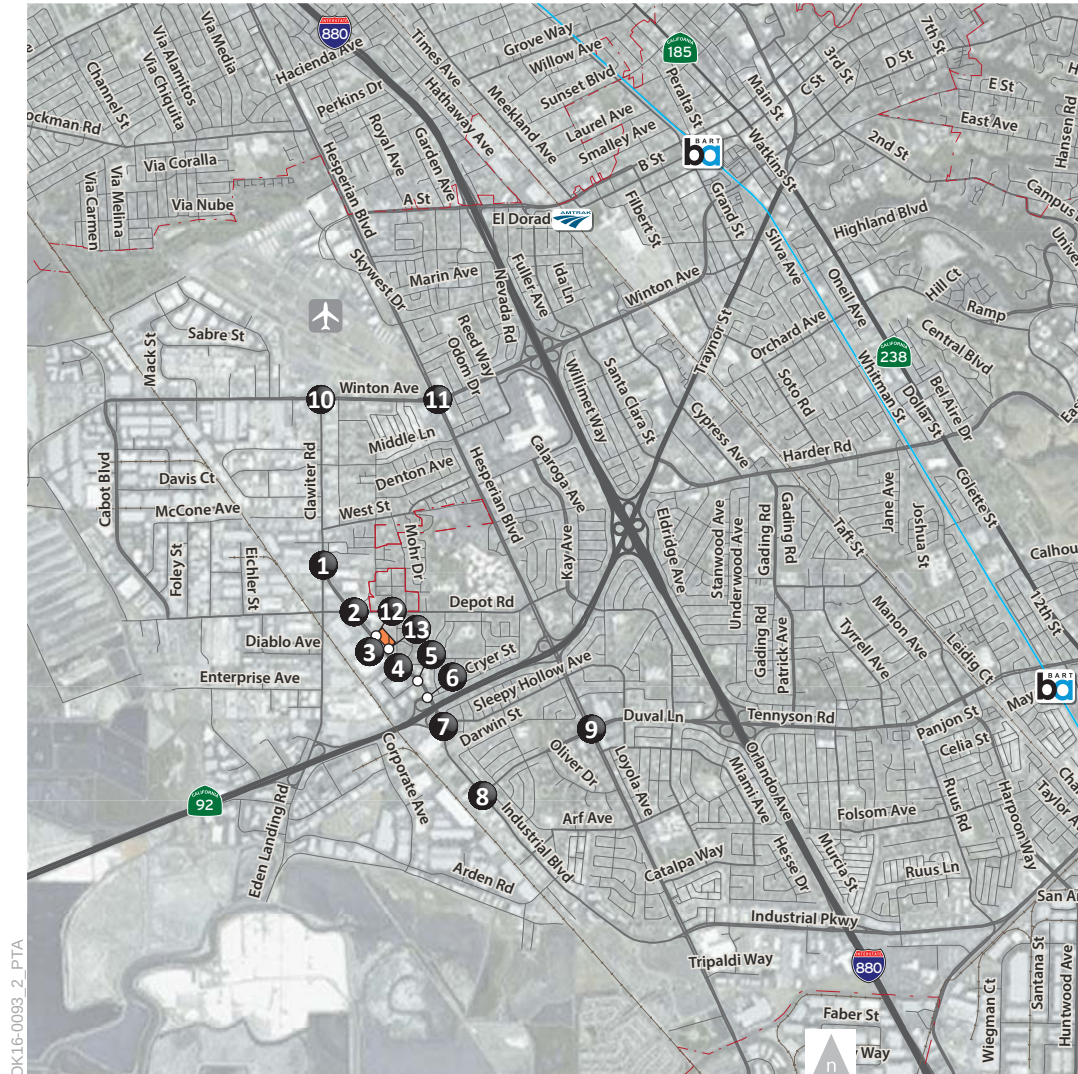


OK16-0093 1_TripDistro



Figure 1D
PM Project Trip Distribution (Outbound)

Appendix D



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LEGEND

XX (YY) AM (PM) Peak Hour Traffic Volumes



Signalized Intersection



Stop Sign



Project Site



Study Intersection

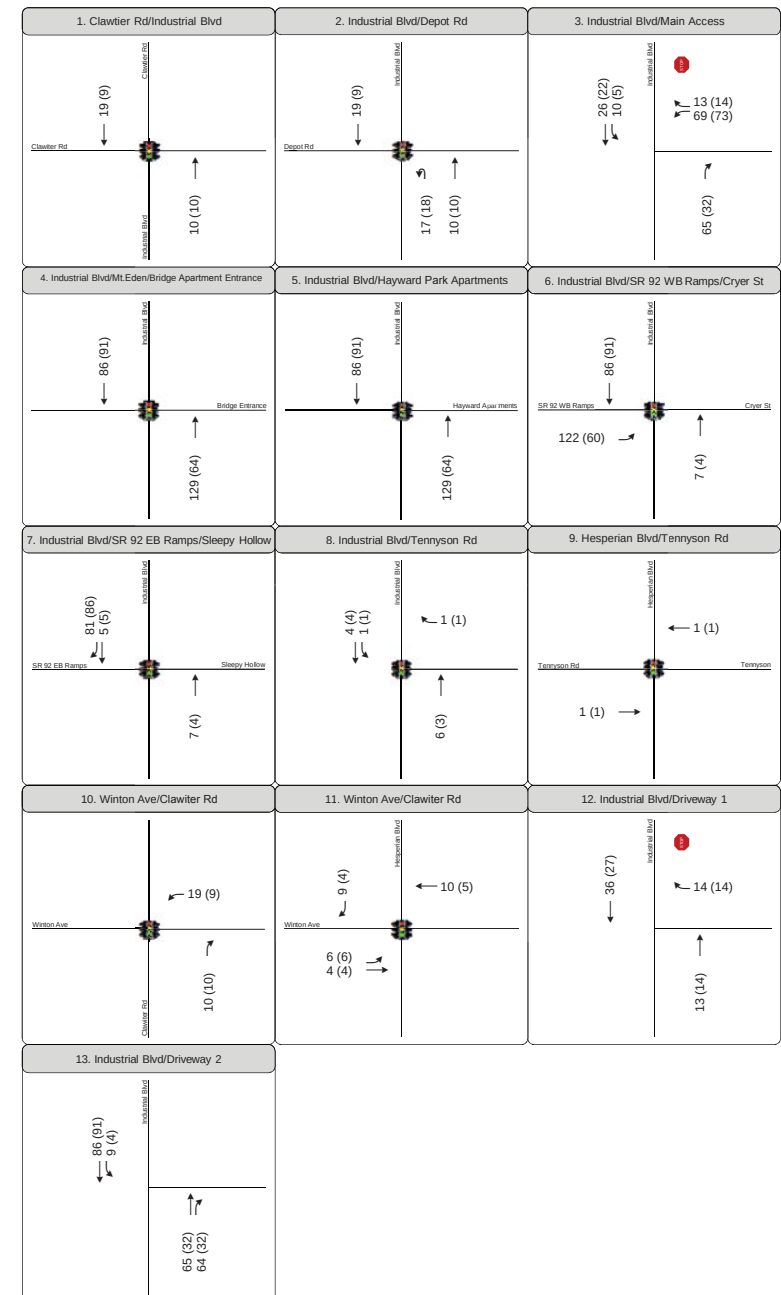


Figure 2

Project Trip Assignment



1.3 STUDY INTERSECTION SELECTION

According to the *City of Hayward's Interim Traffic Study Guidelines (2015)*, the criteria to be used in the selection of intersections to be studied include the following:

- A list of study intersections will be provided to the traffic consultant by City staff.
- In addition, the traffic study shall include all proposed project access driveways as study intersections.

The City of Hayward directed that the following intersections be analyzed in the traffic impact assessment.

1. Clawiter Road/ Industrial Boulevard
2. Industrial Boulevard/ Depot Road
3. Industrial Boulevard/ Main Access
4. Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance
5. Industrial Boulevard/ Hayward Park
6. Industrial Boulevard/SR 92 WB Ramps
7. Industrial Boulevard/SR 92 EB Ramps
8. Industrial Boulevard/Tennyson Road
9. Hesperian Boulevard/Tennyson Road
10. Winton Avenue/Clawiter Road
11. Winton Avenue/Hesperian Boulevard
12. Industrial Boulevard/ Driveway 1
13. Industrial Boulevard/ Driveway 2

Based on the trip assignment we believe that these represent the intersections which should be evaluated in the study.



2 EXISTING CONDITIONS

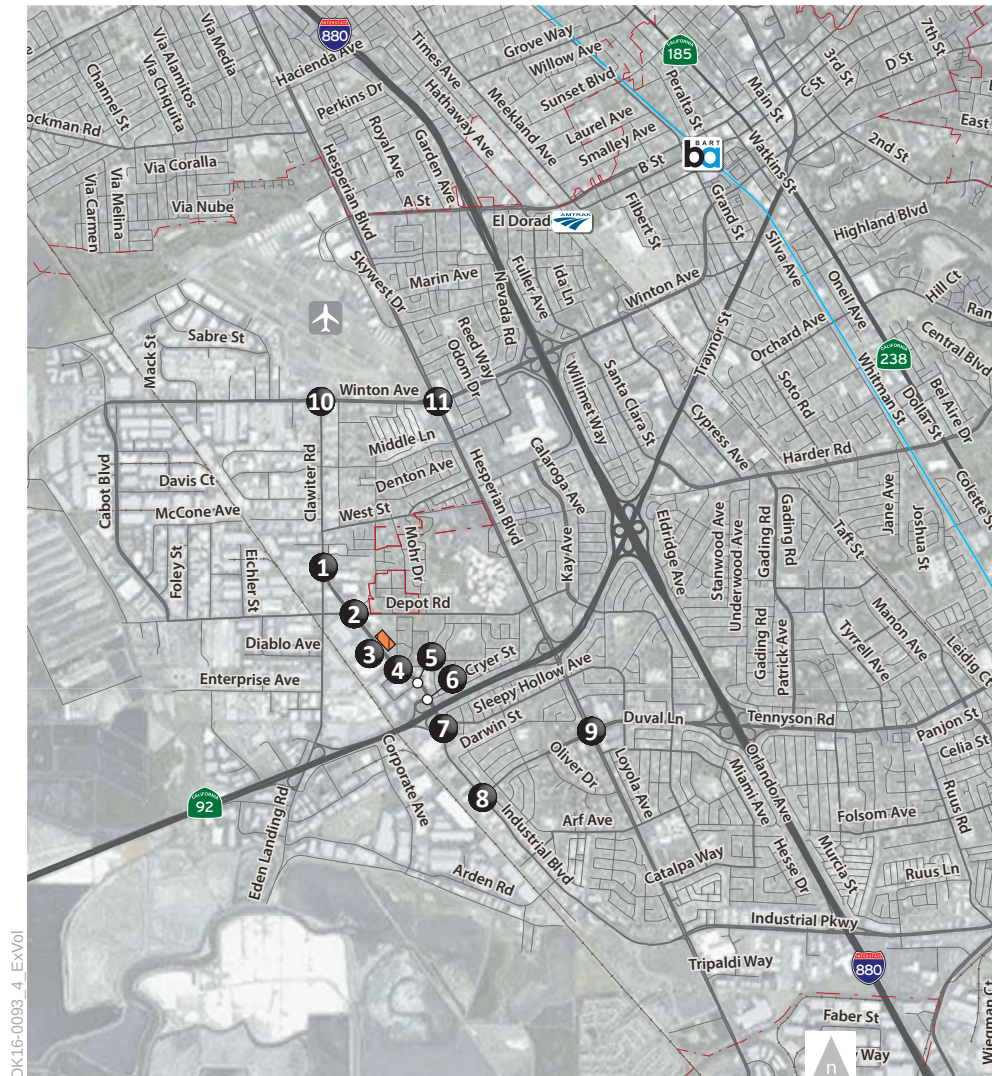
2.1 ANALYSIS METHODOLOGY

This study evaluates traffic operations at the following 13 intersections in the vicinity of the project site as shown on **Figure 3**:

1. Clawiter Road/ Industrial Boulevard
2. Industrial Boulevard/ Depot Road
3. Industrial Boulevard/ Main Access
4. Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance
5. Industrial Boulevard/ Hayward Park
6. Industrial Boulevard/SR 92 WB Ramps
7. Industrial Boulevard/SR 92 EB Ramps
8. Industrial Boulevard/Tennyson Road
9. Hesperian Boulevard/Tennyson Road
10. Winton Avenue/Clawiter Road
11. Winton Avenue/Hesperian Boulevard
12. Industrial Boulevard/ Driveway 1
13. Industrial Boulevard/ Driveway 2

Consistent with the *City of Hayward's Interim Traffic Study Guidelines (2015)*, the study intersections were provided by City staff. Traffic operations at the intersections are evaluated from 7:00 AM to 9:00 AM (morning peak hour) and from 2:00 PM to 4:00 PM (afternoon peak hour) to coincide with the school's peak hour.

Appendix D



LEGEND

XX (YY) AM (PM) Peak Hour Traffic Volumes

 Signalized Intersection Stop Sign

Project Site



Study Intersection

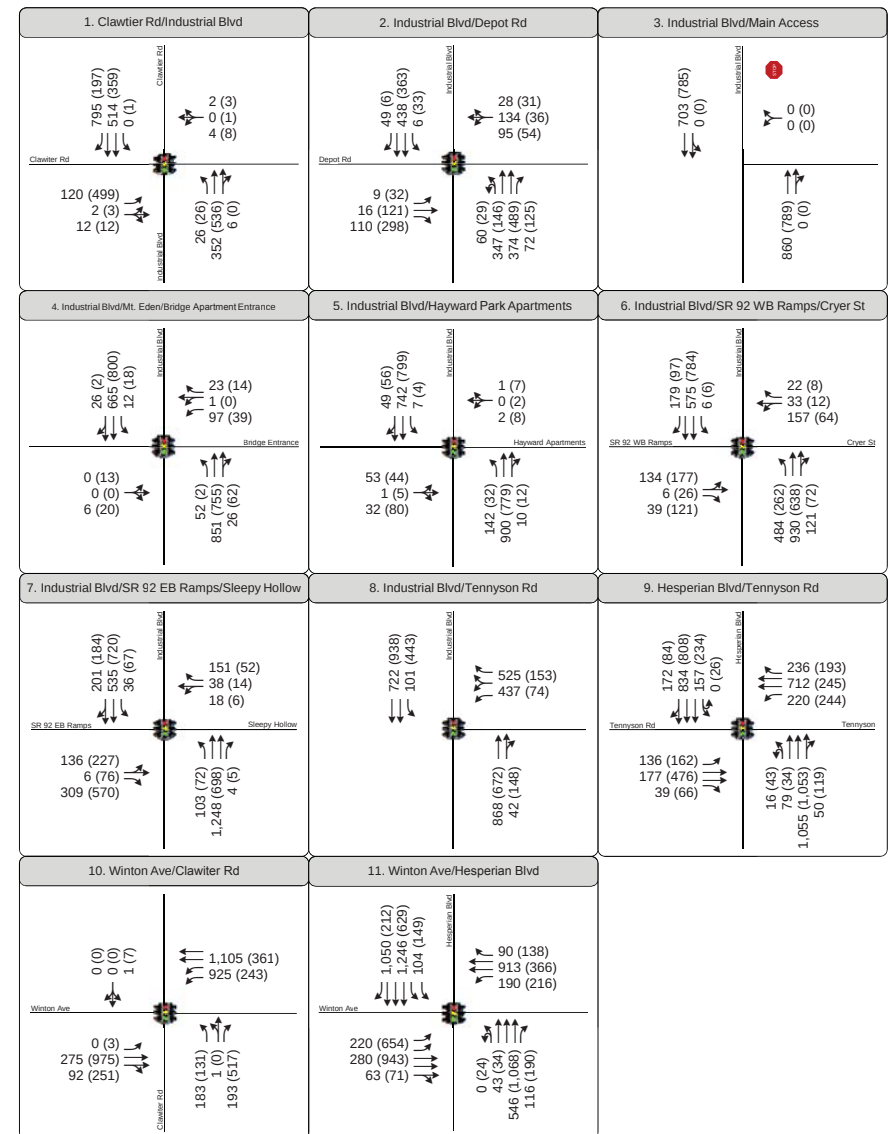


Figure 3

Existing Conditions
Turning Movement Volumes



The report evaluates the transportation-related impacts of the project during the weekday morning and afternoon peak hours. This analysis complies with the *City of Hayward's Interim Traffic Study Guidelines (2015)*. The following six scenarios are included in the analysis:

- **Existing** – Represents existing 2016 conditions
- **Existing Plus Project** – Existing conditions plus traffic generated by the project
- **Background No Project**- 5-year interpolation between Existing and Cumulative model runs using the Hayward General Plan Update travel demand model
- **Background Plus Project**- Background conditions plus traffic generated by the project
- **2035 No Project** – Future conditions with planned population and employment growth and planned transportation system changes for the year 2035
- **2035 Plus Project** – 2035 conditions plus traffic generated by the project

Traffic data, consisting of automobile turning movement as well as pedestrian and bicycle counts, was collected from 7:00 AM to 9:00 AM (weekday AM peak hour) and from 2:00 PM to 4:00 PM (weekday PM peak hour).

Counts were collected on February 4, 2016 for following intersections:

- (1) Clawiter Road/ Industrial Boulevard
- (2) Industrial Boulevard/Depot Road
- (4) Industrial Boulevard/Mt. Eden/Bridge Apartment Entrance
- (6) Industrial Boulevard/SR 92 WB Ramps
- (7) Industrial Boulevard/SR 92 EB Ramps

Counts were collected on March 1, 2016 for following intersections:

- (5) Industrial Boulevard/Hayward Park
- (8) Industrial Boulevard/Tennyson Road
- (9) Hesperian Boulevard/Tennyson Road
- (10) Winton Avenue/Clawiter Road
- (11) Winton Avenue/Hesperian Boulevard
- (3) Industrial Boulevard/Main Access

Appendix A presents the existing traffic volume counts. For each study intersection, the peak hour (i.e., the hour with the highest traffic volumes observed in the study area) within each peak period was selected for traffic analysis.

Figure 3 presents existing intersection lane configurations, traffic control devices, and existing peak hour traffic volumes and lane configurations. Based on the volumes and roadway configurations presented in **Figure 3**, Fehr & Peers calculated the Level of Service (LOS)¹ at the study intersections using the 2000 Highway Capacity Manual (HCM) methodologies and the Synchro 8 software.

2.1.1 SIGNIFICANCE CRITERIA

According to the *City of Hayward's Interim Traffic Study Guidelines (2015)*, the significance criteria for signalized and unsignalized intersections are following:

Signalized Intersections

1. The City shall maintain a minimum vehicle Level of Service E at signalized intersections during the peak commute periods except when a LOS F may be acceptable due to cost of mitigation or when there would be other unacceptable impacts, such as right-of-way acquisition or degradation of the pedestrian environment due to increased crossing distances or unacceptable crossing delays.

Unsignalized Intersections

Determine if any of the following are met:

1. Traffic Signal Warrant (peak hour)
2. Pedestrian Signal Warrant
3. Stop-Sign Warrant

Note that meeting any of the above warrants does not necessarily result in a significant impact. However, the City of Hayward has the discretion to require that the project applicant install traffic signal(s), pedestrians signal(s) or STOP sign(s) if their respective warrants are met.

Signalized and Unsignalized Intersections

1. The intersection operates at Level of Service F without the project under Existing, Background or Cumulative conditions and the addition of the project under Existing plus Project, Project or

¹ The operations of roadway facilities are typically described with the term level of service (LOS), a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, which reflects free-flow conditions where there is very little interaction between vehicles, to LOS F, where the vehicle demand exceeds the capacity and high levels of vehicle delay result. LOS E represents "at-capacity" operations. When traffic volumes exceed the intersection capacity, stop-and-go conditions result and a vehicle may wait through multiple signal cycles before passing through the intersection; these operations are designated as LOS F.



Cumulative Plus Project conditions results in an increase in the average control delay of 5.0 second or greater when compared to the associated no project condition.

One study intersection, Winton Avenue/Hesperian Boulevard is currently operating at LOS F in no project conditions during existing weekday AM and PM peak hours. However, it is anticipated that the level of service at this intersection will improve with the currently planned reconfiguration of westbound Winton Avenue, including the addition of a westbound left turn lane.

Table 4 summaries the existing intersection analysis results. **Appendix B** provides LOS calculation sheets.

TABLE 4: EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

Int #	Intersection	Control ¹	Peak Hour	Existing No Project	
				Delay	LOS
1	Clawiter Road/ Industrial Boulevard	Signal	AM PM	13.2 24.9	B C
2	Industrial Boulevard/ Depot Road	Signal	AM PM	30.5 24.0	C C
3	Industrial Boulevard/ Main Access	Unsignalized	AM PM	-	-
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	AM PM	14.3 8.4	B A
5	Industrial Boulevard/ Hayward Park	Signal	AM PM	11.5 9.5	B A
6	Industrial Boulevard/SR 92 WB Ramps	Signal	AM PM	23.0 21.1	C C
7	Industrial Boulevard/SR 92 EB Ramps	Signal	AM PM	16.4 26.9	B C
8	Industrial Boulevard/Tennyson Road	Signal	AM PM	24.1 74.7	C E
9	Hesperian Boulevard/Tennyson Road	Signal	AM PM	54.8 154.7	D F
10	Winton Avenue/Clawiter Road	Signal	AM PM	26.7 61.2	C E
11	Winton Avenue/Hesperian Boulevard	Signal	AM PM	81.8 98.4	F F
12	Industrial Boulevard/ Driveway 1	Unsignalized	AM PM	-	-
13	Industrial Boulevard/ Driveway 2	Unsignalized	AM PM	-	-

1. Signal = intersection is controlled by a traffic signal

Note: For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown

2.2 EXISTING PLUS PROJECT INTERSECTION ANALYSIS

This section discusses the potential impacts of proposed project on traffic operations under Existing Plus Project conditions based on the *City of Hayward's Interim Traffic Study Guidelines (2015)*.

Figure 4 shows traffic volumes under Existing Plus Project conditions, which consists of existing traffic volumes (shown on **Figure 3**) plus the addition of traffic volumes generated by the project (shown on **Figure 2**).

Appendix D



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LEGEND

XX (YY) AM (PM) Peak Hour Traffic Volumes



Signalized Intersection



Stop Sign



Project Site



Study Intersection

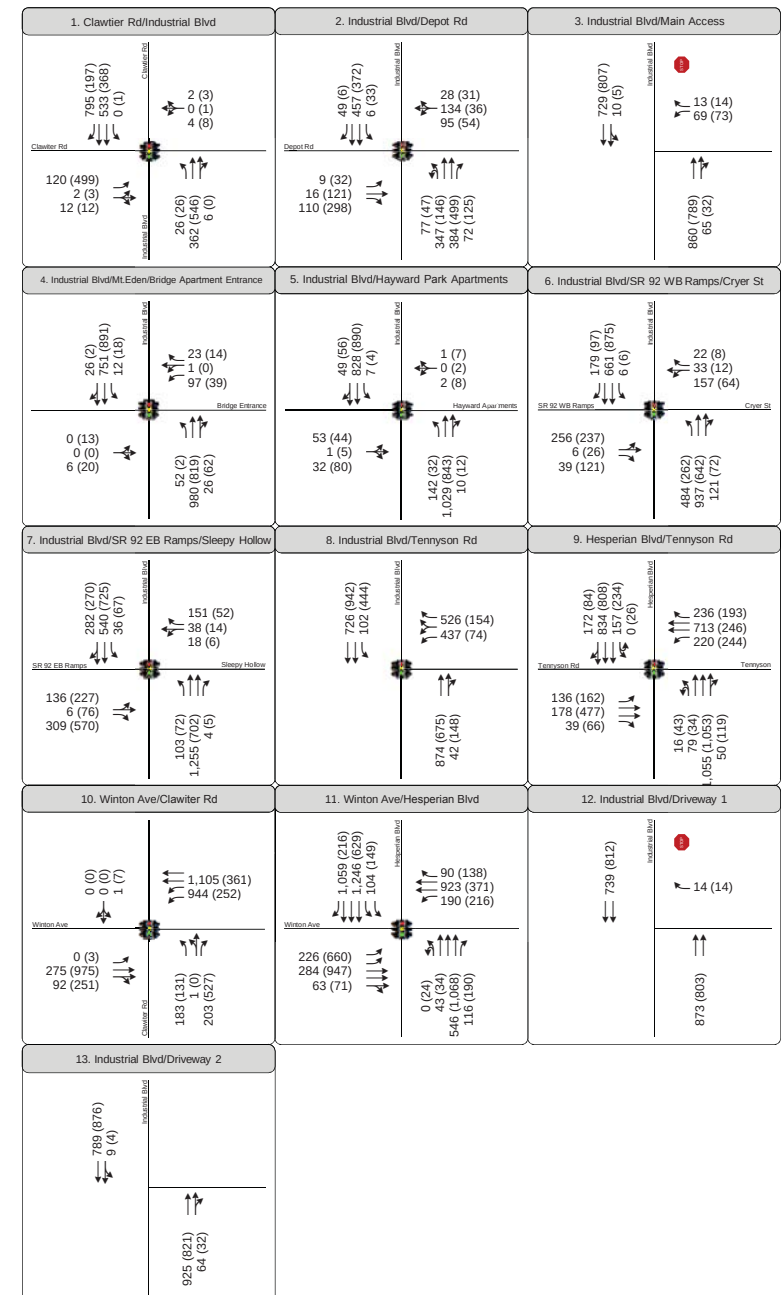


Figure 4

Existing Plus Project Conditions
Turning Movement Volumes

Table 5 summarizes the intersection operations results for Existing No Project and Existing Plus Project conditions.

TABLE 5: EXISTING INTERSECTION PLUS PROJECT LEVEL OF SERVICE SUMMARY

Int #	Intersection	Control ¹	Peak Hour	Existing No Project		Existing Plus Project		Delay Change ³	Significant Impact
				Delay ²	LOS ²	Delay ²	LOS ²		
1	Clawiter Road/ Industrial Boulevard	Signal	AM	13.2	B	13.1	B	-0.1	No
			PM	25.0	C	24.8	C	-0.1	No
2	Industrial Boulevard/ Depot Road	Signal	AM	30.5	C	30.9	C	0.4	No
			PM	24.0	C	24.2	C	0.2	No
3	Industrial Boulevard/ Main Access	Unsignalized	AM	-	-	17.5	C		No
			PM			30.6	D		No
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	AM	14.3	B	14.3	B	0	No
			PM	8.4	A	8.4	A	0	No
5	Industrial Boulevard/ Hayward Park	Signal	AM	11.5	B	11.5	B	0	No
			PM	9.5	A	9.6	A	0.1	No
6	Industrial Boulevard/SR 92 WB Ramps	Signal	AM	23.0	C	62.7	E	39.7	No
			PM	21.1	C	25.1	C	4.0	No
7	Industrial Boulevard/SR 92 EB Ramps	Signal	AM	16.4	B	16.7	B	0.3	No
			PM	26.9	C	26.3	C	-0.6	No
8	Industrial Boulevard/Tennyson Road	Signal	AM	24.1	C	24.1	C	0	No
			PM	74.7	E	74.9	E	0.2	No
9	Hesperian Boulevard/Tennyson Road	Signal	AM	54.8	D	54.8	D	0	No
			PM	154.7	F	154.7	F	0	No
10	Winton Avenue/Clawiter Road	Signal	AM	26.7	C	27.3	C	0.6	No
			PM	61.2	E	64.8	E	3.6	No
11	Winton Avenue/Hesperian Boulevard	Signal	AM	81.8	F	84.1	F	2.3	No
			PM	98.4	F	99.7	F	1.3	No
12	Industrial Boulevard/ Driveway 1	Unsignalized	AM	-	-	9.3	A		No
			PM			10.1	B		No
13	Industrial Boulevard/ Driveway 2	Unsignalized	AM	-	-	0.2	A		No
			PM			0.1	A		No

1. Signal = intersection is controlled by a traffic signal

2. For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

3. Negative delay change is due to the decrease in average weighted delay where project volumes are added to the lowest volume movement.

Source: Fehr & Peers, 2016

The final buildout of the project would add over 200 vehicles during the AM peak hour at the Industrial Boulevard/SR 92 WB Ramps intersection. The high number of eastbound left turn movements in the project scenario and short signal cycle length (65 seconds) would increase delay at this location.

Table 6 summaries the 95th percentile queues for the Existing No Project and Existing Plus Project conditions.

TABLE 6: EXISTING PLUS PROJECT 95TH PERCENTILE QUEUE LENGTHS

Int #	Intersection	Control ¹	Storage (Ft)	Movement ²	Existing No Project (95th Percentile)		Existing With Project (95th Percentile)	
					AM	PM	AM	PM
1	Clawiter Road/ Industrial Boulevard	Signal	795	EB-L	95	255	95	255
			795	EB-T	87	249	87	249
			50	WB-T	0	25	0	25
			50	WB-R	-	-	-	-
			225	NB-L	46	44	46	44
			955	NB-T	58	174	60	177
			100	SB-L	-	20	-	20
			820	SB-T	132	128	137	132
			100	SB-R	55	46	55	46
2	Industrial Boulevard/ Depot Road	Signal	170	EB-L	21	52	21	52
			630	EB-T	30	143	30	143
			630	EB-R	47	80	47	80
			885	WB-T	306	142	307	142
			135	NB-L	398	192	419	206
			1,700	NB-T	98	121	101	123
			145	NB-R	20	25	20	25
			210	SB-L	20	56	20	56
			925	SB-T	196	115	205	122
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	145	SB-R	29	0	29	0
			80	WB-L	80	28	80	28
			80	WB-T	84	28	84	28
			80	WB-R	-	-	-	-
			165	NB-L	53	20	56	20
			425	NB-T	82	53	128	55
			100	SB-L	24	31	24	31
			1,700	SB-T	236	248	272	284
			1,000	EB-T	65	67	65	67
5	Industrial Boulevard/ Hayward Park	Signal	35	WB-T	0	20	0	20
			100	NB-L	141	46	141	46
			490	NB-T	254	193	305	213
			90	SB-L	20	20	20	20
			425	SB-T	228	197	261	231
			1200	EB-T	157	191	301	267
6	Industrial Boulevard/SR 92 WB Ramps	Signal	175	EB-R	0	40	0	40
			210	WB-T	192	70	239	72

			210	WB-R	0	0	0	0
			290	NB-L	344	254	345	254
			605	NB-T	93	103	94	103
			125	SB-L	20	20	20	20
			450	SB-T	168	187	197	215
			100	SB-R	42	24	43	24
7	Industrial Boulevard/SR 92 EB Ramps	Signal	450	EB-T	112	304	112	304
			1,250	EB-R	59	326	59	327
			500	WB-T	49	25	49	25
			500	WB-R	43	20	43	20
			50	NBL	81	70	81	70
			2,000	NB-T	291	133	294	134
			80	NB-R	0	0	0	0
			205	SB-L	22	78	16	66
			605	SB-T	203	84	206	85
8	Industrial Boulevard/Tennys on Road	Signal	380	WB-L	250	54	250	54
			380	WB-T	-	-	-	-
			110	WB-R	74	47	74	47
			1,800	NB-T	291	184	294	185
			240	SB-L	115	634	116	634
			2,000	SB-T	180	161	181	162
9	Hesperian Boulevard/Tennys on Road	Signal	135	EB-L	195	229	195	229
			110	EB-T	100	241	100	241
			100	EB-R	20	0	20	0
			325	WB-L	331	320	331	320
			780	WB-T	385	117	386	117
			100	WB-R	172	113	172	113
			215	NB-L	256	185	256	185
			1500	NB-T	405	388	405	388
			290	SB-L	249	563	249	563
			770	SB-T	338	243	338	243
10	Winton Avenue/Clawiter Road	Signal	165	EB-L	-	20	-	20
			650	EB-T	142	478	142	478
			205	WB-L	426	161	455	167
			330	WB-T	240	88	240	88
			90	NB-L	108	103	108	103
			1,200	NB-T	111	104	111	104
			1,200	NB-R	57	656	59	677
			50	SB-T	20	20	20	20
11	Winton Avenue/Hesperia n Boulevard	Signal	295	EB-L	211	595	218	602
			745	EB-T	121	393	123	394
			195	WB-L	413	275	413	275

		300	WB-T	627	177	637	179
		295	WB-R	48	47	48	47
		285	NB-L	93	163	93	163
		700	NB-T	134	370	134	370
		85	NB-R	34	113	34	113
		250	SB-L	82	109	82	109
		2,000	SB-T	320	203	320	203
		310	SB-R	1,355	58	1,374	58

1. Signal = intersection is controlled by a traffic signal
2. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement

Bold represents a queue exceeding the available storage

Notes: For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

All queue lengths are minimum of 20 feet to represent typical vehicle length.

Source: Fehr & Peers, 2016

2.2.1 QUEUEING ANALYSIS

The bold text in **Table 6** represents queue lengths that exceed existing storage. Many queues exceed storage capacity of turning lanes in existing conditions. The project would have a *minimal* contribution to exceeding storage capacity however, recommendations are provided below for intersection turning movements which exceed storage:

- **Industrial Boulevard and Depot Road:** To accommodate queue lengths, the northbound left turn pocket would need to be increased from 135 feet to 425 feet. The northbound left turn pocket can be increased without changing existing geometry by extending striping. Extending the left turn lane longer than the existing available roadway space would require the reconfiguration of the existing median, northbound and southbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and Hayward Park:** At this intersection, queues would exceed the available storage length in the northbound left turn lane. To accommodate queuing, the storage length would need to increase from 100 feet to 150 feet. This change would require restriping of the existing median, northbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and SR 92 WB Ramps:** At this intersection, the northbound left turn movement queue would exceed the available storage length. The storage length would need to increase from 290 feet to 350 feet. This change would require restriping of the existing median, and northbound left turn pocket.
- **Industrial Boulevard and SR 92 EB Ramps:** At this intersection, the northbound left turn movement would exceed the available storage length. The storage length would need to increase from 50 feet to 80 feet. This change would require restriping of the existing median and northbound left turn pocket.

- **Hesperian Boulevard and Tennyson Road:** At this intersection, queues would exceed the storage length in the eastbound left turn movement, westbound left turn movement and westbound right turn movement. For the eastbound left turn movement, the storage length would need to increase from 135 feet to 230 feet. This improvement would require reconfiguring and restriping of the existing median, eastbound travel lanes and eastbound left turn pocket. For the westbound left turn movement, the storage length would need to increase from 325 feet to 335 feet. This modification would require reconfiguring and restriping of the westbound left turn pocket and existing median. For the westbound right turn movement, storage would need to increase from 100 feet to 175 feet. At this location, the storage length can only be increased up to 140 feet without blocking existing driveway. Entrance and exit of the driveway would have to be reconfigured to increase the westbound right turn storage length.
- **Winton Avenue and Clawiter Road:** At this intersection the northbound and westbound left turn movements would exceed the existing storage capacity. For the northbound left turn movement, storage would need to increase from 90 feet to 110 feet. This improvement would require restriping of the existing median, and northbound left turn pocket. For the westbound left turn movement, increasing storage length to more than 290 feet would block the adjacent intersection, Sakan Road and Winton Avenue.
- **Winton Avenue and Hesperian Boulevard:** At this intersection, queues would exceed the storage length for the eastbound left turn, westbound left turn, northbound right turn and southbound right turn movements. For the eastbound left turn, storage would need to increase from 295 feet to 605 feet. This improvement would require reconfiguration of the existing median, left turn pocket, and eastbound and westbound travel lanes. For the westbound left turn, storage length would need to increase from 195 feet to 415 feet. This left turn lane can only be increased to approximately 290 feet without blocking nearest intersection, Winton Avenue and Wright Drive. This improvement would require reconfiguration of the existing median, and left turn pocket. It should be noted that improvements, including an additional westbound turn lane, are planned for this intersection. For the northbound right turn, storage would need to increase from 85 feet to 115 feet. This right turn lane cannot be increased without blocking the adjacent driveway. For the southbound right turn, storage would need to increase from 310 feet to 1,355 feet. The southbound right storage length can only be increased up to 540 feet without blocking the adjacent intersection, Philips Way and Hesperian Boulevard. This improvement would require restriping of the southbound right turn pocket, and northbound and southbound travel lanes.

It should be noted that the project minimally contributes to these queues and many exceed storage capacity in existing conditions.

2.3 BACKGROUND INTERSECTION ANALYSIS

Background traffic volumes at study intersections are based on a 5-year interpolation between the existing traffic volumes and year 2035 model runs using the Hayward General Plan Updated travel demand model, in accordance with the *City of Hayward Interim Traffic Study Guidelines (2015)*. This interpolation follows the “Furness” Method requested in the City guidelines.

“Using the Hayward General Plan Update travel demand model, forecasting shall be conducted using the “incremental method” consistent with the methodologies and practices outlined in the Transportation Research Board’s (TRB) NCHRP 255 report and as follows:

1. Compile Current Year Model Volumes.
2. Compile Future Year Model Volumes.
3. Calculate Increment from Current Year Model to Future Year Model.
 - a. $[\text{Future Year Model}] - [\text{Current Year Model}] = \text{Increment}$
 - b. Add Increment to Count $\rightarrow [\text{Increment}] + [\text{Count}] = \text{Adjusted Volume}$
 - c. Check for Negative Increments
4. Negative Increments: traffic consultant shall use engineering judgement to determine whether to allow traffic to decrease consistent with model assumptions, or to reset the negative increments to zero so that no future forecasts are lower than current year traffic counts. Document the reasoning in the traffic study.
5. Add increment to traffic count.
6. Intersection Turn Volumes: Adjust the link volumes entering and exiting the intersection, then, factor the existing turn movement counts to match the adjusted entering and exiting volumes. Use the Furness factoring algorithm (“Turns” software or spreadsheet).²

Appendix H shows the calculations used to develop Background volumes. **Figure 5** shows the traffic volumes for the Background No Project scenario and **Figure 6** illustrates volumes in the Background Plus Project scenario.

The Background No Project and Background Plus Project conditions reflect the roadway network analyzed in the Existing Conditions assessment and assume that no modifications would occur at the study intersections.

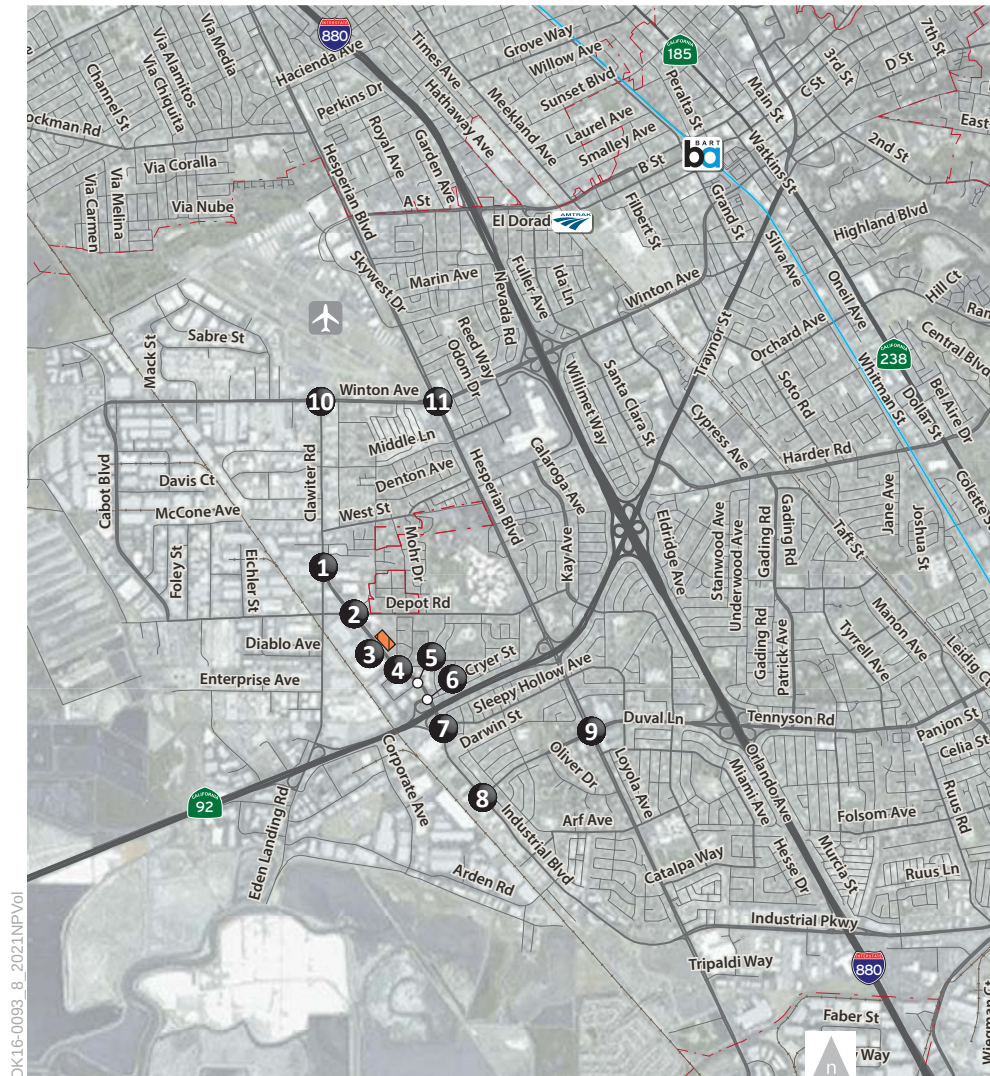
Table 7 summarizes intersection LOS calculations for Background No Project and Background Plus Project conditions. Based on the City of Hayward’s significance criteria, during the AM peak hour, the

² *City of Hayward Interim Traffic Study Guidelines (2015)*



project would cause a significant adverse impact at the Industrial Boulevard/SR 92 WB Ramps intersection under Background Plus Project conditions. Section 2.5 discusses the required mitigation measure.

Appendix D

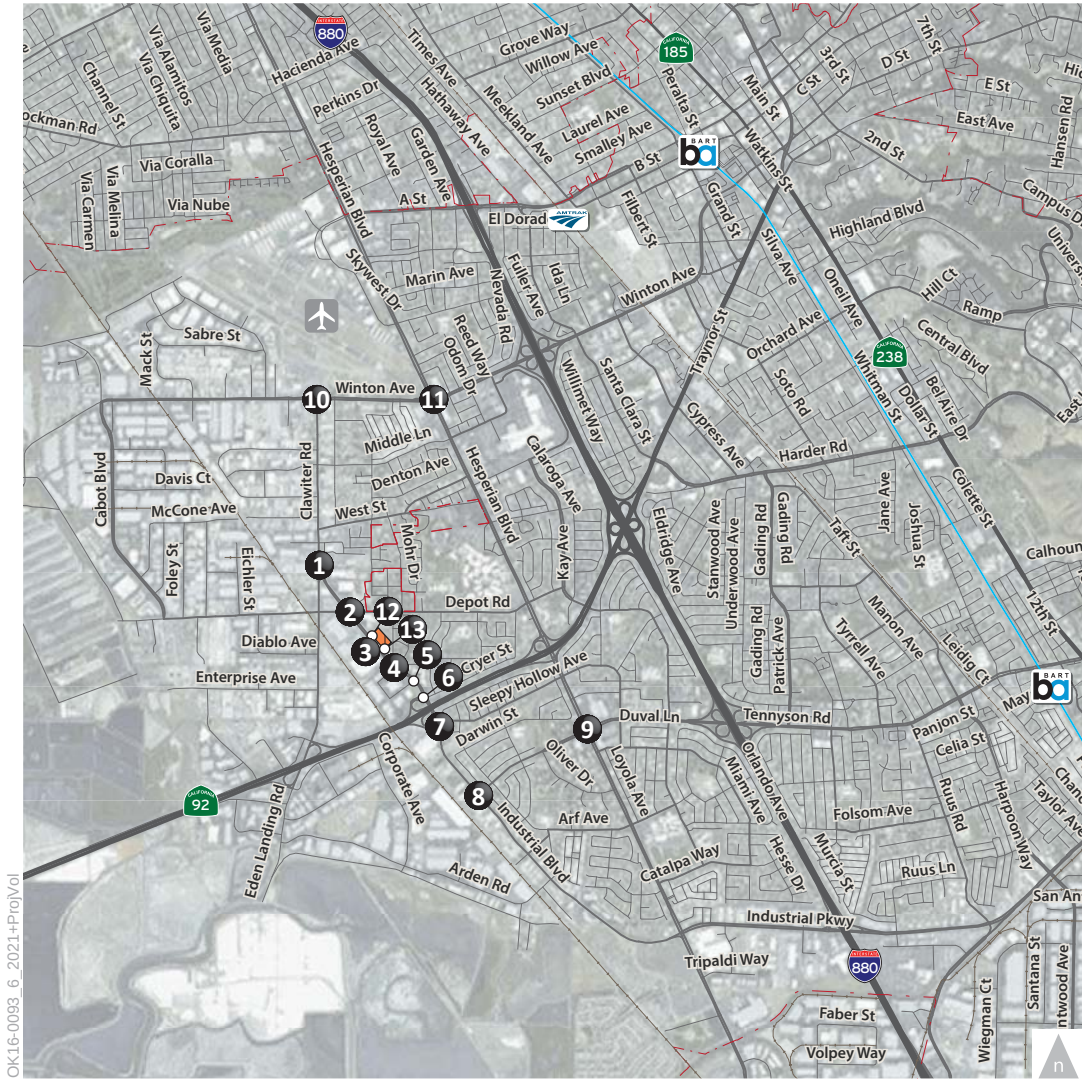


1. Clawiter Rd/Industrial Blvd 	2. Industrial Blvd/Depot Rd 	3. Industrial Blvd/Main Access
4. Industrial Blvd/Mt. Eden Bridge Apartment Entrance 	5. Industrial Blvd/Hayward Park Apartments 	6. Industrial Blvd/SR 92 WB Ramps/Cryer St
7. Industrial Blvd/SR 92 EB Ramps/Sleepy Hollow 	8. Industrial Blvd/Tennysen Rd 	9. Hesperian Blvd/Tennysen Rd
10. Winton Ave/Clawiter Rd 	11. Winton Ave/Cawiter Rd 	

Figure 5

Background Conditions Turning Movement Volumes





LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Stop Sign
- Project Site
- Study Intersection

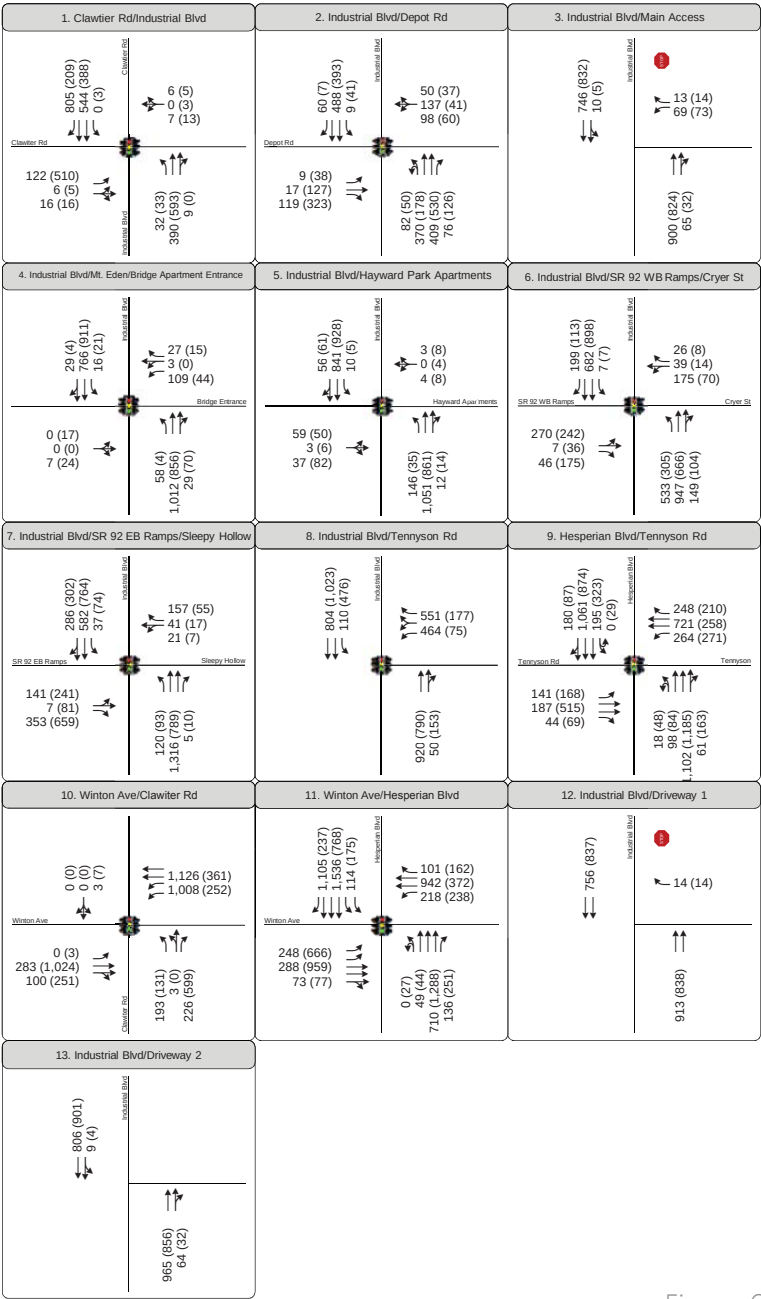


Figure 6

Background Plus Project Conditions
Turning Movement Volumes

TABLE 7: BACKGROUND PLUS PROJECT LEVEL OF SERVICE SUMMARY

Int #	Intersection	Control ¹	Peak Hour	Background No Project		Background Plus Project		Delay Change ³	Significant Impact
				Delay ²	LOS ²	Delay ²	LOS ²		
1	Clawiter Road/ Industrial Boulevard	Signal	AM	13.7	B	13.6	B	-0.1	No
			PM	25.6	C	25.5	C	-0.1	No
2	Industrial Boulevard/ Depot Road	Signal	AM	32.8	C	33.4	C	0.6	No
			PM	26.1	C	26.3	C	0.2	No
3	Industrial Boulevard/ Main Access	Unsignalized	AM	-	-	15.9	C		No
			PM			29.5	D		No
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	AM	18.7	B	18.9	B	0.2	No
			PM	8.8	A	8.9	A	0.1	No
5	Industrial Boulevard/ Hayward Park	Signal	AM	11.9	B	11.9	B	0	No
			PM	9.8	A	9.9	A	0.1	No
6	Industrial Boulevard/SR 92 WB Ramps	Signal	AM	30.6	C	89.6	F	59.0	Yes
			PM	24.7	C	28.7	D	4.0	No
7	Industrial Boulevard/SR 92 EB Ramps	Signal	AM	16.8	B	17.1	B	0.3	No
			PM	47.9	D	46.8	D	-1.1	No
8	Industrial Boulevard/Tennyson Road	Signal	AM	24.9	C	25.0	C	0.1	No
			PM	82.5	F	82.7	F	0.2	No
9	Hesperian Boulevard/Tennyson Road	Signal	AM	64.7	E	64.7	E	0	No
			PM	254.0	F	253.9	F	-0.1	No
10	Winton Avenue/Clawiter Road	Signal	AM	28.7	C	29.7	C	1	No
			PM	90.3	F	94.6	F	4.3	No
11	Winton Avenue/Hesperian Boulevard	Signal	AM	91.2	F	93.7	F	2.5	No
			PM	96.9	F	98.3	F	1.4	No
12	Industrial Boulevard/ Driveway 1	Unsignalized	AM	-	-	9.2	A		No
			PM			10.1	B		No
13	Industrial Boulevard/ Driveway 2	Unsignalized	AM	-	-	0.2	A		No
			PM			0.1	A		No

1. Signal = intersection is controlled by a traffic signal

2. For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

3. Negative delay change is due to the decrease in average weighted delay where project volumes are added to the lowest volume movement.

Source: Fehr & Peers, 2016

Table 8 summarizes intersection queue lengths for Background No Project and Background Plus Project conditions.

TABLE 8: BACKGROUND PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH

Int #	Intersection	Control ¹	Storage	Movement ²	Background No Project (95th Percentile)		Background With Project (95th Percentile)	
					AM	PM	AM	PM
1	Clawiter Road/ Industrial Boulevard	Signal	795	EB-L	102	256	102	256
			795	EB-T	87	255	87	255
			50	WB-T	0	37	0	37
			50	WB-R	-	-	-	-
			225	NB-L	52	52	52	52
			955	NB-T	65	196	67	200
			100	SB-L		20		20
			820	SB-T	137	138	143	141
			100	SB-R	55	48	55	48
2	Industrial Boulevard/ Depot Road	Signal	170	EB-L	22	58	22	58
			630	EB-T	31	149	31	149
			630	EB-R	50	81	50	81
			885	WB-T	359	162	359	162
			135	NB-L	436	229	458	244
			1,700	NB-T	105	141	108	144
			145	NB-R	21	27	21	27
			210	SB-L	25	67	25	67
			925	SB-T	211	136	220	142
			145	SB-R	32	0	32	0
			80	WB-L	104	30	104	30
			80	WB-T	111	31	111	31
4	Industrial Boulevard/Mt . Eden/ Bridge Apartment Entrance	Signal	80	WBR	0	0	0	0
			165	NB-L	59	20	62	20
			425	NB-T	114	66	235	124
			100	SB-L	30	35	30	35
			1,700	SB-T	243	256	280	293
			1,000	EB-T	76	73	76	73
			35	WB-T	0	22	0	22
5	Industrial Boulevard/ Hayward Park	Signal	100	NB-L	143	48	143	48
			490	NB-T	263	200	315	218
			90	SB-L	20	20	20	20
			425	SB-T	236	211	270	245
6		Signal	1200	EB-T	182	210	328	285

	Industrial Boulevard/SR 92 WB Ramps		175	EB-R	20	47	20	47
			210	WB-T	225	78	272	81
			210	WB-R	0	0	0	0
			290	NB-L	382	311	382	311
			605	NB-T	95	106	98	106
			125	SB-L	20	20	20	20
			450	SB-T	175	194	206	222
			100	SB-R	45	27	48	30
7	Industrial Boulevard/SR 92 EB Ramps	Signal	450	EB-T	127	329	127	329
			1,250	EB-R	63	440	63	440
			500	WB-T	52	29	52	29
			500	WB-R	44	10	44	10
			50	NBL	91	84	91	84
			2,000	NB-T	315	153	318	154
			80	NB-R	0	0	0	0
			205	SB-L	20	80	20	72
8	Industrial Boulevard/Te nnyson Road	Signal	605	SB-T	234	100	212	102
			380	WB-L	268	56	268	56
			380	WB-T	-	-	-	-
			110	WB-R	80	50	80	50
			1,800	NB-T	318	223	322	224
			240	SB-L	122	684	123	685
			2,000	SB-T	202	181	204	182
9	Hesperian Boulevard/Te nnyson Road	Signal	135	EB-L	202	240	202	240
			110	EB-T	104	261	104	262
			100	EB-R	20	0	20	0
			325	WB-L	426	372	426	372
			780	WB-T	391	122	391	123
			100	WB-R	183	130	183	130
			215	NB-L	305	306	305	306
			1500	NB-T	432	509	432	509
10	Winton Avenue/Clawi ter Road	Signal	290	SB-L	335	714	335	714
			770	SB-T	445	266	445	266
			165	EB-L		20		20
			650	EB-T	147	512	147	512
			205	WB-L	492	161	508	167
			330	WB-T	247	88	247	88
			90	NB-L	116	103	116	103
			1,200	NB-T	115	104	115	104
11		Signal	1,200	NB-R	60	818	62	838
			50	SB-T	20	20	20	20
11		Signal	295	EB-L	236	602	244	608

Winton Avenue/Hesperian Boulevard	745	EB-T	123	401	126	404
	195	WB-L	478	297	478	297
	300	WB-T	646	173	659	175
	295	WB-R	59	50	60	50
	285	NB-L	108	196	108	196
	700	NB-T	175	476	175	476
	85	NB-R	50	181	50	181
	250	SB-L	89	124	89	124
	2,000	SB-T	421	257	421	257
	310	SB-R	1,457	61	1,475	62

1. Signal = intersection is controlled by a traffic signal
2. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement

Notes: **Bold** represents a queue exceeding the available storage

For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

All queue lengths are minimum of 20 feet to represent typical vehicle length.

Source: Fehr & Peers, 2016

2.3.1 QUEUEING ANALYSIS

The bold text in **Table 8** represents queue lengths that exceed existing storage capacity. In Background No Project conditions, queue lengths would already exceed storage capacity. The project would have *minimal* contributions to exceeding storage capacity however, recommendations are provided for intersections' right and left movements that exceed storage:

- **Industrial Boulevard and Depot Road:** To accommodate additional queue lengths, the northbound left turn pocket would need to increase from 135 feet to 460 feet. The northbound left turn pocket can be increased by up to 215 feet by extending striping. Any further increase would require reconfiguration of the existing median, northbound and southbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and Mt. Eden/ Bridge Apartment:** At this intersection, queues would exceed the storage length for the westbound left turn movement. To accommodate queuing, the storage length would need to increase from 80 feet to 105 feet. The storage length at this driveway cannot be increased without reconfiguring the existing median.
- **Industrial Boulevard and Hayward Park:** At this intersection, queues would exceed storage length for the northbound left turn movement. To accommodate queuing, the storage length would need to increase from 100 feet to 150 feet. This change would require restriping of the existing median, northbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and SR 92 WB Ramps:** At this intersection, the northbound left turn movement would exceed the storage length. The storage length would need to increase from

290 feet to 385 feet. This change would require restriping of the existing median, and northbound left turn pocket.

- **Industrial Boulevard and SR 92 EB Ramps:** At this intersection, the northbound left turn movement would exceed the storage length. The storage length would need to increase from 50 feet to 95 feet. This change would require restriping of the existing median, and northbound left turn pocket.
- **Industrial Boulevard and Tennyson Road:** At this intersection, the southbound left turn lane would need to increase from 240 feet to 685 feet. This change would require restriping of the existing median, and southbound left turn pocket.
- **Hesperian Boulevard and Tennyson Road:** At this intersection, queues would exceed the storage length in the eastbound left turn movement, westbound left turn movement and westbound right turn movement. For the eastbound left turn movement, the storage length would need to increase from 135 feet to 240 feet. This improvement would require reconfiguring and restriping of the existing median, eastbound travel lanes and eastbound left turn pocket. For the westbound left turning movement, the storage length would need to increase from 325 feet to 425 feet. This modification would require reconfiguring and restriping of the westbound left turn pocket and existing median. For the westbound right turn movement, storage would need to increase from 100 feet to 185 feet. At this location, the storage length can only be increased up to 140 feet without blocking existing driveway. For the northbound left turn movement, storage would need to be increased from 215 feet to 310 feet. This improvement would require reconfiguration of the existing median, northbound and southbound travel lanes and northbound left turn pocket. For the southbound left turn movement, storage would need to increase from 290 feet to 715 feet. Increasing the storage length more than 285 feet would interfere with the northbound left turn movement at Hesperian Boulevard and Aldendgate Way. This improvement would require reconfiguration of the existing median, northbound and southbound travel lanes and southbound left turn pocket.
- **Winton Avenue and Clawiter Road:** At this intersection, the northbound and westbound left turn movement would exceed existing storage capacity. For the westbound left turn movement, increasing the storage length more than 245 feet would block the adjacent intersection, Sakan Road and Winton Avenue. For the northbound left turn movement, storage would need to increase from 90 feet to 120 feet. This improvement would require restriping of the existing median, and northbound left turn pocket.
- **Winton Avenue and Hesperian Boulevard:** At this intersection, the queue would exceed the storage length at the eastbound left turn, westbound left turn, northbound right turn and southbound right turn movement. For the eastbound left turn, storage would need to increase from 295 feet to 610 feet. This improvement block a westbound left turn into the Winton Shopping Center. For the westbound left turn, storage length would need to increase from 195



feet to 480 feet. This left turn lane can only be increased up to 290 feet without the blocking nearest intersection, Winton Avenue and Wright Drive. This improvement would require reconfiguration of the existing median, and left turn pocket. It should be noted that improvements, including an additional westbound turn lane, are planned for this intersection. For the northbound right turn, storage would need to increase from 85 feet to 185 feet. This right turn lane cannot be increased more than 85 feet without blocking the adjacent driveway. For the southbound right turn, storage would need to increase from 310 feet to 1,475 feet. The southbound right storage length can only be increased up to 540 feet without blocking the intersection of Philips Way and Hesperian Boulevard. This improvement would require restriping of the southbound right turn pocket, and northbound and southbound travel lanes.

It should be noted that the project would have *minimal* contributions to exceeding storage capacity, as many queues exceed storage capacity in Background No Project condition.

2.4 CUMULATIVE INTERSECTION ANALYSIS

Year 2035 traffic volumes at the study intersections are based on information from the City of Hayward's General Plan Updated Travel Demand Model. Following the *City of Hayward's Interim Traffic Study Guidelines* (2015), incremental and "Furness" methods are applied to develop year 2035 traffic volumes and intersection turning movements.

"Using the Hayward General Plan Update travel demand model, forecasting shall be conducted using the "incremental method" consistent with the methodologies and practices outlined in the Transportation Research Board's (TRB) NCHRP 255 report and as follows:

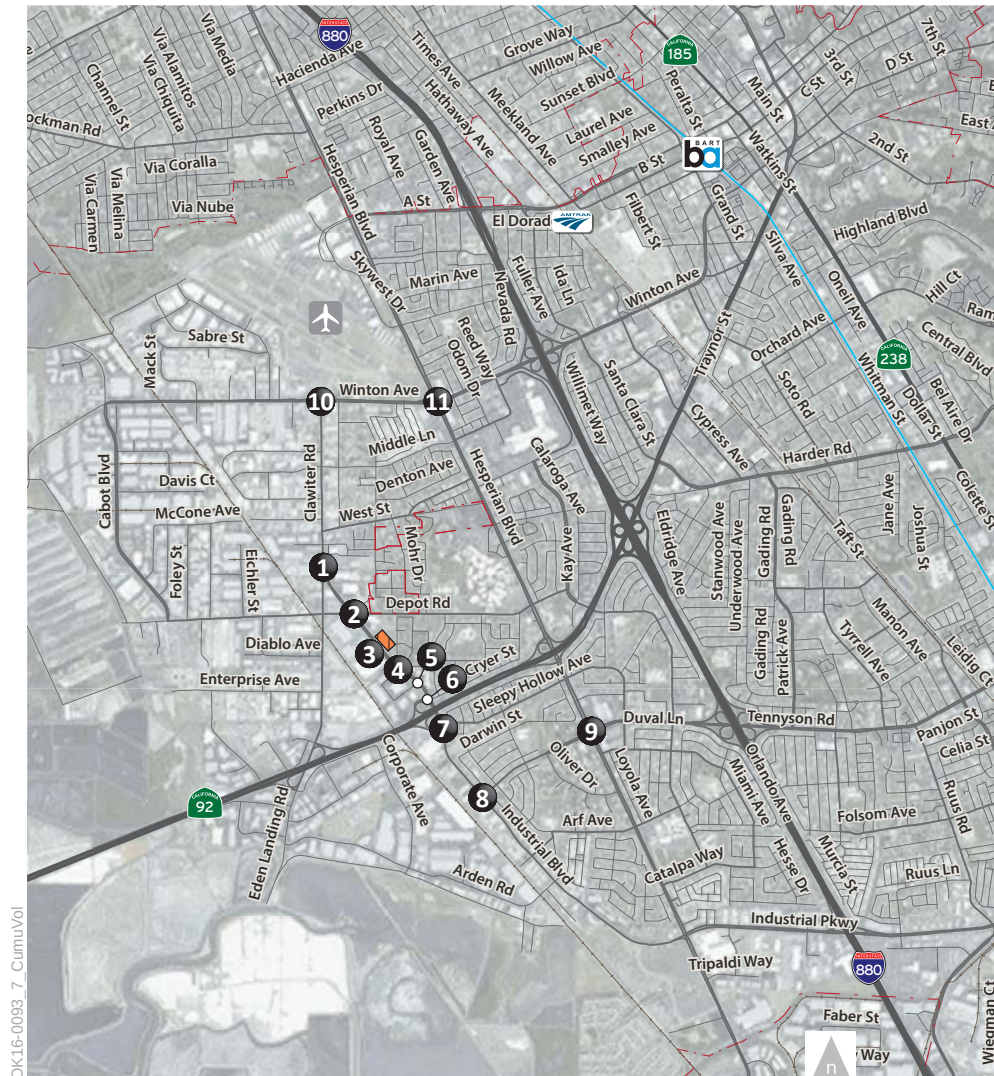
1. Compile Current Year Model Volumes.
2. Compile Future Year Model Volumes.
3. Calculate Increment from Current Year Model to Future Year Model.
 - a. $[\text{Future Year Model}] - [\text{Current Year Model}] = \text{Increment}$
 - b. Add Increment to Count $\rightarrow [\text{Increment}] + [\text{Count}] = \text{Adjusted Volume}$
 - c. Check for Negative Increments
4. Negative Increments: traffic consultant shall use engineering judgement to determine whether to allow traffic to decrease consistent with model assumptions, or to reset the negative increments to zero so that no future forecasts are lower than current year traffic counts. Document the reasoning in the traffic study.
5. Add increment to traffic count.
6. Intersection Turn Volumes: Adjust the link volumes entering and exiting the intersection, then, factor the existing turn movement counts to match the adjusted entering and exiting volumes. Use the Furness factoring algorithm ("Turns" software or spreadsheet)."³

Appendix H shows "Furness" model output for cumulative scenario. **Figure 7** and **Figure 8** illustrate volumes in the 2035 No Project scenario and 2035 Plus Project Scenario.

Table 9 summarizes intersection LOS calculations for Cumulative No Project and Cumulative Plus Project conditions. Based on the City of Hayward's Significance criteria, the project would cause a significant adverse impact at the Industrial Boulevard/SR 92 WB Ramps (AM peak hour) and Winton Avenue/Clawiter Road (PM peak hour) intersections under Cumulative Plus Project conditions. Section 2.5 discusses the required mitigation measure.

³ *City of Hayward Interim Traffic Study Guidelines (2015)*

Appendix D



LEGEND

XX (YY) AM (PM) Peak Hour Traffic Volumes

 Signalized Intersection

 Stop Sign



Project Site



Study Intersection

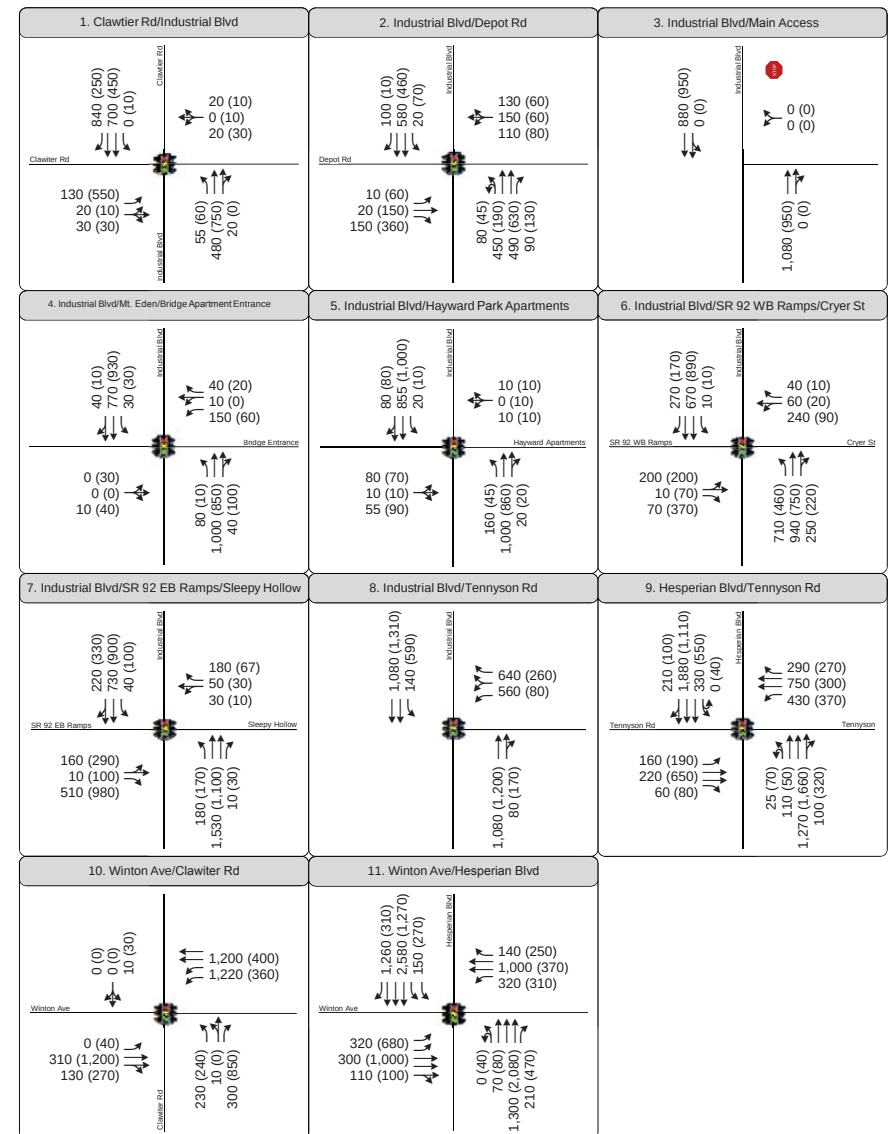


Figure 7

Cumulative Conditions Turning Movement Volumes





LEGEND

- XX (YY) AM (PM) Peak Hour Traffic Volumes
- Signalized Intersection
- Stop Sign
- Project Site
- Study Intersection

1. Clawiter Rd/Industrial Blvd	2. Industrial Blvd/Depot Rd	3. Industrial Blvd/Main Access
4. Industrial Blvd/Mt Eden/Bridge Apartment Entrance	5. Industrial Blvd/Hayward Park Apartments	6. Industrial Blvd/SR 92 WB Ramps/Cryer St
7. Industrial Blvd/SR 92 EB Ramps/Sleepy Hollow	8. Industrial Blvd/Tennison Rd	9. Hesperian Blvd/Tennison Rd
10. Winton Ave/Clawiter Rd	11. Winton Ave/Clawiter Rd	12. Industrial Blvd/Driveway 1
13. Industrial Blvd/Driveway 2		

Figure 8

Cumulative Plus Project Conditions
Turning Movement Volumes

Table 10 summarizes intersection queue lengths for Cumulative No Project and Cumulative Plus Project conditions.

TABLE 9: CUMULATIVE PLUS PROJECT LEVEL OF SERVICE SUMMARY

Int #	Intersection	Control ¹	Peak Hour	Cumulative No Project		Cumulative Plus Project		Change Delay ³	Significant Impact
				Delay ²	LOS ²	Delay ²	LOS ²		
1	Clawiter Road/ Industrial Boulevard	Signal	AM PM	16.2 27.5	B C	16.1 27.4	B C	-0.1 -0.1	No No
2	Industrial Boulevard/ Depot Road	Signal	AM PM	50.3 29.6	D C	51.4 29.9	E C	1.1 0.3	No No
3	Industrial Boulevard/ Main Access	Unsignalized	AM PM	- -	- -	15.9 29.2	C C		No No
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	AM PM	31.8 12.0	C B	31.7 12.1	C B	-0.1 0.1	No No
5	Industrial Boulevard/ Hayward Park	Signal	AM PM	14.7 11.3	B B	14.8 11.4	B B	0.1 0.1	No No
6	Industrial Boulevard/SR 92 WB Ramps	Signal	AM PM	113.0 54.3	F D	227.7 63.1	F E	114.7 8.8	Yes No
7	Industrial Boulevard/SR 92 EB Ramps	Signal	AM PM	20.3 164.9	C F	20.6 162.0	C F	0.3 -2.9	No No
8	Industrial Boulevard/Tennyson Road	Signal	AM PM	30.0 110.7	C F	30.1 110.9	C F	0.1 0.2	No No
9	Hesperian Boulevard/Tennyson Road	Signal	AM PM	143.5 555.0	F F	143.9 554.8	F F	0.4 -0.2	No No
10	Winton Avenue/Clawiter Road	Signal	AM PM	52.2 214.0	D F	55.1 219.9	E F	2.9 5.9	No Yes
11	Winton Avenue/Hesperian Boulevard	Signal	AM PM	136.5 138.3	F F	138.7 139.1	F F	2.2 0.8	No No
12	Industrial Boulevard/ Driveway 1	Unsignalized	AM PM	- -	- -	9.8 9.7	A A		No No
13	Industrial Boulevard/ Driveway 2	Unsignalized	AM PM	- -	- -	0.2 0.1	A A		No No

1. Signal = intersection is controlled by a traffic signal

2. For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

3. Negative delay change is due to the decrease in average weighted delay where project volumes are added to the lowest volume movement.

Note: All queue lengths are minimum of 20 feet to represent typical vehicle length.

Source: Fehr & Peers, 2016

TABLE 10: CUMULATIVE PLUS PROJECT 95TH PERCENTILE QUEUE LENGTH

Int #	Intersection	Control ¹	Storage	Movement ²	Cumulative No Project (95th Percentile)		Cumulative With Project (95th Percentile)	
					AM	PM	AM	PM
1	Clawiter Road/ Industrial Boulevard	Signal	795	EB-L	118	281	118	281
			795	EB-T	96	273	96	273
			50	WB-T	0	68	0	68
			50	WB-R	-	-	-	-
			225	NB-L	80	82	80	82
			955	NB-T	89	276	91	281
			100	SB-L		24		24
			820	SB-T	197	170	203	173
			100	SB-R	58	54	58	54
2	Industrial Boulevard/ Depot Road	Signal	170	EB-L	24	87	24	87
			630	EB-T	35	177	35	177
			630	EB-R	56	86	56	86
			885	WB-T	558	259	558	259
			135	NB-L	629	261	661	278
			1,700	NB-T	134	193	136	197
			145	NB-R	24	35	24	36
			210	SB-L	41	103	41	103
			925	SB-T	264	175	273	183
4	Industrial Boulevard/Mt. Eden/ Bridge Apartment Entrance	Signal	145	SB-R	44	0	46	0
			80	WB-L	150	40	150	40
			80	WB-T	174	40	174	40
			80	WBR	0	0	0	0
			165	NB-L	84	20	85	20
			425	NB-T	304	318	506	331
			100	SB-L	46	44	46	44
5	Industrial Boulevard/ Hayward Park	Signal	1,700	SB-T	286	304	327	344
			1,000	EB-T	113	107	113	107
			35	WB-T	0	30	0	30
			100	NB-L	154	58	154	58
			490	NB-T	301	221	359	242
			90	SB-L	23	20	20	20
6	Industrial Boulevard/SR 92 WB Ramps	Signal	425	SB-T	275	272	307	305
			1200	EB-T	273	272	389	349
			175	EB-R	20	104	20	112
			210	WB-T	347	132	359	155
			210	WB-R	0	0	0	0
			290	NB-L	533	506	530	506
			605	NB-T	125	116	127	116

7	Industrial Boulevard/SR 92 EB Ramps	Signal	125	SB-L	20	20	20	20
			450	SB-T	200	220	261	248
			100	SB-R	54	38	66	42
			450	EB-T	156	414	156	414
			1,250	EB-R	79	833	79	834
			500	WB-T	65	41	65	41
			500	WB-R	46	20	46	20
			50	NBL	121	138	121	138
			2,000	NB-T	475	238	479	240
			80	NB-R	0	20	0	20
8	Industrial Boulevard/Ten nyson Road	Signal	205	SB-L	20	99	20	78
			605	SB-T	255	168	226	191
			380	WB-L	380	59	380	59
			380	WB-T	-	-	-	-
			110	WB-R	163	59	164	59
			1,800	NB-T	418	423	422	425
			240	SB-L	150	862	151	864
9	Hesperian Boulevard/Ten nyson Road	Signal	2,000	SB-T	301	285	302	287
			135	EB-L	244	284	244	284
			110	EB-T	121	338	122	338
			100	EB-R	26	0	26	0
			325	WB-L	780	561	780	561
			780	WB-T	410	141	411	142
			100	WB-R	220	192	220	192
			215	NB-L	349	282	349	282
			1500	NB-T	586	907	586	907
			290	SB-L	629	1,156	629	1156
10	Winton Avenue/Clawit er Road	Signal	770	SB-T	1,043	352	1,043	352
			165	EB-L		90		90
			650	EB-T	167	661	167	661
			205	WB-L	681	285	697	295
			330	WB-T	273	98	273	98
			90	NB-L	140	177	140	177
			1,200	NB-T	141	177	141	177
			1,200	NB-R	70	1386	71	1406
11	Winton Avenue/Hespe rian Boulevard	Signal	50	SB-T	21	54	21	54
			295	EB-L	325	623	332	629
			745	EB-T	139	463	141	465
			195	WB-L	703	383	703	383
			300	WB-T	719	169	730	171
			295	WB-R	86	124	86	124
			285	NB-L	169	316	169	316

		700	NB-T	353	1067	353	1067
		85	NB-R	116	554	116	554
		250	SB-L	114	227	114	227
		2,000	SB-T	1028	477	1028	477
		310	SB-R	1,806	72	1,824	73

1. Signal = intersection is controlled by a traffic signal
2. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement

Notes: **Bold** represents a queue exceeding the available storage

For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

Source: Fehr & Peers, 2016

2.4.1 QUEUEING ANALYSIS

The bold text in **Table 10** represents Cumulative queue lengths that exceed existing storage. In the Cumulative No Project condition, queue lengths would already exceed storage capacity. The project would have *minimal* contributions to exceeding storage capacity. However, recommendations are provided for intersections' right and left movements, which exceeded storage capacity:

- **Industrial Boulevard and Depot Road:** To accommodate the forecast queue length, the northbound left turn pocket would need to increase from 135 feet to 665 feet. The northbound left turn pocket can be increased up to 215 feet without changing any existing geometry and striping. Increasing this movement by more than 215 feet would require the reconfiguration of the existing median, northbound and southbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and Mt. Eden/ Bridge Apartment:** At this intersection, queues would exceed storage length for the westbound left turn movement. To accommodate queuing, the storage length would need to increase from 80 feet to 150 feet. The storage length at this driveway cannot be increased without reconfiguring the existing median.
- **Industrial Boulevard and Hayward Park:** At this intersection, queues would exceed the storage length for the northbound left turn movement. To accommodate queuing, the storage length would need to increase from 100 feet to 155 feet. This change would require restriping of the existing median, northbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and SR 92 WB Ramps:** At this intersection, the northbound left turn queue would exceed the storage length. The storage length would need to increase from 290 feet to 535 feet. This change would require restriping of the existing median, northbound and southbound travel lanes and northbound left turn pocket.
- **Industrial Boulevard and SR 92 EB Ramps:** At this intersection, the northbound left turn movement would exceed storage length. The storage length would need to increase from 50 feet to 140 feet. This change would require restriping of the existing median and northbound left turn pocket.

- **Industrial Boulevard and Tennyson Road:** At this intersection, southbound and westbound left turn lane storage length would need to increase to accommodate queueing. This lane's storage would need to increase from 240 feet to 865 feet. This change would require restriping of the existing median and southbound left turn pocket. For the westbound left turn movement, storage length would need to increase from 110 feet to 165 feet. This storage length cannot be increased without blocking the adjacent intersection, Tennyson Road and Capri Avenue.
- **Hesperian Boulevard and Tennyson Road:** At this intersection, queues would exceed storage in the eastbound left turn, westbound left turn, westbound right turn, northbound left turn and southbound left turn movements. For the eastbound left turn movement, the storage length would need to increase from 135 feet to 245 feet. This improvement would require the reconfiguration of the existing median, eastbound travel lanes and eastbound left turn pocket. For the westbound left turn movement, the storage length would need to increase from 325 feet to 780 feet. This lane's storage cannot increase more than 470 feet without blocking the entrance to the adjacent driveway. For the westbound right turn movement, the storage length would need to increase from 100 feet to 220 feet. At this location, the storage length can only be increased up to 140 feet without blocking existing driveway. Entrance and exit of the driveway would have to be reconfigured to increase the westbound right turn storage length. For the northbound left turn movement, the storage length would need to increase from 215 feet to 349 feet. This improvement would require reconfiguration of the existing median, northbound and southbound travel lanes and northbound left turn pocket. For the southbound left turn movement, the storage length would need to increase from 290 feet to 1,156 feet. This lane's storage cannot be increased more than 760 feet without blocking adjacent intersection, Hesperian Boulevard and Aldengate Way.
- **Winton Avenue and Clawiter Road:** At this intersection, the northbound and westbound left turn movements would exceed existing storage capacity. For the westbound left turn movement, increasing storage length more than 245 feet would block adjacent intersection, Sakan Road and Winton Avenue. For the northbound left turn movement, the storage length would need to increase from 90 feet to 170 feet. This improvement would require restriping of the existing median and northbound left turn pocket.
- **Winton Avenue and Hesperian Boulevard:** At this intersection, queues would exceed the storage length at the eastbound left turn, westbound left turn, northbound left turn, northbound right turn and southbound right turn movements. For the eastbound left turn, storage would need to increase from 295 feet to 630 feet. This improvement would require reconfiguration of the existing median, eastbound left turn pocket, and eastbound and westbound travel lanes. For the westbound left turn, the storage length would need to increase from 195 feet to 480 feet. This left turn lane can only be increased up to 290 feet without blocking the nearest intersection, Winton Avenue and Wright Drive. This improvement would



require the reconfiguration of the existing median, and left turn pocket. For the northbound left turn, the storage length would need to increase from 285 feet to 315 feet. This improvement would require reconfiguration of the existing median, and restriping of the northbound left turn pocket. For the northbound right turn, storage needs to increase from 85 feet to 555 feet. This right turn lane cannot be increased without blocking adjacent driveway. The driveway exit and entrance would have to be reconfigured to increase the northbound right turn storage length. For the southbound right turn, storage would need to increase from 310 feet to 1,824 feet. The southbound right turn storage length can only be increased up to 540 feet without blocking the intersection of Philips Way and Hesperian Boulevard. This improvement would require restriping of the southbound right turn pocket, and northbound and southbound travel lanes.

It should be noted that the project contributes *minimally* to these queue lengths at most intersections.

2.5 IMPACT ANALYSIS

This section discusses the signalized intersections that would be impacted by the project based on the *City of Hayward's Interim Traffic Study Guidelines (2015)* and proposes measures to mitigate those impacts. Impacts and mitigations for unsignalized intersections are discussed later in the Unsignalized Intersection Analysis section (2.6).

2.5.1 BACKGROUND PLUS PROJECT INTERSECTION IMPACTS AND MITIGATION MEASURES

The project would result in a significant adverse impact at one intersection in the Background condition. The impact and recommended mitigation measure are discussed below and **Table 11** shows the LOS with the proposed mitigations.

Background Impact 1: During the AM peak hour, traffic generated by the project would degrade the Level of Service from C to F at the Industrial Boulevard/SR 92 WB Ramps intersection. Following the *City of Hayward's Interim Traffic Study Guidelines*, the project's contribution at this intersection is 55 percent.

Mitigation Measure: Optimize signal timing by optimizing signal cycle length with adjacent intersections that are in the same signal coordination group. Along with the intersection of Industrial Boulevard/ SR 92 WB, the cycle length at the intersection of Industrial Boulevard/SR 92 EB would need to be optimized to mitigate this intersection. This intersection is under the jurisdiction of Caltrans so any modifications must be approved by Caltrans prior to implementation. See **Appendix B** for the timing sheet.

Significance after Mitigation: Less than Significant

TABLE 11: BACKGROUND PLUS PROJECT WITH MITIGATION LEVEL OF SERVICE SUMMARY

Intersection	Control ¹	Peak Hour	Background No Project		Background Plus Project		Mitigated		Significant Impact After Mitigation
			Delay ²	LOS ²	Delay ²	LOS ²	Delay ²	LOS ²	
Industrial Boulevard/SR 92 WB Ramps	Signal	AM	30.6	C	89.6	F	46.5	D	No
		PM	24.7	C	28.7	C	28.7	C	No

1. Signal = intersection is controlled by a traffic signal

2. For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.

Source: Fehr & Peers, 2016

2.5.2 CUMULATIVE PLUS PROJECT INTERSECTION IMPACTS AND MITIGATION MEASURES

The project would contribute to significant cumulative impacts at two intersections. The impacts and recommended mitigation measures are discussed below for each of the two intersections. **Table 12** shows the LOS with the proposed mitigations.

Cumulative Impact 1: During the AM peak hour, traffic generated by the project would add 5 or more seconds of delay at the Industrial Boulevard/SR 92 WB Ramps intersection, which in the Cumulative No Project scenario would be operating at LOS F. Following the *City of Hayward's Interim Traffic Study Guidelines*, the project's contribution at this intersection is 22 percent.

Mitigation Measure: Optimize signal timing by optimizing the signal cycle length with adjacent intersections that are in the same signal coordination group. Along with intersection Industrial Boulevard/ SR 92 WB, the cycle length at Industrial Boulevard/SR 92 EB would need to be optimized to mitigate this intersection. This intersection is under the jurisdiction of Caltrans so any modifications must be approved by Caltrans prior to implementation. See **Appendix B** for the timing sheet.

Significance after Mitigation: Less than Significant.

Cumulative Impact 2: During the PM peak hour, traffic generated by the project would add 5 or more seconds of delay at the intersection of Winton Avenue and Clawiter Road, which in the Cumulative No Project scenario would be operating at LOS F. Following the *City of Hayward's Interim Traffic Study Guidelines*, the project's contribution at this intersection is 2 percent. See **Appendix B** for the timing sheet.

Mitigation measure: Optimize signal timing at this intersection with the adjacent intersections that are in the same single coordination group.

Significance after Mitigation: Less than Significant.

TABLE 12: CUMULATIVE PLUS PROJECT WITH MITIGATION LEVEL OF SERVICE SUMMARY

Intersection	Control ¹	Peak Hour	Cumulative No Project		Cumulative Plus Project		Mitigated		Significant Impact After Mitigation
			Delay ²	LOS ²	Delay ²	LOS ²	Delay ²	LOS ²	
Industrial Boulevard/SR 92 WB Ramps	Signal	AM	113.0	F	227.7	F	115.9	F	No
		PM	54.3	D	63.1	E	63.1	E	No
Winton Avenue/Clawiter Road	Signal	AM	52.2	D	55.1	E	55.1	E	No
		PM	214.0	F	219.7	F	215.2	F	No

1. Signal = intersection is controlled by a traffic signal



2. For signalized intersections, average intersection delay and LOS based on the 2000 HCM method is shown.
Source: Fehr & Peers, 2016

2.6 UNSIGNALIZED INTERSECTION ANALYSIS

The project driveways on Industrial Boulevard are the only unsignalized intersections selected for analysis. At each intersection, signal warrants, all-way stop control warrants and pedestrian signal warrants were conducted as presented below. Details for all warrants at all three driveways are located in **Appendix C**. Trip distribution for all three driveways is detailed in **Figure 9**.

2.6.1 TRAFFIC SIGNAL WARRANT

The Manual of Uniform Traffic Control Devices (MUTCD) provides warrants for the installation of traffic signals. For the purposes of this analysis, Warrant 3, Peak Hour was used. According to Section 4C.04 of the California MUTCD, this signal warrant should be used "for facilities that attract or discharge large numbers of vehicles over a short time. Industrial Boulevard meets signal warrant 3A but the school driveways do not meet signal warrant 3B, therefore, the signal warrant is not met.

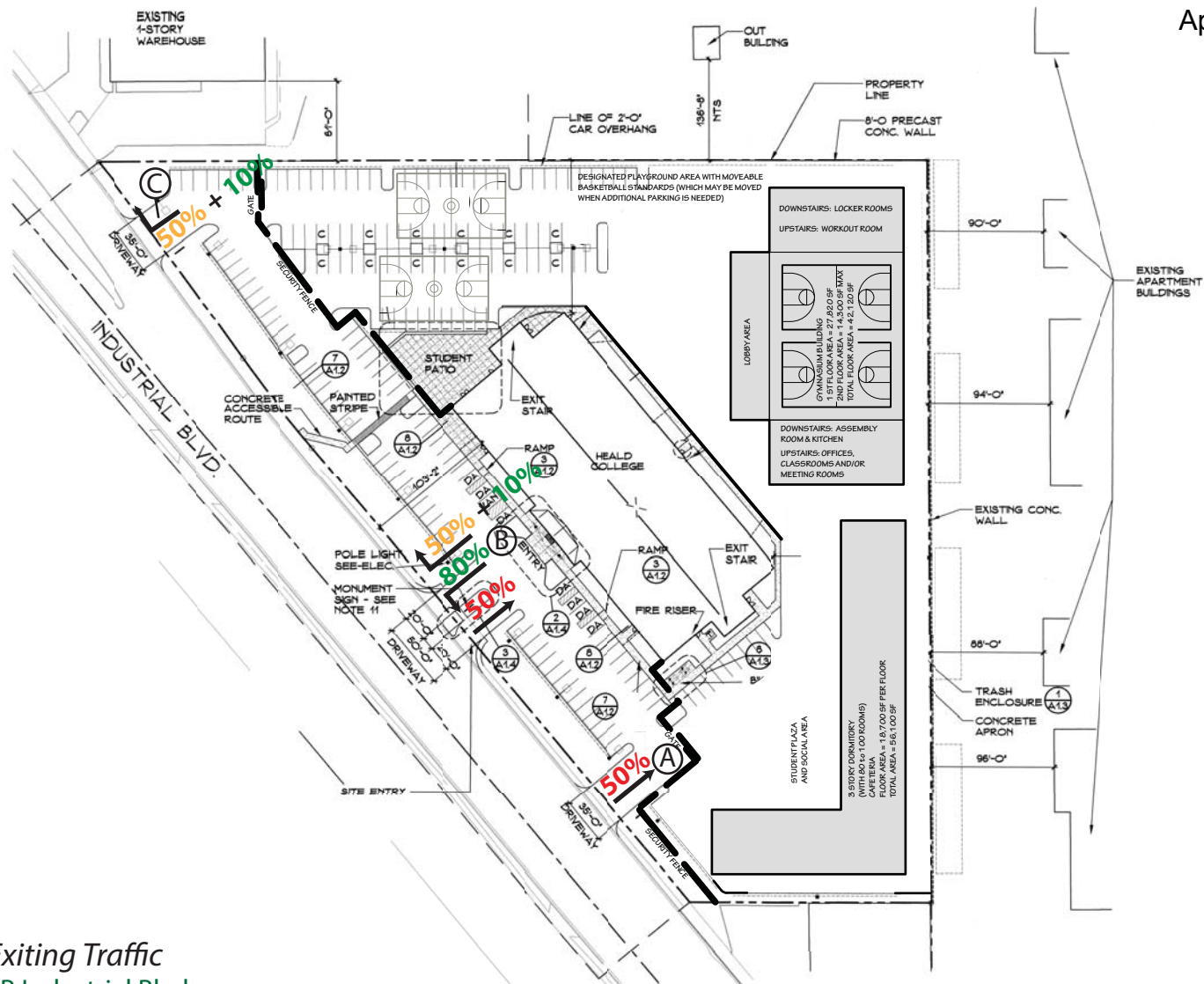
The school does not meet the signal warrant (3B) at any of the three driveways as the minor street approach does not exceed 150 vehicles in the peak hour.

2.6.2 ALL-WAY STOP WARRANT

Multiway stop control is warranted when the volume on the main street is approximately equal to that on the intersecting road. The California Crosspoint School driveway does not generate enough traffic in any given 8 hour period to warrant all way stop control (MUTCD Guidance Criterion C.1 and C.2). However, due to high traffic volumes on Industrial Boulevard, it is recommended that side street stop control be placed at all driveways.

2.6.3 PEDESTRIAN SIGNAL WARRANT

According to the California MUTCD Warrant 4, in order to warrant a signal, the pedestrian volume crossing the major street at an intersection or mid-block location during an average day must be 100 or more for each of any 4 hours or 190 or more during any 1 hour and fewer than 60 gaps per hour in the traffic stream of adequate length exist to allow for pedestrian crossings. Due to existing land uses in the area, proximity to regional transit and existing drop-off behavior, it is not anticipated that the minimum pedestrian numbers would be met. For more information see the mid-block crossing analysis (Section 3.2).



Site Plan Source: Edward F. Ong, Structural Engineer

Entering Traffic	Exiting Traffic
A - 50%	SB Industrial Blvd
B - 50%	B - 80% (left turn)
	C - 20% (right turn; U-turn at Depot/Industrial Blvd)
	NB Industrial Blvd
	B - 50% (right turn)
	C - 50% (right turn)



Figure 9

Project Driveways Trip Distribution



3 SITE PLAN REVIEW

This section evaluates site access and circulation for all travel modes within the proposed site, based on the site plan dated, December 17, 2015, Sheet 3 of 3. The conceptual site plan shows the 5.5 acre site with the existing 59,012 square foot, two-story education building, a 42,120 square foot two-story gymnasium/community center as well as a 56,100 square foot three-story dormitory. The site is located in an auto-dependent area, surrounded by industrial uses to the north, west and south and low density residential to the east. Due to its surrounding land uses, is anticipated that nearly all users will access the site by vehicle.

3.1 SITE ACCESS AND CIRCULATION

As previously discussed, the surrounding land uses do not encourage walking or bicycling to the site nonetheless, pedestrian and bicycle access and circulation are addressed in detail below.

The site is accessed off of Industrial Boulevard via three bi-directional, unsignalized driveways. The school will have a security fence to restrict access to the eastern area of campus containing the dormitory and gymnasium. For the purpose of this analysis, it is assumed this security fence will allow vehicular access during drop-off and pick-up times.

3.1.1 VEHICULAR ACCESS AND CIRCULATION

Vehicular access will occur via three driveways located on the Industrial Boulevard. The site plans shows that the driveways are 35 feet, 40 feet and 35 feet wide, respectively. It is recommended stop control be placed at all driveway exits onto Industrial Boulevard. All three driveways provide entry to the school building, playground area, parking areas, dormitory and gymnasium.

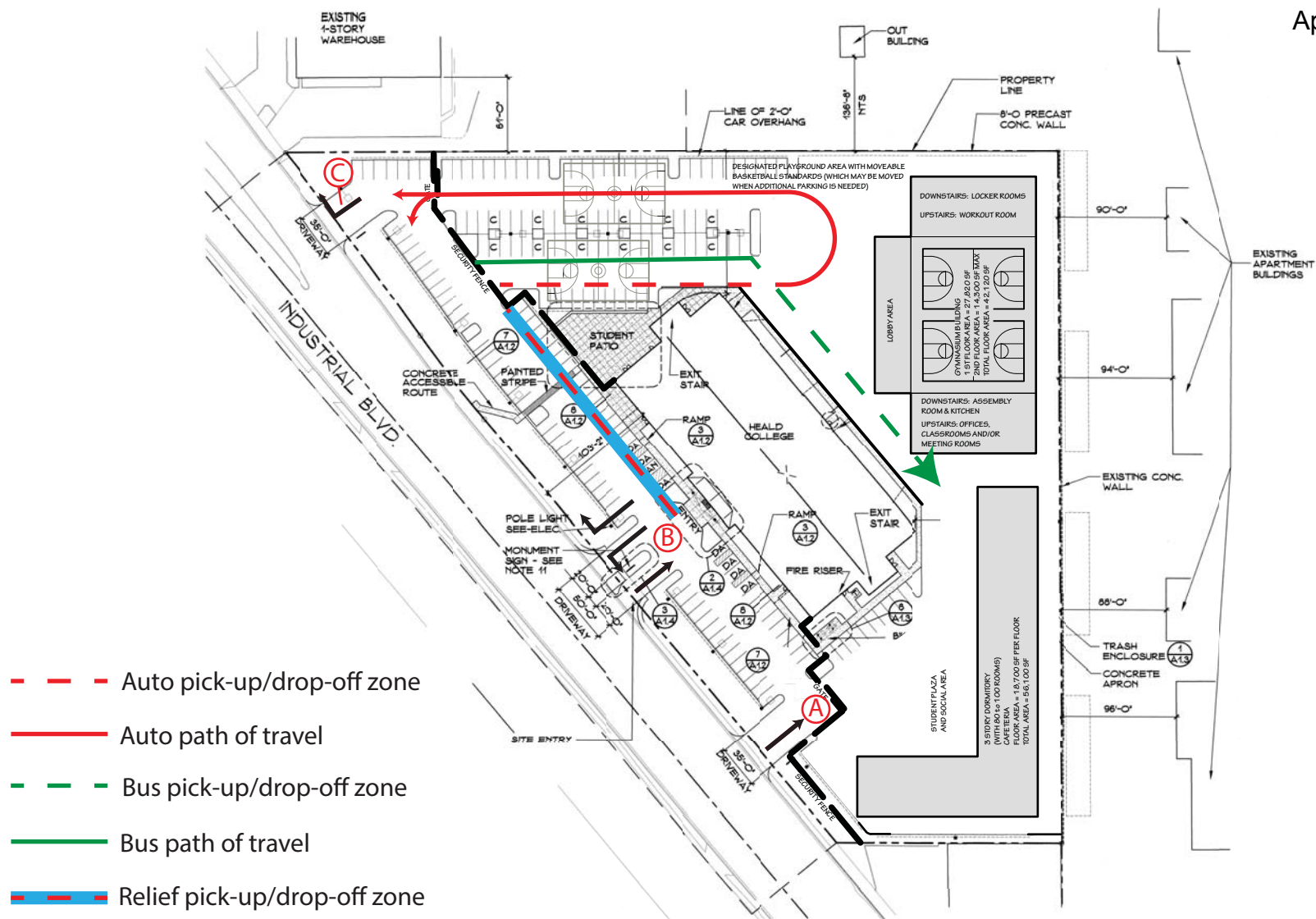
Driveway C is the northernmost driveway and is located approximately 600 feet from Industrial Boulevard and Depot Road signalized intersection. It will provide bi-directional access to and from the site. Driveway C will be restricted to a right-out-only driveway due to the presence of a median on Industrial Boulevard. It is recommended this median be extended and a no-left-turn sign be erected in the median to ensure driver compliance.

Driveway B, the central driveway, will provide four lane, median separated, bi-directional access to the site. It is anticipated this driveway will provide exit only during pick-up and drop-off to ensure anticipated queues do not spillback onto Industrial Boulevard.



Driveway A is located approximately 500 feet from Industrial Boulevard and The Bridge/Mt. Eden Business Park signalized intersection. This driveway will provide bi-directional access to the site and will be the main point of entry for drop-off and pick-up.

For more information on project driveway entry and exit see **Figure 9** and **Figure 10**.



Site Plan Source: Edward F. Ong, Structural Engineer



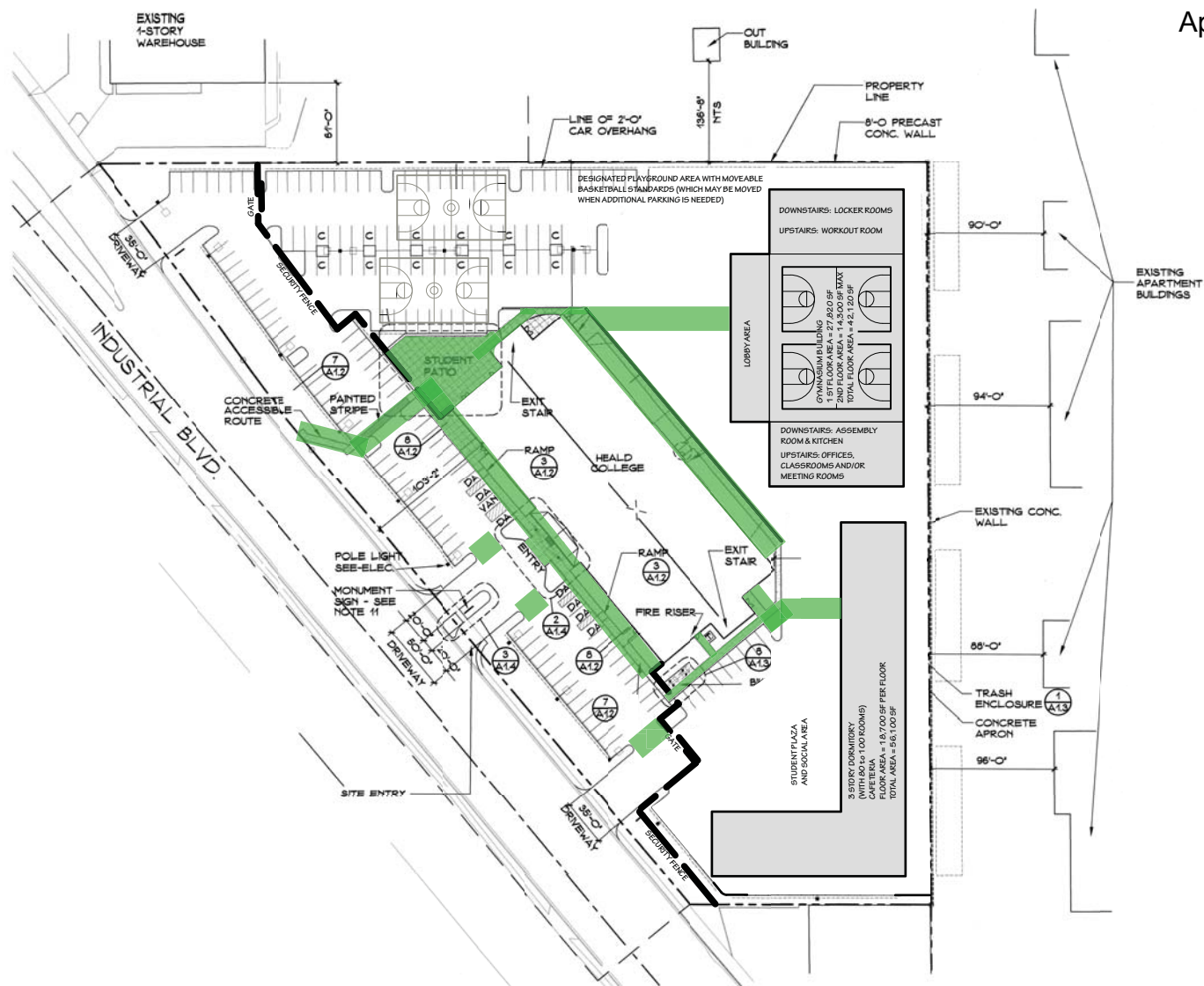
Figure 10
Project Pick-up and Drop-off



3.1.2 PICK-UP AND DROP-OFF FACILITIES

Pick-up and drop-off could occur adjacent to the student patio area. The eleven adjacent parking spaces would not be available for use during pick-up and drop-off in order to provide a temporary curb space for this to occur. It is anticipated this lane is wide enough to allow passing space around stopped vehicles to expedite the pick-up and drop-off process. This would allow for pick-up and drop-off queue space along the length of the school parking lot facing Industrial Boulevard. If additional space is needed, a recommended 'relief' drop-off and pick-up area in front of the school is noted in **Figure 10**. This area could be used if the primary drop-off and pick-up area is at capacity, but should only be used in this instance.

Bus drop-off and pick-up would occur on the eastern edge of the school, as is noted in **Figure 10**.



Pedestrian Circulation

Site Plan Source: Edward F. Ong, Structural Engineer



Figure 11
Pedestrian Access and Circulation Plan

3.1.3 PEDESTRIAN, BICYCLE AND TRANSIT ACCESS AND CIRCULATION

As previously stated, the land uses surrounding the site are not conducive to walking and bicycling access. On-site, sidewalks are provided along the entire perimeter of the school, linking the student patio to the main entrance as well as all school entryways. It is recommended crosswalks be painted to provide access between the school and dormitory as well as between the school and gymnasium. Additionally, a painted crosswalk should be provided on both curb bulbouts at the main school entry to the west side of the parking lot. For more detailed pedestrian circulation on site, see **Figure 11**. For more information regarding pedestrian conditions near the project site, including marked crosswalks and sidewalks, see **Figure 14**.

Bicycle infrastructure is not provided near the site and due to surrounding land uses, it is not anticipated bicycling access to the site will be utilized. However, it is recommended that the school provide bicycle parking for on-site students and to accommodate potential future bicycle use. If the land uses around the site change, it is recommended that bicycle access and circulation be re-evaluated.

AC Transit routes 86 and 83 are proximate to the project site and both provide access from Hayward BART to South Hayward BART. The nearest transit stops are for route 86 and are located at signalized intersections with marked crosswalks. The closest bus stop is on the west side of Industrial Boulevard at Depot Road. It is not anticipated students will be using public transit to access the school due to the school's existing mode split and offering of private bus service. **Figure 13** details public transit information.

3.1.4 EMERGENCY VEHICLE ACCESS

Adequate service and emergency vehicle access is provided via the three driveways as well as the drive aisles to the gymnasium and dormitory. In subsequent, more detailed site plans, corners should be sized to accommodate regular use large vehicles such as school buses and fire trucks. Larger vehicles, such as fire trucks, are permitted to execute three-point turns and cross centerlines as their use of the site will be infrequent.

When the building plans are further developed, auto-turn analysis should be completed to ensure emergency vehicle access is provided.

3.1.5 ON-SITE QUEUEING ANALYSIS

Fehr & Peers conducted a queuing analysis for the all school student drop-off at 8:15 AM.

As documented in the site plan, the recommended drop-off area is off of the student plaza. This provides a 9 vehicle unloading capacity and a 20 vehicle queue capacity. This provides ample queueing space on the property to prevent queue spillback onto Industrial Boulevard, will all queueing occurring on site. The maximum queue would be approximately 12 vehicles at would occur at 8:15 AM. Please see **Appendix G** for further details.

A separate bus drop-off and pick-up area is designated in the eastern portion of the campus adjacent to the school.

3.2 MID-BLOCK CROSSING ANALYSIS

Due to the adjacent land uses of the site, it is not anticipated that a high enough volume of students will be crossing Industrial Boulevard to necessitate a mid-block crossing. It is possible that if a mid-block crossing is provided, drop-off and pick-up activity could wrongfully occur on Industrial Boulevard. However, due to the fact that the school is not yet occupied, it is recommended further analysis and observation occur six months into occupation of the fully built out site.

If a mid-block crossing was required for this site, a pedestrian hybrid beacon is recommended based on the adjacent roadway width and speed as well as the number of pedestrians. More information can be found in the **Appendix F**.

3.3 PARKING REVIEW

3.3.1 PARKING SUPPLY AND DEMAND

Parking Demand for the site is calculated from the Institute for Transportation Engineers *Parking Demand: 4th Edition*. California Crosspoint High School falls under ITE Code 536, private school K-12. Parking demand is calculated per student and is estimated be 0.39 spaces/student.

The site (as shown in **Figure 12**) will include 246 parking spaces. As demonstrated in **Table 13**, this provides sufficient parking spaces for the estimated parking demand.

The City of Hayward's off-street parking code, Sec 10-2.330, states high schools should have 1 parking space for every 4 students and 1.2 parking spaces per classroom for intermediate and elementary schools. California Crosspoint School will have 400 high school students and 6 intermediate and elementary school classrooms. Therefore, per the City of Hayward requirements, the school must provide 107.2 parking spaces.

In summary, the school parking demand requires 234 parking spaces, the City of Hayward off-street parking code requires 107.2 spaces and the school exceeds both by providing 246 parking spaces.

TABLE 13: PARKING DEMAND

Land Use	Units	ITE Code	Parking Demand Ratio	Parking Demand	Parking Supply
Private School (K-12)	600 Students	536 ¹	0.39 Spaces/student	234	246 ²
Total			Net Total		+12 spaces

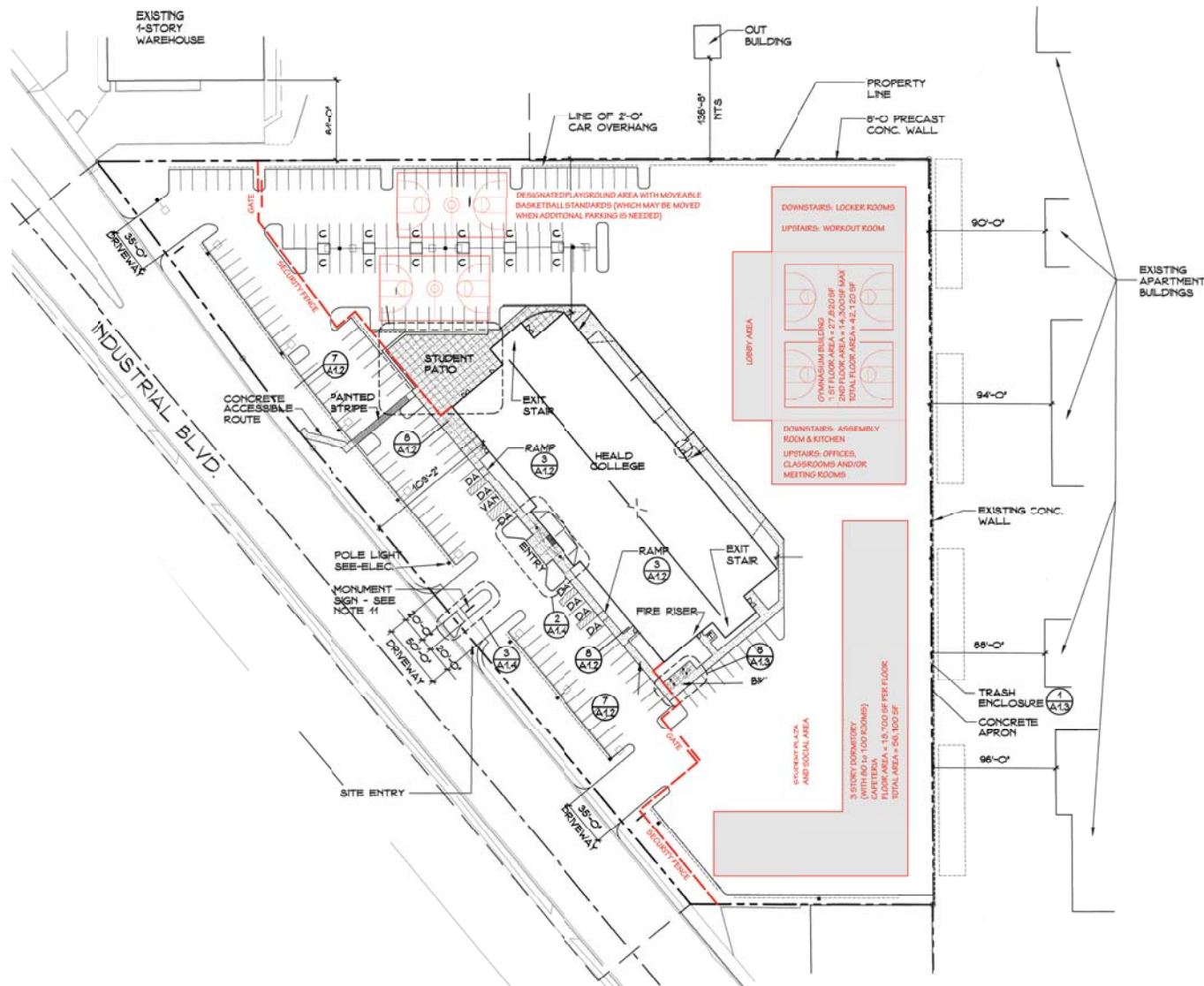
Notes:

1. ITE Parking Generation (9th Edition) land use category 536 (Private School K-12)
2. It is assumed that the temporary basketball courts would be utilized in after school hours when parking demand is lower. These courts require 38 parking spaces and therefore reduce supply to 208 spaces during court use.

Source: Fehr & Peers, 2016

3.3.2 PARKING CIRCULATION

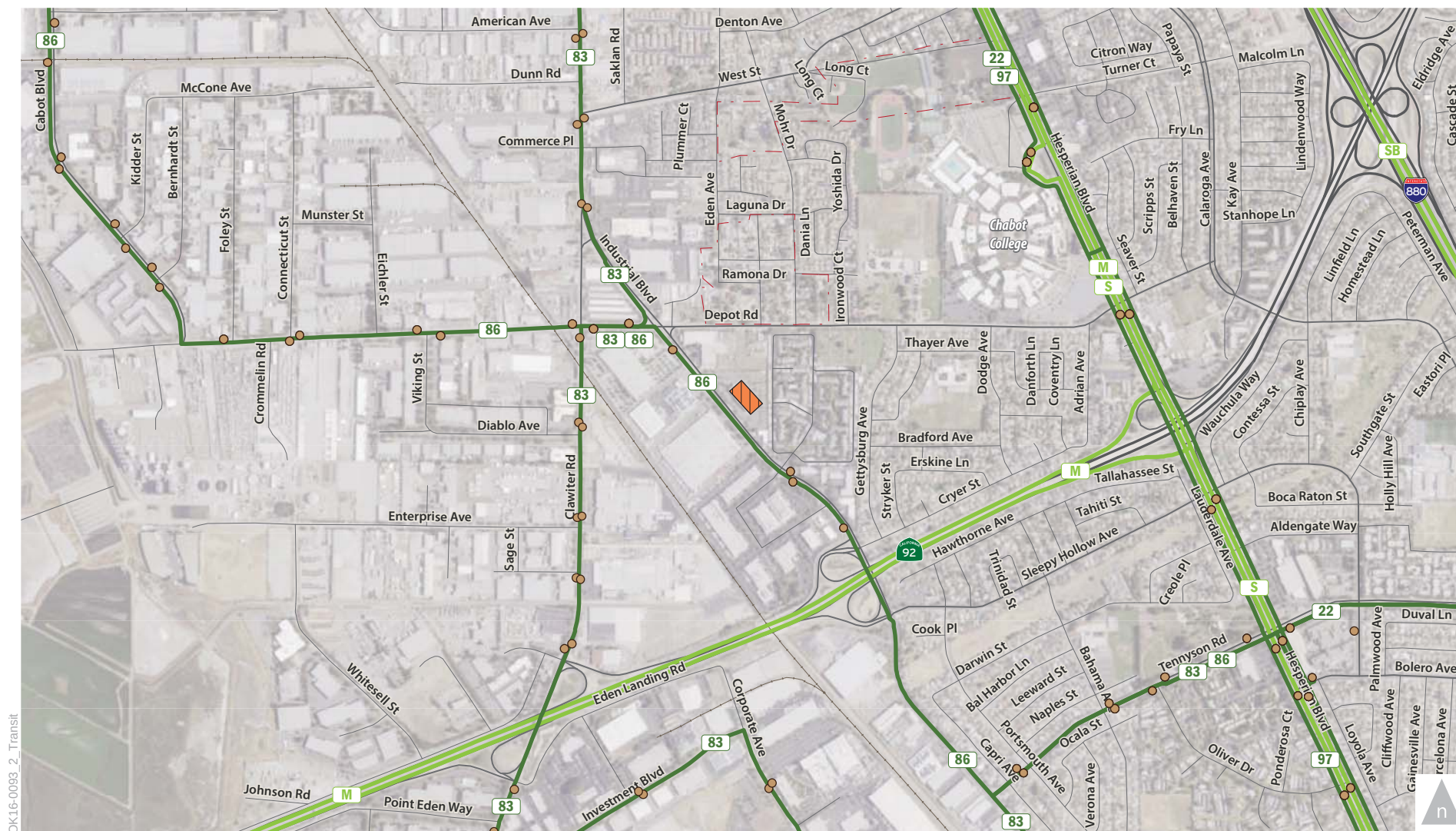
The school intends to transport students using four buses, two 72 passenger buses and two 44 passenger buses. These buses can be easily accommodated in the parking lot area northwest of the proposed community center/gymnasium building. It is expected the buses could be parked perpendicular to the property line wall without interfering with other parking spaces or pedestrian access to buildings. This area could also be used for bus drop-off and pick-up if marked appropriately.



Site Plan Source: Edward F. Ong, Structural Engineer

Figure 12

Conceptual Project Site Plan



OK16-0093_2_Transit

LEGEND

- Existing Sidewalk
- Bus Stop
- # AC Transit Route Serving Stop
- Project Site
- # Study Intersection



Figure 13



LEGEND

-  Existing Sidewalk
-  Marked Crosswalk
-  Project Site

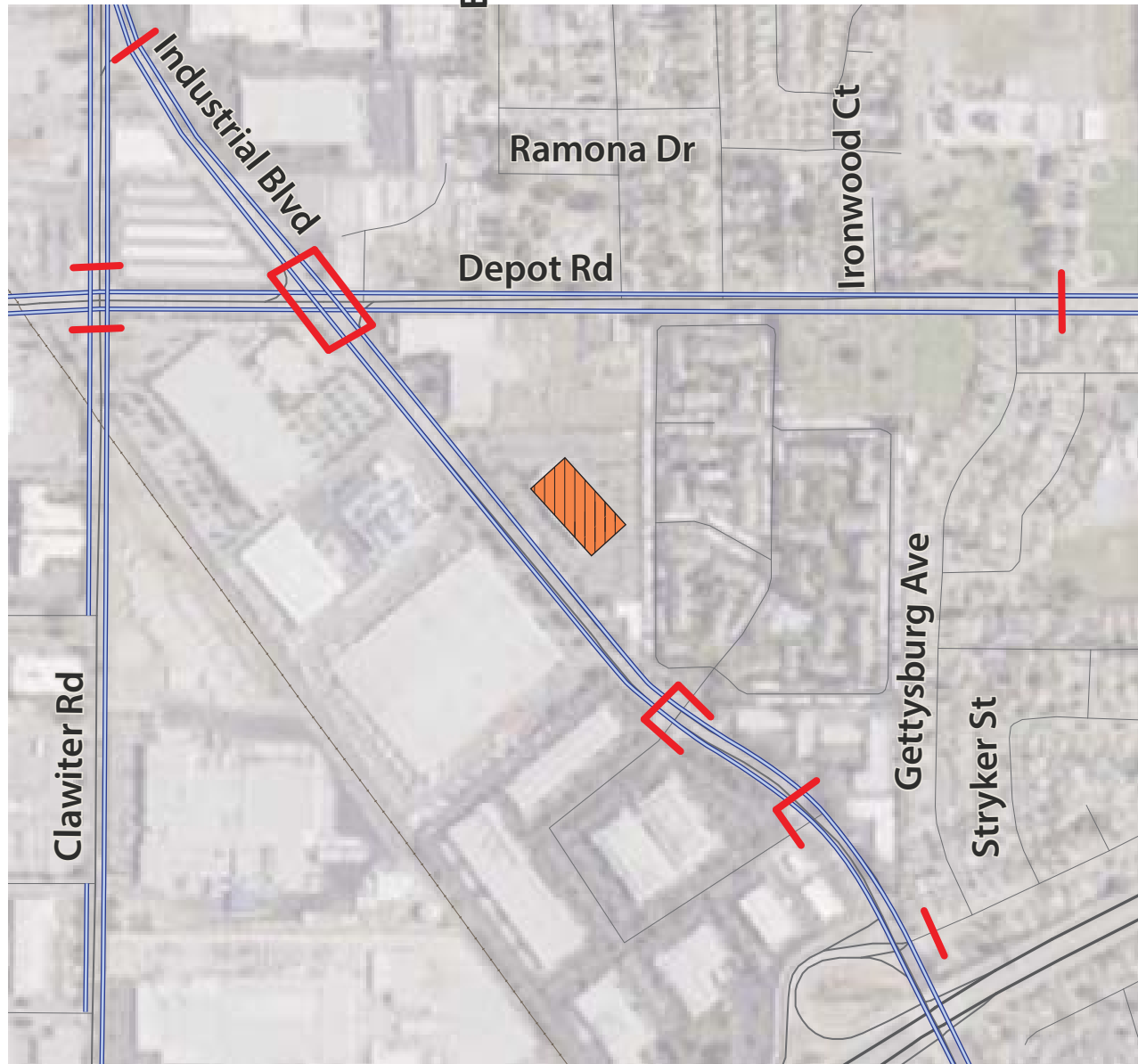


Figure 14



4 SHUTTLE PLAN

At the existing Crosspoint school campus, approximately 40 percent of students arrive by Crosspoint provided bus service. Twelve percent of students are transported from home to school by bus and 28 percent arrive by inter-campus shuttle. This shuttle is provided from San Leandro to the existing Alameda campus.

In order to accommodate at least 25 percent of the total student population by bus, the following shuttle plan is proposed. For the purposes of this plan, it is assumed that as the school adds students, they will reside in the same general area as current students. However, the plan can be adjusted to accommodate changes in student's residences as the school grows.

4.1 PICK-UP AND DROP-OFF

In order to accommodate the largest number of students most efficiently, the school will no longer provide home to school service and will instead increase its shuttle service. This service will provide two (2) shuttle stops, retaining its San Leandro shuttle service and adding an additional shuttle stop. The additional stop will be at Crosspoint's existing campus in Alameda, the San Leandro shuttle service will remain at the existing location in San Leandro. Please see **Figure 15** for additional location details.

It is anticipated that approximately 80 percent of students will live within the catchment area of the Alameda and San Leandro shuttle locations. These students are represented in **Table 14** below according to cities of residence. These are approximate numbers, generated from residential zip code data of the existing student population.

TABLE 14: FUTURE STUDENT RESIDENTIAL LOCATIONS

City	Approximate Percentage of Students
<i>City of Alameda</i>	24.2%
City of Danville	0.5%
<i>City of Fremont</i>	5%
City of Castro Valley	13.4%
<i>City of Hercules</i>	1.0%
City of Dublin	1.5%
City of San Leandro	26.2%
City of San Ramon	1.0%
<i>City of Union City</i>	2.5%
City of Walnut Creek	0.5%
<i>City of Oakland¹</i>	12.5%
<i>City of Richmond</i>	0.5%
<i>City of Hayward</i>	11.5%

1. The Oakland student population is split equally between Alameda and San Leandro

Notes: **Bold** represents those cities in San Leandro shuttle catchment area.

Italics represents those cities in Alameda shuttle catchment area.

For the purposes of this plan, it is assumed that as the school adds students, they will reside in the same general area as current students.

Table 14, above, displays the catchment areas by city of residence. Catchment areas were approximated based on proximity to respective shuttle stops.

Ridership estimates are given in **Table 15** for high, medium and low ridership scenarios. As the current transit services see 40 percent ridership, it is assumed that future, more robust shuttle service will capture approximately 36 percent of the total student population in the low ridership scenario.

TABLE 15: ESTIMATED TOTAL SHUTTLE RIDERSHIP

Ridership Scenario	Ridership in Catchment Area	Percent of Total Students ¹	Approximate Total Number of Riders ¹
Low	45%	36%	160
Medium	60%	47%	213
High	75%	59%	266

1. This number is estimated based on 450 students commuting to campus.

4.2 LOCATIONS

Bus stops will be located at the existing campus at California Crosspoint School, 1501 Harbor Bay Parkway in Alameda as well as at the AC Transit stop on Lewelling Boulevard, east of Washington Boulevard in San Leandro. **Figure 15** demonstrates these locations and corresponding catchment areas.

California Crosspoint's existing shuttle in San Leandro transports approximately 55 students per day or 118 percent of the student population living in San Leandro. This demonstrates that students living outside San Leandro are taking advantage of this service as well as the high relative willingness to ride school provided transport.

Table 16, below, displays anticipated ridership distribution between the Alameda and San Leandro Shuttle Locations.

TABLE 16: ESTIMATED SHUTTLE RIDERSHIP BY STOP

Ridership Scenario	Ridership in Catchment Area	Percent of Total Students Residing in Catchment Area		Estimated Number of Riders ¹		
		San Leandro Shuttle	Alameda Shuttle	San Leandro	Alameda	Total
Low	45%			90	70	160
Medium	60%	45%	34%	122	91	213
High	75%			152	114	266

1. This number is estimated based on 450 students commuting to campus.

4.3 BUSES

This section provides information on the number of buses necessary to accommodate each ridership scenario. The school currently owns four buses that are assumed in the analysis, two 72 passenger buses and two 44 passenger buses. The school also owns a 66-passenger and a 48-passenger bus for 6 buses total, plus an 8-passenger van that could be deployed to meet additional busing needs. **Table 17**, below, estimates the number of buses necessary to meet demand. It should be noted that providing more than one bus per site is preferable as then buses are able to leave as they are full. This would provide flexibility to riders arriving early or late.

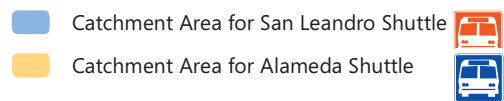
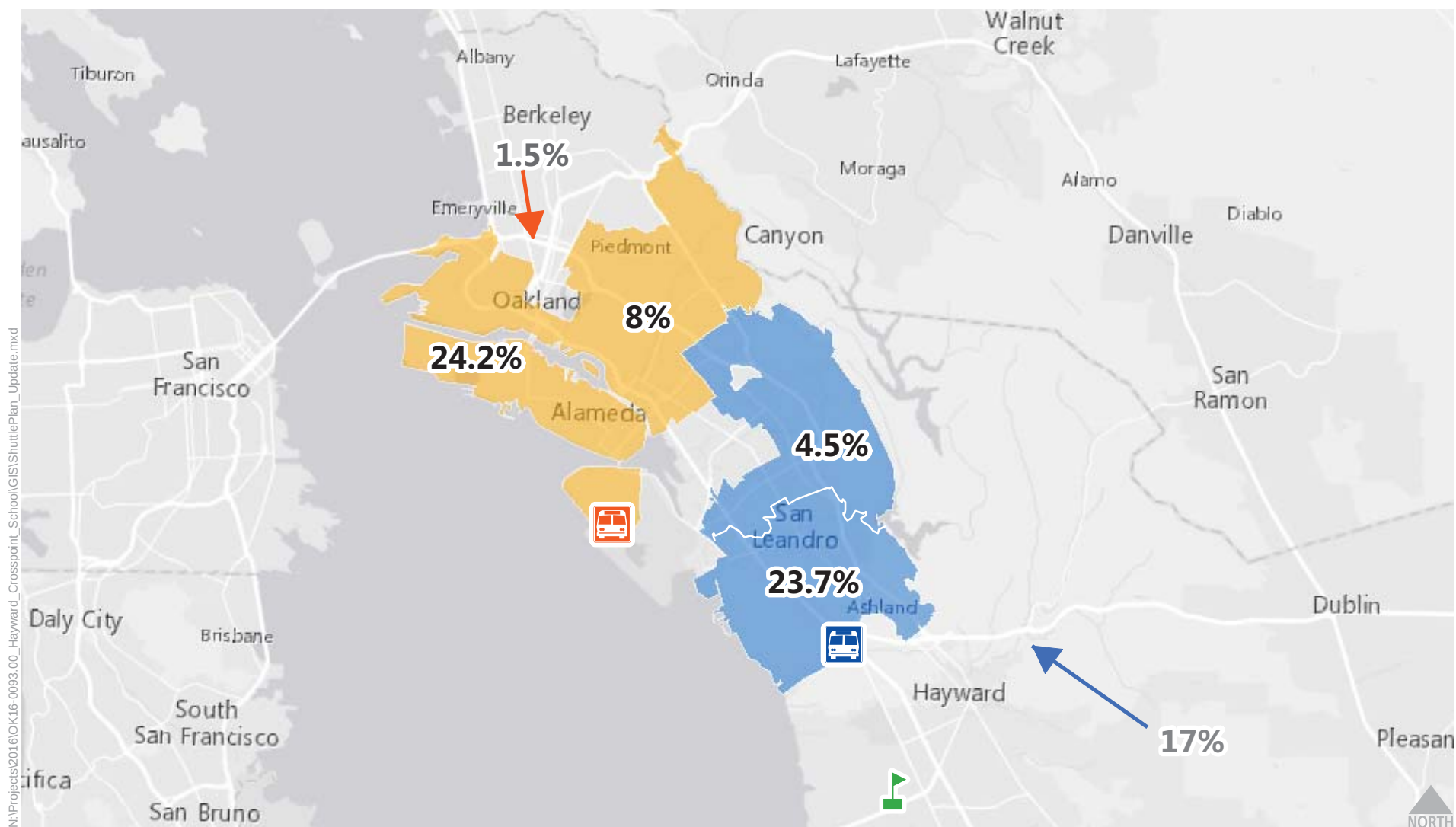
TABLE 17: ESTIMATED BUS REQUIREMENTS

Ridership Scenario	Estimated Number of Riders ¹		Estimated Number of Buses	
	San Leandro Shuttle	Alameda Shuttle	San Leandro Shuttle	Alameda Shuttle
Low	90	70	1x 72 passenger bus 1x 44 passenger bus	1x 72 passenger bus
Medium	122	91	1x 72 passenger bus 1x 44 passenger bus	1x 72 passenger bus 1x 44 passenger bus
High*	152	114	2x 72 passenger bus 1x 44 passenger bus	1x72 passenger bus 1x44 passenger bus

1. See Table 16 for detailed estimate

*The high ridership scenario would require the use of an additional 72 passenger bus

In the low and medium ridership scenarios the schools existing buses would meet demand. In the high ridership scenario, the school would need to purchase additional bus(es) to accommodate approximately 70 riders beyond what current buses are able to accommodate. These numbers are estimates and should be monitored as the school grows to full buildout.



X%

X%

Alameda Shuttle Location: 1501 Harbor Bay Pkwy, Alameda, CA 94502

San Leandro Shuttle Stop: Westbound Lewelling Blvd East of Washington Ave, San Leandro, CA 94578

School Location: 25500 Industrial Blvd, Hayward, CA 94545

Percent of Total Student Population

Additional Student Population in Catchment Area Outside of Map Extent

Figure 15
Shuttle Plan



CONCLUSION

This transportation assessment for the proposed California Crosspoint High School (CCHS) project at 25500 Industrial Boulevard in Hayward has evaluated the project's potential effects on the surrounding transportation network in accordance with the City's guidelines. The project proposes a school facility with 600 students, 70 staff and 140 people living on site. The report evaluated potential project impacts for the weekday morning and afternoon peak hours under six different scenarios. In order to minimize the amount of automobile traffic generated by the project a shuttle plan for California Crosspoint High School students was developed and recommended. This transportation assessment finds that the project would not result in any significant unavoidable impacts with the proposed shuttle plan and mitigation measures. While several impacts were identified, implementable mitigation measures were developed and proposed for each impact. Mitigation measures (signal optimization) should be phased in as necessary as the school develops and the need arises.

APPENDICIES

Appendix A

Existing Traffic Counts

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-001 Industrial Boulevard & Depot Road
Date : 2/4/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	0	143	11	0	154	22	30	7	0	59	77	76	7	9	169	2	7	24	0	33	415	9
7:15	2	138	27	0	167	21	38	5	0	64	81	71	8	33	193	0	5	29	0	34	458	33
7:30	0	103	14	0	117	21	45	4	0	70	76	90	12	11	189	1	3	21	0	25	401	11
7:45	1	90	6	0	97	25	32	10	0	67	101	117	17	7	242	5	1	30	0	36	442	7
Total	3	474	58	0	535	89	145	26	0	260	335	354	44	60	793	8	16	104	0	128	1716	60
8:00	2	85	2	1	90	28	19	9	0	56	89	96	35	9	229	3	7	30	0	40	415	10
8:15	5	84	7	0	96	26	30	11	0	67	78	83	20	5	186	6	4	39	0	49	398	5
8:30	4	82	6	1	93	14	15	3	0	32	59	87	22	6	174	2	5	36	0	43	342	7
8:45	6	65	4	1	76	12	6	8	0	26	59	65	12	5	141	3	9	26	0	38	281	6
Total	17	316	19	3	355	80	70	31	0	181	285	331	89	25	730	14	25	131	0	170	1436	28
16:00	14	89	1	2	106	10	8	10	0	28	24	111	26	6	167	7	46	73	0	126	427	8
16:15	5	82	2	0	89	9	6	7	0	22	33	101	26	5	165	13	46	63	0	122	398	5
16:30	13	101	1	0	115	18	4	3	0	25	25	103	26	4	158	23	44	65	0	132	430	4
16:45	14	92	1	0	107	9	6	0	0	15	30	128	34	8	200	18	45	67	0	130	452	8
Total	46	364	5	2	417	46	24	20	0	90	112	443	112	23	690	61	181	268	0	510	1707	25
17:00	10	119	3	1	133	10	5	1	0	16	17	104	27	3	151	17	63	70	0	150	450	4
17:15	9	113	1	0	123	6	5	5	0	16	10	105	29	4	148	14	34	63	0	111	398	4
17:30	5	85	1	1	92	12	2	3	0	17	19	89	31	5	144	20	41	81	0	142	395	6
17:45	7	67	1	1	76	13	0	3	0	16	14	100	27	4	145	6	17	42	0	65	302	5
Total	31	384	6	3	424	41	12	12	0	65	60	398	114	16	588	57	155	256	0	468	1545	19
Grand Total	97	1538	88	8	1731	256	251	89	0	596	792	1526	359	124	2801	140	377	759	0	1276	6404	132
Apprch %	5.6%	88.9%	5.1%	0.5%		43.0%	42.1%	14.9%	0.0%		28.3%	54.5%	12.8%	4.4%		11.0%	29.5%	59.5%	0.0%			
Total %	1.5%	24.0%	1.4%	0.1%	27.0%	4.0%	3.9%	1.4%	0.0%	9.3%	12.4%	23.8%	5.6%	1.9%	43.7%	2.2%	5.9%	11.9%	0.0%	19.9%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	0	143	11	0	154	22	30	7	0	59	77	76	7	9	169	2	7	24	0	33	415
7:15	2	138	27	0	167	21	38	5	0	64	81	71	8	33	193	0	5	29	0	34	458
7:30	0	103	14	0	117	21	45	4	0	70	76	90	12	11	189	1	3	21	0	25	401
7:45	1	90	6	0	97	25	32	10	0	67	101	117	17	7	242	5	1	30	0	36	442
Total Volume	3	474	58	0	535	89	145	26	0	260	335	354	44	60	793	8	16	104	0	128	1716
% App Total	0.6%	88.6%	10.8%	0.0%		34.2%	55.8%	10.0%	0.0%		42.2%	44.6%	5.5%	7.6%		6.3%	12.5%	81.3%	0.0%		
PHF	.375	.829	.537	.000	.801	.890	.806	.650	.000	.929	.829	.756	.647	.455	.819	.400	.571	.867	.000	.889	.937

PM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	13	101	1	0	115	18	4	3	0	25	25	103	26	4	158	23	44	65	0	132	430
16:45	14	92	1	0	107	9	6	0	0	15	30	128	34	8	200	18	45	67	0	130	452
17:00	10	119	3	1	133	10	5	1	0	16	17	104	27	3	151	17	63	70	0	150	450
17:15	9	113	1	0	123	6	5	5	0	16	10	105	29	4	148	14	34	63	0	111	398
Total Volume	46	425	6	1	478	43	20	9	0	72	82	440	116	19	657	72	186	265	0	523	1730
% App Total	9.6%	88.9%	1.3%	0.2%		59.7%	27.8%	12.5%	0.0%		12.5%	67.0%	17.7%	2.9%		13.8%	35.6%	50.7%	0.0%		
PHF	.821	.893	.500	.250	.898	.597	.833	.450	.000	.720	.683	.859	.853	.594	.821	.783	.738	.946	.000	.872	.957

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Turns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-001 Industrial Boulevard & Depot Road
Date : 2/4/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	1
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	1	0	0	1	0	1	0	2	1	0	0	0	0	0	2	3
8:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	2	2	0	0	4	0	0	0	0	0	0	0	0	1	0	4	1
8:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	2	4	0	0	6	0	0	0	0	0	0	0	0	2	0	6	2
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
16:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
16:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4	0
17:00	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	1	0	1	2	2
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	2	3	0	0	1	1	1	4	3
Grand Total	0	1	0	1	1	2	5	0	0	7	0	5	0	4	5	0	2	1	3	3	16	8
Apprch %	0.0%	100.0%	0.0%			28.6%	71.4%	0.0%			0.0%	100.0%	0.0%			0.0%	66.7%	33.3%				
Total %	0.0%	6.3%	0.0%		6.3%	12.5%	31.3%	0.0%		43.8%	0.0%	31.3%	0.0%		31.3%	0.0%	12.5%	6.3%		18.8%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
7:30	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	0	1	0	0	1	0	1	0	2	1	0	0	0	0	0	2
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.250	.000		.250	.000	.250	.000		.250	.000	.000	.000		.000	.500

PM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
16:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	1	0	1	2
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	0	2	1	0	1	1	1	2	4
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	50.0%	50.0%			
PHF	.000	.250	.000		.250	.000	.000	.000		.000	.000	.250	.000		.250	.000	.250	.250		.500	.500

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-002 Industrial Boulevard & Mt Eden Business Park/Bridge
Date : 2/4/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	3	154	8	0	165	31	1	1	0	33	4	153	5	1	163	2	1	0	0	3	364	1
7:15	3	141	3	1	148	26	0	6	0	32	7	195	6	0	208	0	0	0	0	0	388	1
7:30	3	134	10	0	147	29	1	9	0	39	12	174	7	0	193	0	0	1	0	1	380	0
7:45	3	160	9	1	173	15	0	3	0	18	17	255	3	1	276	0	0	3	0	3	470	2
Total	12	589	30	2	633	101	2	19	0	122	40	777	21	2	840	2	1	4	0	7	1602	4
8:00	1	136	4	0	141	27	0	5	0	32	13	227	10	2	252	0	0	2	0	2	427	2
8:15	3	130	9	0	142	17	0	2	0	19	14	199	8	0	221	0	0	3	0	3	385	0
8:30	2	123	5	1	131	15	0	4	0	19	10	166	14	0	190	2	0	0	0	2	342	1
8:45	5	127	5	0	137	15	0	3	0	18	6	154	4	1	165	1	0	0	0	1	321	1
Total	11	516	23	1	551	74	0	14	0	88	43	746	36	3	828	3	0	5	0	8	1475	4
16:00	1	189	5	1	196	3	0	4	0	7	2	170	16	1	189	3	0	6	0	9	401	2
16:15	4	173	3	2	182	7	0	0	0	7	2	159	33	0	194	5	0	16	0	21	404	2
16:30	5	217	1	1	224	20	0	2	0	22	3	166	18	2	189	5	0	10	0	15	450	3
16:45	4	198	1	1	204	12	0	2	0	14	0	194	24	1	219	7	0	11	0	18	455	2
Total	14	777	10	5	806	42	0	8	0	50	7	689	91	4	791	20	0	43	0	63	1710	9
17:00	10	223	1	2	236	12	0	5	0	17	3	146	32	2	183	10	0	8	0	18	454	4
17:15	4	201	0	0	205	11	0	1	0	12	0	145	24	0	169	5	0	7	0	12	398	0
17:30	6	210	0	1	217	9	0	7	0	16	1	138	28	2	169	6	0	7	0	13	415	3
17:45	5	141	1	1	148	16	0	1	0	17	2	142	36	2	182	4	0	5	0	9	356	3
Total	25	775	2	4	806	48	0	14	0	62	6	571	120	6	703	25	0	27	0	52	1623	10
Grand Total	62	2657	65	12	2796	265	2	55	0	322	96	2783	268	15	3162	50	1	79	0	130	6410	27
Apprch %	2.2%	95.0%	2.3%	0.4%		82.3%	0.6%	17.1%	0.0%		3.0%	88.0%	8.5%	0.5%		38.5%	0.8%	60.8%	0.0%			
Total %	1.0%	41.5%	1.0%	0.2%	43.6%	4.1%	0.0%	0.9%	0.0%	5.0%	1.5%	43.4%	4.2%	0.2%	49.3%	0.8%	0.0%	1.2%	0.0%	2.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	3	141	3	1	148	26	0	6	0	32	7	195	6	0	208	0	0	0	0	0	388
7:30	3	134	10	0	147	29	1	9	0	39	12	174	7	0	193	0	0	1	0	1	380
7:45	3	160	9	1	173	15	0	3	0	18	17	255	3	1	276	0	0	3	0	3	470
8:00	1	136	4	0	141	27	0	5	0	32	13	227	10	2	252	0	0	2	0	2	427
Total Volume	10	571	26	2	609	97	1	23	0	121	49	851	26	3	929	0	0	6	0	6	1665
% App Total	1.6%	93.8%	4.3%	0.3%		80.2%	0.8%	19.0%	0.0%		5.3%	91.6%	2.8%	0.3%		0.0%	0.0%	100.0%	0.0%		
PHF	.833	.892	.650	.500	.880	.836	.250	.639	.000	.776	.721	.834	.650	.375	.841	.000	.000	.500	.000	.500	.886

PM PEAK HOUR	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	4	173	3	2	182	7	0	0	0	7	2	159	33	0	194	5	0	16	0	21	404
16:30	5	217	1	1	224	20	0	2	0	22	3	166	18	2	189	5	0	10	0	15	450
16:45	4	198	1	1	204	12	0	2	0	14	0	194	24	1	219	7	0	11	0	18	455
17:00	10	223	1	2	236	12	0	5	0	17	3	146	32	2	183	10	0	8	0	18	454
Total Volume	23	811	6	6	846	51	0	9	0	60	8	665	107	5	785	27	0	45	0	72	1763
% App Total	2.7%	95.9%	0.7%	0.7%		85.0%	0.0%	15.0%	0.0%		1.0%	84.7%	13.6%	0.6%		37.5%	0.0%	62.5%	0.0%		
PHF	.575	.909	.500	.750	.896	.638	.000	.450	.000	.682	.667	.857	.811	.625	.896	.675	.000	.703	.000	.857	.969

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-002 Industrial Boulevard & Mt Eden Business Park/Bridge
Date : 2/4/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
7:15	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	2	1	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	2	4
8:00	0	0	0	2	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	6
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total	0	0	0	2	0	0	0	0	3	0	0	0	0	1	0	0	0	0	3	0	0	9
16:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:15	0	0	0	1	0	0	0	0	0	0	0	2	0	0	2	0	0	0	1	0	2	2
16:30	0	1	0	5	1	0	1	0	0	1	0	0	0	2	0	0	0	0	3	0	2	10
16:45	0	1	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	3
Total	0	2	0	9	2	0	1	0	0	1	0	2	0	4	2	0	0	0	4	0	5	17
17:00	0	0	0	2	0	0	0	0	1	0	0	1	0	0	1	0	0	0	2	0	1	5
17:15	0	1	0	2	1	0	0	0	3	0	0	1	0	0	1	0	0	0	2	0	2	7
17:30	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	8
17:45	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2	0
Total	0	1	0	6	1	0	1	0	8	1	0	3	0	0	3	0	0	0	6	0	5	20
Grand Total	0	3	1	19	4	0	2	0	12	2	0	6	0	5	6	0	0	0	14	0	12	50
Apprch %	0.0%	75.0%	25.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	0.0%	25.0%	8.3%		33.3%	0.0%	16.7%	0.0%		16.7%	0.0%	50.0%	0.0%		50.0%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	2	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0
Total Volume	0	0	1	3	1	0	0	0	4	0	0	0	0	1	0	0	0	0	1	0	1
% App Total	0.0%	0.0%	100.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.250		.250	.000	.000	.000		.000	.000	.000		.000	.000	.000	.000	.000		.000	.250

PM PEAK HOUR	Industrial Boulevard Southbound					Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	0	0	1	0	0	0	0	0	0	0	2	0	0	2	0	0	0	1	0	2
16:30	0	1	0	5	1	0	1	0	0	1	0	0	0	2	0	0	0	0	3	0	2
16:45	0	1	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1
17:00	0	0	0	2	0	0	0	0	1	0	0	1	0	0	1	0	0	0	2	0	1
Total Volume	0	2	0	9	2	0	1	0	1	1	0	3	0	4	3	0	0	0	6	0	6
% App Total	0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.500	.000		.500	.000	.250	.000		.250	.000	.375	.000		.375	.000	.000	.000		.000	.750

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-003 Industrial Boulevard & CA-92 EB Ramps
Date : 2/4/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	7	115	35	0	157	3	6	25	0	34	21	270	2	0	293	25	1	76	1	103	587	1
7:15	7	102	47	0	156	3	12	29	0	44	28	289	1	0	318	31	2	91	0	124	642	0
7:30	4	122	46	0	172	9	6	32	0	47	34	306	0	0	340	37	1	66	0	104	663	0
7:45	10	135	49	0	194	3	10	45	0	58	27	346	1	0	374	33	1	92	0	126	752	0
Total	28	474	177	0	679	18	34	131	0	183	110	1211	4	0	1325	126	5	325	1	457	2644	1
8:00	15	147	51	0	213	3	10	45	0	58	14	307	2	0	323	35	2	60	0	97	691	0
8:15	12	136	35	0	183	3	10	29	0	42	20	276	1	0	297	35	0	77	0	112	634	0
8:30	6	120	39	0	165	4	9	16	0	29	20	242	3	0	265	25	1	70	0	96	555	0
8:45	6	140	52	0	198	1	7	18	0	26	18	230	1	0	249	24	2	69	0	95	568	0
Total	39	543	177	0	759	11	36	108	0	155	72	1055	7	0	1134	119	5	276	0	400	2448	0
16:00	9	192	34	0	235	1	4	20	0	25	14	169	3	0	186	67	31	146	0	244	690	0
16:15	15	177	43	0	235	1	2	7	0	10	8	177	2	0	187	62	26	179	0	267	699	0
16:30	19	207	48	0	274	0	1	10	0	11	16	199	2	0	217	43	25	153	0	221	723	0
16:45	20	187	45	0	252	0	0	20	0	20	12	202	5	0	219	54	26	168	0	248	739	0
Total	63	763	170	0	996	2	7	57	0	66	50	747	12	0	809	226	108	646	0	980	2851	0
17:00	13	212	44	0	269	1	3	10	0	14	17	175	5	0	197	38	20	156	0	214	694	0
17:15	18	191	49	0	258	2	1	16	0	19	8	179	6	0	193	44	22	195	0	261	731	0
17:30	24	218	45	0	287	1	0	10	0	11	10	208	4	0	222	33	22	201	0	256	776	0
17:45	14	172	35	0	221	2	3	12	0	17	11	178	4	0	193	60	22	193	0	275	706	0
Total	69	793	173	0	1035	6	7	48	0	61	46	740	19	0	805	175	86	745	0	1006	2907	0
Grand Total	199	2573	697	0	3469	37	84	344	0	465	278	3753	42	0	4073	646	204	1992	1	2843	10850	1
Apprch %	5.7%	74.2%	20.1%	0.0%		8.0%	18.1%	74.0%	0.0%		6.8%	92.1%	1.0%	0.0%		22.7%	7.2%	70.1%	0.0%			
Total %	1.8%	23.7%	6.4%	0.0%	32.0%	0.3%	0.8%	3.2%	0.0%	4.3%	2.6%	34.6%	0.4%	0.0%	37.5%	6.0%	1.9%	18.4%	0.0%	26.2%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	7	102	47	0	156	3	12	29	0	44	28	289	1	0	318	31	2	91	0	124	642
7:30	4	122	46	0	172	9	6	32	0	47	34	306	0	0	340	37	1	66	0	104	663
7:45	10	135	49	0	194	3	10	45	0	58	27	346	1	0	374	33	1	92	0	126	752
8:00	15	147	51	0	213	3	10	45	0	58	14	307	2	0	323	35	2	60	0	97	691
Total Volume	36	506	193	0	735	18	38	151	0	207	103	1248	4	0	1355	136	6	309	0	451	2748
% App Total	4.9%	68.8%	26.3%	0.0%		8.7%	18.4%	72.9%	0.0%		7.6%	92.1%	0.3%	0.0%		30.2%	1.3%	68.5%	0.0%		
PHF	.600	.861	.946	.000	.863	.500	.792	.839	.000	.892	.757	.902	.500	.000	.906	.919	.750	.840	.000	.895	.914

PM PEAK HOUR	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	20	187	45	0	252	0	0	20	0	20	12	202	5	0	219	54	26	168	0	248	739
17:00	13	212	44	0	269	1	3	10	0	14	17	175	5	0	197	38	20	156	0	214	694
17:15	18	191	49	0	258	2	1	16	0	19	8	179	6	0	193	44	22	195	0	261	731
17:30	24	218	45	0	287	1	0	10	0	11	10	208	4	0	222	33	22	201	0	256	776
Total Volume	75	808	183	0	1066	4	4	56	0	64	47	764	20	0	831	169	90	720	0	979	2940
% App Total	7.0%	75.8%	17.2%	0.0%		6.3%	6.3%	87.5%	0.0%		5.7%	91.9%	2.4%	0.0%		17.3%	9.2%	73.5%	0.0%		
PHF	.781	.927	.934	.000	.929	.500	.333	.700	.000	.800	.691	.918	.833	.000	.936	.782	.865	.896	.000	.938	.947

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Turns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-003 Industrial Boulevard & CA-92 EB Ramps
Date : 2/4/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0
7:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Total	0	2	0	0	2	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	5	0
16:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:15	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Total	1	4	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	6	0
17:00	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Total	0	0	0	0	0	0	0	1	0	1	0	2	0	1	2	0	0	0	0	0	3	1
Grand Total	1	6	0	0	7	0	0	3	0	3	0	4	0	1	4	0	0	0	0	0	14	1
Apprch %	14.3%	85.7%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	7.1%	42.9%	0.0%		50.0%	0.0%	0.0%	21.4%		21.4%	0.0%	28.6%	0.0%		28.6%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
7:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	4
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.000		.250	.000	.000	.500		.500	.000	.000	.000		.000	.000	.000	.000		.000	.333

PM PEAK HOUR	Industrial Boulevard Southbound					Sleepy Hollow Avenue Westbound					Industrial Boulevard Northbound					CA-92 EB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	0	0	3	0	0	1	0	1	0	1	0	1	1	0	0	0	0	0	5
% App Total	33.3%	66.7%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.250	.250	.000		.250	.000	.000	.250		.250	.000	.250	.000		.250	.000	.000	.000		.000	.417

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-004 Industrial Boulevard & CA-92 WB Ramps
Date : 2/4/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	0	138	57	0	195	21	11	2	0	34	132	176	11	0	319	33	0	4	0	37	585	0
7:15	1	109	64	0	174	23	8	6	0	37	157	205	11	0	373	24	0	6	0	30	614	0
7:30	1	125	52	0	178	32	4	5	0	41	113	201	22	1	337	25	2	11	0	38	594	1
7:45	3	158	37	0	198	39	11	4	0	54	114	274	46	0	434	36	1	10	0	47	733	0
Total	5	530	210	0	745	115	34	17	0	166	516	856	90	1	1463	118	3	31	0	152	2526	1
8:00	1	138	26	0	165	63	10	7	0	80	99	237	42	0	378	49	3	12	0	64	687	0
8:15	3	141	41	0	185	24	5	4	0	33	132	211	18	0	361	40	0	25	0	65	644	0
8:30	0	115	31	0	146	14	3	1	0	18	116	153	14	0	283	66	2	32	0	100	547	0
8:45	5	143	29	0	177	10	3	3	0	16	104	154	11	0	269	49	2	43	0	94	556	0
Total	9	537	127	0	673	111	21	15	0	147	451	755	85	0	1291	204	7	112	0	323	2434	0
16:00	4	195	21	0	220	9	2	3	0	14	85	157	27	0	269	35	6	26	0	67	570	0
16:15	0	201	15	0	216	8	1	2	0	11	68	173	16	0	257	31	9	32	0	72	556	0
16:30	6	237	31	0	274	8	1	6	0	15	71	152	21	0	244	41	8	32	0	81	614	0
16:45	2	216	21	0	239	8	2	3	0	13	72	174	24	0	270	51	12	21	0	84	606	0
Total	12	849	88	0	949	33	6	14	0	53	296	656	88	0	1040	158	35	111	0	304	2346	0
17:00	3	242	31	0	276	7	2	1	0	10	79	128	24	0	231	36	5	18	0	59	576	0
17:15	2	215	27	0	244	12	0	4	0	16	67	137	25	0	229	32	6	25	0	63	552	0
17:30	0	236	20	0	256	11	0	3	0	14	90	134	22	0	246	38	5	42	1	86	602	1
17:45	1	167	21	0	189	5	2	2	0	9	85	136	33	0	254	41	5	53	0	99	551	0
Total	6	860	99	0	965	35	4	10	0	49	321	535	104	0	960	147	21	138	1	307	2281	1
Grand Total	32	2776	524	0	3332	294	65	56	0	415	1584	2802	367	1	4754	627	66	392	1	1086	9587	2
Apprch %	1.0%	83.3%	15.7%	0.0%		70.8%	15.7%	13.5%	0.0%		33.3%	58.9%	7.7%	0.0%		57.7%	6.1%	36.1%	0.1%			
Total %	0.3%	29.0%	5.5%	0.0%	34.8%	3.1%	0.7%	0.6%	0.0%	4.3%	16.5%	29.2%	3.8%	0.0%	49.6%	6.5%	0.7%	4.1%	0.0%	11.3%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	1	125	52	0	178	32	4	5	0	41	113	201	22	1	337	25	2	11	0	38	594
7:45	3	158	37	0	198	39	11	4	0	54	114	274	46	0	434	36	1	10	0	47	733
8:00	1	138	26	0	165	63	10	7	0	80	99	237	42	0	378	49	3	12	0	64	687
8:15	3	141	41	0	185	24	5	4	0	33	132	211	18	0	361	40	0	25	0	65	644
Total Volume	8	562	156	0	726	158	30	20	0	208	458	923	128	1	1510	150	6	58	0	214	2658
% App Total	1.1%	77.4%	21.5%	0.0%		76.0%	14.4%	9.6%	0.0%		30.3%	61.1%	8.5%	0.1%		70.1%	2.8%	27.1%	0.0%		
PHF	.667	.889	.750	.000	.917	.627	.682	.714	.000	.650	.867	.842	.696	.250	.870	.765	.500	.580	.000	.823	.907

PM PEAK HOUR	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	201	15	0	216	8	1	2	0	11	68	173	16	0	257	31	9	32	0	72	556
16:30	6	237	31	0	274	8	1	6	0	15	71	152	21	0	244	41	8	32	0	81	614
16:45	2	216	21	0	239	8	2	3	0	13	72	174	24	0	270	51	12	21	0	84	606
17:00	3	242	31	0	276	7	2	1	0	10	79	128	24	0	231	36	5	18	0	59	576
Total Volume	11	896	98	0	1005	31	6	12	0	49	290	627	85	0	1002	159	34	103	0	296	2352
% App Total	1.1%	89.2%	9.8%	0.0%		63.3%	12.2%	24.5%	0.0%		28.9%	62.6%	8.5%	0.0%		53.7%	11.5%	34.8%	0.0%		
PHF	.458	.926	.790	.000	.910	.969	.750	.500	.000	.817	.918	.901	.885	.000	.928	.779	.708	.805	.000	.881	.958

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Turns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-004 Industrial Boulevard & CA-92 WB Ramps
Date : 2/4/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	1
7:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	1	0	1	3	2	0	1	0	0	1	0	0	0	0	0	3	3
7:45	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	0	1	1	0	2	5	3	0	2	0	0	2	0	0	0	0	0	6	5
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0
16:00	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
16:15	0	1	0	0	1	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	2	2
16:30	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
16:45	0	2	0	0	2	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3	2
Total	0	4	0	1	4	1	0	0	7	1	0	1	0	0	1	0	0	0	0	0	6	8
17:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0
17:15	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	1	2
Total	0	0	0	0	0	0	0	0	4	0	0	2	1	0	3	0	0	0	0	0	3	4
Grand Total	0	5	0	1	5	2	0	2	16	4	0	5	2	0	7	0	0	0	0	0	16	17
Apprch %	0.0%	100.0%	0.0%			50.0%	0.0%	50.0%			0.0%	71.4%	28.6%			0.0%	0.0%	0.0%				
Total %	0.0%	31.3%	0.0%		31.3%	12.5%	0.0%	12.5%		25.0%	0.0%	31.3%	12.5%		43.8%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	0	0	0	0	1	0	1	3	2	0	1	0	0	1	0	0	0	0	0	3
7:45	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	1	0	1	4	2	0	1	0	0	1	0	0	0	0	0	4
% App Total	0.0%	100.0%	0.0%			50.0%	0.0%	50.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.000		.250	.250	.000	.250		.250	.000	.250	.000		.250	.000	.000	.000		.000	.333

PM PEAK HOUR	Industrial Boulevard Southbound					Cryer Street Westbound					Industrial Boulevard Northbound					CA-92 WB Ramps Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	1	0	0	1	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	2
16:30	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	2	0	0	2	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
17:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total Volume	0	3	0	1	3	1	0	0	6	1	0	1	1	0	2	0	0	0	0	0	6
% App Total	0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			0.0%	50.0%	50.0%			0.0%	0.0%	0.0%			
PHF	.000	.375	.000		.375	.250	.000	.000		.250	.000	.250	.250		.500	.000	.000	.000		.000	.500

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-005 Industrial Boulevard & Clawiter Road
Date : 2/4/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	1	137	218	0	356	1	0	0	0	1	8	66	1	0	75	21	2	3	0	26	458	0
7:15	0	151	222	0	373	2	0	1	0	3	7	72	1	1	81	22	2	6	0	30	487	1
7:30	0	140	218	0	358	0	0	1	0	1	4	78	1	0	83	30	0	3	0	33	475	0
7:45	0	118	203	0	321	1	0	0	0	1	8	102	2	3	115	33	0	1	0	34	471	3
Total	1	546	861	0	1408	4	0	2	0	6	27	318	5	4	354	106	4	13	0	123	1891	4
8:00	0	105	152	0	257	1	0	0	0	1	3	100	2	0	105	35	0	2	0	37	400	0
8:15	1	91	165	0	257	0	0	2	0	2	2	92	1	0	95	36	0	0	0	36	390	0
8:30	1	94	155	0	250	0	0	2	0	2	2	88	2	0	92	21	0	2	0	23	367	0
8:45	0	83	150	0	233	1	0	0	0	1	3	67	3	0	73	40	2	1	0	43	350	0
Total	2	373	622	0	997	2	0	4	0	6	10	347	8	0	365	132	2	5	0	139	1507	0
16:00	0	88	36	0	124	3	1	2	0	6	3	114	0	3	120	138	0	1	0	139	389	3
16:15	0	78	36	0	114	2	0	0	0	2	1	111	0	6	118	139	0	2	0	141	375	6
16:30	0	121	35	0	156	5	2	0	0	7	3	132	0	1	136	125	0	0	0	125	424	1
16:45	0	93	22	0	115	6	0	0	0	6	4	134	0	2	140	137	1	1	0	139	400	2
Total	0	380	129	0	509	16	3	2	0	21	11	491	0	12	514	539	1	4	0	544	1588	12
17:00	0	107	38	0	145	21	1	1	0	23	1	121	1	4	127	156	0	2	0	158	453	4
17:15	0	106	21	0	127	7	0	0	0	7	4	117	0	5	126	149	1	2	0	152	412	5
17:30	0	81	28	0	109	6	2	4	0	12	2	120	0	7	129	137	0	2	0	139	389	7
17:45	0	63	21	0	84	5	0	0	0	5	1	110	0	7	118	123	0	1	0	124	331	7
Total	0	357	108	0	465	39	3	5	0	47	8	468	1	23	500	565	1	7	0	573	1585	23
Grand Total	3	1656	1720	0	3379	61	6	13	0	80	56	1624	14	39	1733	1342	8	29	0	1379	6571	39
Apprch %	0.1%	49.0%	50.9%	0.0%		76.3%	7.5%	16.3%	0.0%		3.2%	93.7%	0.8%	2.3%		97.3%	0.6%	2.1%	0.0%			
Total %	0.0%	25.2%	26.2%	0.0%	51.4%	0.9%	0.1%	0.2%	0.0%	1.2%	0.9%	24.7%	0.2%	0.6%	26.4%	20.4%	0.1%	0.4%	0.0%	21.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	1	137	218	0	356	1	0	0	0	1	8	66	1	0	75	21	2	3	0	26	458
7:15	0	151	222	0	373	2	0	1	0	3	7	72	1	1	81	22	2	6	0	30	487
7:30	0	140	218	0	358	0	0	1	0	1	4	78	1	0	83	30	0	3	0	33	475
7:45	0	118	203	0	321	1	0	0	0	1	8	102	2	3	115	33	0	1	0	34	471
Total Volume	1	546	861	0	1408	4	0	2	0	6	27	318	5	4	354	106	4	13	0	123	1891
% App Total	0.1%	38.8%	61.2%	0.0%		66.7%	0.0%	33.3%	0.0%		7.6%	89.8%	1.4%	1.1%		86.2%	3.3%	10.6%	0.0%		
PHF	.250	.904	.970	.000	.944	.500	.000	.500	.000	.500	.844	.779	.625	.333	.770	.803	.500	.542	.000	.904	.971

PM PEAK HOUR	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	121	35	0	156	5	2	0	0	7	3	132	0	1	136	125	0	0	0	125	424
16:45	0	93	22	0	115	6	0	0	0	6	4	134	0	2	140	137	1	1	0	139	400
17:00	0	107	38	0	145	21	1	1	0	23	1	121	1	4	127	156	0	2	0	158	453
17:15	0	106	21	0	127	7	0	0	0	7	4	117	0	5	126	149	1	2	0	152	412
Total Volume	0	427	116	0	543	39	3	1	0	43	12	504	1	12	529	567	2	5	0	574	1689
% App Total	0.0%	78.6%	21.4%	0.0%		90.7%	7.0%	2.3%	0.0%		2.3%	95.3%	0.2%	2.3%		98.8%	0.3%	0.9%	0.0%		
PHF	.000	.882	.763	.000	.870	.464	.375	.250	.000	.467	.750	.940	.250	.600	.945	.909	.500	.625	.000	.908	.932

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Turns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7068-005 Industrial Boulevard & Clawiter Road
Date : 2/4/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0
7:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	2	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	3	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
8:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	0	0	1	0	1	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	1	4
16:00	0	0	0	0	0	0	0	0	0	0	0	3	0	1	3	0	0	0	0	0	3	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
16:30	0	0	0	0	0	0	1	0	3	1	0	1	0	0	1	2	0	0	0	2	4	3
16:45	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2	1
Total	0	1	0	0	1	0	1	0	4	1	0	4	0	1	4	3	0	0	1	3	9	6
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
17:45	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	1	0	1	3
Grand Total	0	2	2	0	4	0	1	0	7	1	0	6	0	5	6	3	0	0	2	3	14	14
Apprch %	0.0%	50.0%	50.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%				
Total %	0.0%	14.3%	14.3%		28.6%	0.0%	7.1%	0.0%		7.1%	0.0%	42.9%	0.0%		42.9%	21.4%	0.0%	0.0%		21.4%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
7:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	2	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	3
% App Total	0.0%	50.0%	50.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.250		.500	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.375

PM PEAK HOUR	Industrial Boulevard Southbound					Driveway Westbound					Industrial Boulevard Northbound					Clawiter Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	1	0	3	1	0	1	0	0	1	2	0	0	0	2	4
16:45	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	4	1	0	1	0	1	1	3	0	0	0	3	6
% App Total	0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			
PHF	.000	.250	.000		.250	.000	.250	.000		.250	.000	.250	.000		.250	.375	.000	.000		.375	.375

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7145-007 Industrial Boulevard & Mt. Eden Business Park/Haywa
Date : 3/1/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	1	119	7	0	127	0	0	0	0	0	32	99	1	0	132	11	1	9	0	21	280	0
7:15	1	232	20	0	253	1	0	0	0	1	36	206	1	4	247	14	1	9	0	24	525	4
7:30	3	184	14	0	201	0	0	0	0	0	24	199	1	1	225	12	0	12	0	24	450	1
7:45	1	150	8	0	159	0	0	1	0	1	24	227	0	1	252	15	0	8	0	23	435	1
Total	6	685	49	0	740	1	0	1	0	2	116	731	3	6	856	52	2	38	0	92	1690	6
8:00	2	176	7	0	185	1	0	0	0	1	32	226	3	0	261	12	0	3	0	15	462	0
8:15	0	129	18	0	147	0	2	0	0	2	24	198	7	0	229	15	0	13	0	28	406	0
8:30	0	123	22	0	145	4	0	0	0	4	26	172	2	0	200	15	0	7	0	22	371	0
8:45	1	134	15	0	150	2	0	0	0	2	28	172	8	0	208	18	1	16	0	35	395	0
Total	3	562	62	0	627	7	2	0	0	9	110	768	20	0	898	60	1	39	0	100	1634	0
14:00	2	182	11	0	195	1	0	1	0	2	11	160	5	0	176	12	0	5	0	17	390	0
14:15	1	151	12	0	164	3	0	2	0	5	16	162	3	0	181	12	0	20	0	32	382	0
14:30	0	207	7	2	216	1	0	2	0	3	12	169	5	0	186	16	0	29	0	45	450	2
14:45	0	186	11	1	198	1	0	0	0	1	9	179	1	0	189	5	1	14	0	20	408	1
Total	3	726	41	3	773	6	0	5	0	11	48	670	14	0	732	45	1	68	0	114	1630	3
15:00	0	230	18	0	248	4	0	2	0	6	8	177	1	0	186	3	1	18	0	22	462	0
15:15	1	192	11	0	204	2	1	3	0	6	9	183	3	0	195	18	2	15	0	35	440	0
15:30	1	230	15	1	247	1	1	2	0	4	10	168	5	0	183	9	0	29	0	38	472	1
15:45	1	173	12	0	186	1	0	0	0	1	5	223	3	0	231	14	2	18	0	34	452	0
Total	3	825	56	1	885	8	2	7	0	17	32	751	12	0	795	44	5	80	0	129	1826	1
Grand Total	15	2798	208	4	3025	22	4	13	0	39	306	2920	49	6	3281	201	9	225	0	435	6780	10
Apprch %	0.5%	92.5%	6.9%	0.1%		56.4%	10.3%	33.3%	0.0%		9.3%	89.0%	1.5%	0.2%		46.2%	2.1%	51.7%	0.0%			
Total %	0.2%	41.3%	3.1%	0.1%	44.6%	0.3%	0.1%	0.2%	0.0%	0.6%	4.5%	43.1%	0.7%	0.1%	48.4%	3.0%	0.1%	3.3%	0.0%	6.4%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	1	232	20	0	253	1	0	0	0	1	36	206	1	4	247	14	1	9	0	24	525
7:30	3	184	14	0	201	0	0	0	0	0	24	199	1	1	225	12	0	12	0	24	450
7:45	1	150	8	0	159	0	0	1	0	1	24	227	0	1	252	15	0	8	0	23	435
8:00	2	176	7	0	185	1	0	0	0	1	32	226	3	0	261	12	0	3	0	15	462
Total Volume	7	742	49	0	798	2	0	1	0	3	116	858	5	6	985	53	1	32	0	86	1872
% App Total	0.9%	93.0%	6.1%	0.0%		66.7%	0.0%	33.3%	0.0%		11.8%	87.1%	0.5%	0.6%		61.6%	1.2%	37.2%	0.0%		
PHF	.583	.800	.613	.000	.789	.500	.000	.250	.000	.750	.806	.945	.417	.375	.943	.883	.250	.667	.000	.896	.891

PM PEAK HOUR	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	230	18	0	248	4	0	2	0	6	8	177	1	0	186	3	1	18	0	22	462
15:15	1	192	11	0	204	2	1	3	0	6	9	183	3	0	195	18	2	15	0	35	440
15:30	1	230	15	1	247	1	1	2	0	4	10	168	5	0	183	9	0	29	0	38	472
15:45	1	173	12	0	186	1	0	0	0	1	5	223	3	0	231	14	2	18	0	34	452
Total Volume	3	825	56	1	885	8	2	7	0	17	32	751	12	0	795	44	5	80	0	129	1826
% App Total	0.3%	93.2%	6.3%	0.1%		47.1%	11.8%	41.2%	0.0%		4.0%	94.5%	1.5%	0.0%		34.1%	3.9%	62.0%	0.0%		
PHF	.750	.897	.778	.250	.892	.500	.500	.583	.000	.708	.800	.842	.600	.000	.860	.611	.625	.690	.000	.849	.967

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-007 Industrial Boulevard & Mt. Eden Business Park/Haywa
Date : 3/1/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1	1
7:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Total	0	0	0	1	0	0	0	0	2	0	0	1	0	0	1	0	0	0	2	0	1	5
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	2	1
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	3
Total	0	0	0	1	0	0	0	1	1	1	0	0	1	0	1	0	0	0	2	0	2	4
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	4
14:45	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	6
15:00	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1	3
15:15	0	1	0	1	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3	1
15:30	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	3	0	3	3	0	0	0	1	0	0	1	0	0	1	0	1	0	3	1	5	7
Grand Total	0	3	0	8	3	0	0	1	6	1	0	2	1	0	3	0	1	0	8	1	8	22
Apprch %	0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	66.7%	33.3%			0.0%	100.0%	0.0%				
Total %	0.0%	37.5%	0.0%		37.5%	0.0%	0.0%	12.5%		12.5%	0.0%	25.0%	12.5%		37.5%	0.0%	12.5%	0.0%		12.5%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	1
7:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	0	0	0	2	0	0	1	0	0	1	0	0	0	1	0	1
% App Total	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.250

PM PEAK HOUR	Industrial Boulevard Southbound					Hayward Business Park Westbound					Industrial Boulevard Northbound					Mt. Eden Business Park Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1
15:15	0	1	0	1	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
15:30	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	3	0	3	3	0	0	0	1	0	0	1	0	0	1	0	1	0	3	1	5
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.750	.000		.750	.000	.000	.000		.000	.000	.250	.000		.250	.000	.250	.000		.250	.417

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7145-008 Hesperian Boulevard & Tennyson Road

Date : 3/1/2016

Unshifted Count = All Vehicles & Uturns

	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	19	204	45	2	270	57	188	44	0	289	9	178	7	3	197	29	25	4	0	58	814	5
7:15	23	173	48	2	246	46	229	68	1	344	17	208	14	1	240	32	36	6	1	75	905	5
7:30	34	182	36	2	254	53	171	70	0	294	20	264	13	5	302	23	46	6	0	75	925	7
7:45	43	216	36	0	295	63	166	50	1	280	21	271	9	7	308	35	53	6	3	97	980	11
Total	119	775	165	6	1065	219	754	232	2	1207	67	921	43	16	1047	119	160	22	4	305	3624	28
8:00	50	263	52	3	368	54	146	48	0	248	21	312	14	3	350	42	42	21	0	105	1071	6
8:15	42	181	45	3	271	55	198	62	2	317	11	250	11	8	280	49	42	10	0	101	969	13
8:30	33	134	25	6	198	52	183	74	0	309	7	161	3	5	176	26	37	3	1	67	750	12
8:45	29	126	19	4	178	44	131	91	1	267	8	196	16	5	225	24	25	2	0	51	721	10
Total	154	704	141	16	1015	205	658	275	3	1141	47	919	44	21	1031	141	146	36	1	324	3511	41
14:00	34	113	12	4	163	45	48	36	2	131	5	154	21	8	188	38	55	8	1	102	584	15
14:15	43	146	19	7	215	52	58	40	0	150	6	186	21	8	221	26	53	7	4	90	676	19
14:30	46	135	15	9	205	55	56	33	1	145	1	192	23	3	219	38	59	12	4	113	682	17
14:45	46	174	17	5	242	61	53	44	1	159	11	201	30	2	244	44	101	16	2	163	808	10
Total	169	568	63	25	825	213	215	153	4	585	23	733	95	21	872	146	268	43	11	468	2750	61
15:00	56	200	14	7	277	57	47	43	0	147	4	228	34	9	275	26	125	11	2	164	863	18
15:15	60	202	29	4	295	64	56	59	1	180	11	274	24	10	319	37	109	22	4	172	966	19
15:30	51	207	22	9	289	67	91	42	1	201	11	258	37	10	316	45	123	18	3	189	995	23
15:45	67	199	19	6	291	54	51	49	0	154	8	293	24	14	339	43	119	15	2	179	963	22
Total	234	808	84	26	1152	242	245	193	2	682	34	1053	119	43	1249	151	476	66	11	704	3787	82
Grand Total	676	2855	453	73	4057	879	1872	853	11	3615	171	3626	301	101	4199	557	1050	167	27	1801	13672	212
Apprch %	16.7%	70.4%	11.2%	1.8%		24.3%	51.8%	23.6%	0.3%		4.1%	86.4%	7.2%	2.4%		30.9%	58.3%	9.3%	1.5%			
Total %	4.9%	20.9%	3.3%	0.5%	29.7%	6.4%	13.7%	6.2%	0.1%	26.4%	1.3%	26.5%	2.2%	0.7%	30.7%	4.1%	7.7%	1.2%	0.2%	13.2%	100.0%	

AM PEAK HOUR	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	34	182	36	2	254	53	171	70	0	294	20	264	13	5	302	23	46	6	0	75	925
7:45	43	216	36	0	295	63	166	50	1	280	21	271	9	7	308	35	53	6	3	97	980
8:00	50	263	52	3	368	54	146	48	0	248	21	312	14	3	350	42	42	21	0	105	1071
8:15	42	181	45	3	271	55	198	62	2	317	11	250	11	8	280	49	42	10	0	101	969
Total Volume	169	842	169	8	1188	225	681	230	3	1139	73	1097	47	23	1240	149	183	43	3	378	3945
% App Total	14.2%	70.9%	14.2%	0.7%		19.8%	59.8%	20.2%	0.3%		5.9%	88.5%	3.8%	1.9%		39.4%	48.4%	11.4%	0.8%		
PHF	.845	.800	.813	.667	.807	.893	.860	.821	.375	.898	.869	.879	.839	.719	.886	.760	.863	.512	.250	.900	.921

PM PEAK HOUR	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	56	200	14	7	277	57	47	43	0	147	4	228	34	9	275	26	125	11	2	164	863
15:15	60	202	29	4	295	64	56	59	1	180	11	274	24	10	319	37	109	22	4	172	966
15:30	51	207	22	9	289	67	91	42	1	201	11	258	37	10	316	45	123	18	3	189	995
15:45	67	199	19	6	291	54	51	49	0	154	8	293	24	14	339	43	119	15	2	179	963
Total Volume	234	808	84	26	1152	242	245	193	2	682	34	1053	119	43	1249	151	476	66	11	704	3787
% App Total	20.3%	70.1%	7.3%	2.3%		35.5%	35.9%	28.3%	0.3%		2.7%	84.3%	9.5%	3.4%		21.4%	67.6%	9.4%	1.6%		
PHF	.873	.976	.724	.722	.976	.903	.673	.818	.500	.848	.773	.898	.804	.768	.921	.839	.952	.750	.688	.931	.952

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-008 Hesperian Boulevard & Tennyson Road
Date : 3/1/2016

Bank 1 Count = Bikes & Peds

	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	2	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0	0	0	8
7:15	1	0	0	4	1	0	1	0	9	1	0	0	0	4	0	0	0	3	0	0	2	20
7:30	0	0	0	3	0	0	0	0	8	0	0	2	0	2	2	0	0	0	2	0	2	15
7:45	0	0	0	6	0	1	0	1	11	2	0	0	0	6	0	0	0	2	0	0	2	25
Total	1	0	0	15	1	1	1	1	30	3	0	2	0	16	2	0	0	0	7	0	6	68
8:00	0	0	0	1	0	0	1	0	7	1	0	1	0	4	1	0	0	0	2	0	2	14
8:15	0	2	0	8	2	0	1	0	6	1	0	0	0	3	0	0	0	0	4	0	3	21
8:30	1	0	0	5	1	0	0	0	2	0	0	0	0	4	0	0	0	0	3	0	1	14
8:45	0	0	0	3	0	1	0	0	3	1	0	0	0	2	0	0	0	0	3	0	1	11
Total	1	2	0	17	3	1	2	0	18	3	0	1	0	13	1	0	0	0	12	0	7	60
14:00	0	1	0	2	1	0	0	0	4	0	0	0	0	4	0	1	0	0	1	1	2	11
14:15	0	2	0	1	2	0	1	0	5	1	0	0	0	3	0	0	0	0	1	0	3	10
14:30	0	1	1	1	2	0	0	0	5	0	0	0	0	3	0	0	0	0	1	0	2	10
14:45	0	0	0	1	0	0	0	0	3	0	0	1	0	5	1	0	2	0	1	2	3	10
Total	0	4	1	5	5	0	1	0	17	1	0	1	0	15	1	1	2	0	4	3	10	41
15:00	0	0	0	1	0	0	0	1	16	1	0	0	0	6	0	0	1	0	1	1	2	24
15:15	0	0	0	3	0	0	0	1	10	1	0	0	0	7	0	0	0	0	1	0	1	21
15:30	0	0	0	3	0	1	0	0	34	1	0	1	1	12	2	0	1	0	2	1	4	51
15:45	0	2	0	7	2	0	0	0	24	0	0	0	0	5	0	0	0	0	3	0	2	39
Total	0	2	0	14	2	1	0	2	84	3	0	1	1	30	2	0	2	0	7	2	9	135
Grand Total	2	8	1	51	11	3	4	3	149	10	0	5	1	74	6	1	4	0	30	5	32	304
Apprch %	18.2%	72.7%	9.1%			30.0%	40.0%	30.0%			0.0%	83.3%	16.7%			20.0%	80.0%	0.0%				
Total %	6.3%	25.0%	3.1%		34.4%	9.4%	12.5%	9.4%		31.3%	0.0%	15.6%	3.1%		18.8%	3.1%	12.5%	0.0%		15.6%	100.0%	

AM PEAK HOUR	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	0	0	3	0	0	0	0	8	0	0	2	0	2	2	0	0	0	2	0	2
7:45	0	0	0	6	0	1	0	1	11	2	0	0	0	6	0	0	0	0	2	0	2
8:00	0	0	0	1	0	0	1	0	7	1	0	1	0	4	1	0	0	0	2	0	2
8:15	0	2	0	8	2	0	1	0	6	1	0	0	0	3	0	0	0	0	4	0	3
Total Volume	0	2	0	18	2	1	2	1	32	4	0	3	0	15	3	0	0	0	10	0	9
% App Total	0.0%	100.0%	0.0%			25.0%	50.0%	25.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.000		.250	.250	.500	.250		.500	.000	.375	.000		.375	.000	.000	.000		.000	.750

PM PEAK HOUR	Hesperian Boulevard Southbound					Tennyson Road Westbound					Hesperian Boulevard Northbound					Tennyson Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	0	0	1	0	0	0	1	16	1	0	0	0	6	0	0	1	0	1	1	2
15:15	0	0	0	3	0	0	0	1	10	1	0	0	0	7	0	0	0	0	1	0	1
15:30	0	0	0	3	0	1	0	0	34	1	0	1	1	12	2	0	1	0	2	1	4
15:45	0	2	0	7	2	0	0	0	24	0	0	0	0	5	0	0	0	0	3	0	2
Total Volume	0	2	0	14	2	1	0	2	84	3	0	1	1	30	2	0	2	0	7	2	9
% App Total	0.0%	100.0%	0.0%			33.3%	0.0%	66.7%			0.0%	50.0%	50.0%			0.0%	100.0%	0.0%			
PHF	.000	.250	.000		.250	.250	.000	.500		.750	.000	.250	.250		.250	.000	.500	.000		.500	.563

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-009 Industrial Boulevard & Tennyson Road
Date : 3/1/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	3	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2	3
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	2	1
14:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0
15:00	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	2
15:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	1	1	0	3	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	3
Grand Total	1	2	0	6	3	2	0	1	1	3	0	1	2	0	3	0	0	0	0	0	9	7
Apprch %	33.3%	66.7%	0.0%			66.7%	0.0%	33.3%			0.0%	33.3%	66.7%			0.0%	0.0%	0.0%				
Total %	11.1%	22.2%	0.0%		33.3%	22.2%	0.0%	11.1%		33.3%	0.0%	11.1%	22.2%		33.3%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	2	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
% App Total	0.0%	0.0%	0.0%			100.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.250	.000	.000		.250	.000	.250	.000		.250	.000	.000	.000		.000	.250

PM PEAK HOUR	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
15:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	1	0	3	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
% App Total	50.0%	50.0%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	100.0%			0.0%	0.0%	0.0%			
PHF	.250	.250	.000		.500	.000	.000	.000		.000	.000	.000	.250		.250	.000	.000	.000		.000	.750

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7145-009 Industrial Boulevard & Tennyson Road

Date : 3/1/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	18	176	0	0	194	107	0	152	0	259	0	150	5	0	155	0	0	0	0	0	608	0
7:15	12	170	0	0	182	131	0	157	0	288	0	198	3	0	201	0	0	0	0	0	671	0
7:30	22	179	0	0	201	131	0	115	0	246	0	214	9	0	223	0	0	0	0	0	670	0
7:45	25	200	0	0	225	96	0	135	0	231	0	240	11	0	251	0	0	0	0	0	707	0
Total	77	725	0	0	802	465	0	559	0	1024	0	802	28	0	830	0	0	0	0	0	2656	0
8:00	42	173	0	0	215	79	0	118	0	197	0	216	19	0	235	0	0	0	0	0	647	0
8:15	23	157	0	0	180	80	0	115	0	195	0	236	14	0	250	0	0	0	0	0	625	0
8:30	11	159	0	0	170	102	0	116	0	218	0	190	10	0	200	0	0	0	0	0	588	0
8:45	15	142	0	0	157	69	0	88	0	157	0	188	12	0	200	0	0	0	0	0	514	0
Total	91	631	0	0	722	330	0	437	0	767	0	830	55	0	885	0	0	0	0	0	2374	0
14:00	54	139	0	0	193	19	0	24	0	43	0	111	20	0	131	0	0	0	0	0	367	0
14:15	50	131	0	0	181	28	0	34	0	62	0	120	15	0	135	0	0	0	0	0	378	0
14:30	62	159	0	0	221	13	0	30	0	43	0	122	37	0	159	0	0	0	0	0	423	0
14:45	72	179	0	0	251	16	0	47	0	63	0	115	34	0	149	0	0	0	0	0	463	0
Total	238	608	0	0	846	76	0	135	0	211	0	468	106	0	574	0	0	0	0	0	1631	0
15:00	108	205	0	0	313	12	0	34	0	46	0	164	34	0	198	0	0	0	0	0	557	0
15:15	117	240	0	0	357	18	0	29	0	47	0	164	29	0	193	0	0	0	0	0	597	0
15:30	121	239	0	0	360	19	0	45	0	64	0	145	59	0	204	0	0	0	0	0	628	0
15:45	97	254	0	0	351	25	0	45	0	70	0	199	26	0	225	0	0	0	0	0	646	0
Total	443	938	0	0	1381	74	0	153	0	227	0	672	148	0	820	0	0	0	0	0	2428	0
Grand Total	849	2902	0	0	3751	945	0	1284	0	2229	0	2772	337	0	3109	0	0	0	0	0	9089	0
Apprch %	22.6%	77.4%	0.0%	0.0%		42.4%	0.0%	57.6%	0.0%		0.0%	89.2%	10.8%	0.0%		0.0%	0.0%	0.0%	0.0%			
Total %	9.3%	31.9%	0.0%	0.0%	41.3%	10.4%	0.0%	14.1%	0.0%	24.5%	0.0%	30.5%	3.7%	0.0%	34.2%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	12	170	0	0	182	131	0	157	0	288	0	198	3	0	201	0	0	0	0	0	671
7:30	22	179	0	0	201	131	0	115	0	246	0	214	9	0	223	0	0	0	0	0	670
7:45	25	200	0	0	225	96	0	135	0	231	0	240	11	0	251	0	0	0	0	0	707
8:00	42	173	0	0	215	79	0	118	0	197	0	216	19	0	235	0	0	0	0	0	647
Total Volume	101	722	0	0	823	437	0	525	0	962	0	868	42	0	910	0	0	0	0	0	2695
% App Total	12.3%	87.7%	0.0%	0.0%		45.4%	0.0%	54.6%	0.0%		0.0%	95.4%	4.6%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.601	.903	.000	.000	.914	.834	.000	.836	.000	.835	.000	.904	.553	.000	.906	.000	.000	.000	.000	.000	.953

PM PEAK HOUR	Industrial Boulevard Southbound					Tennyson Road Westbound					Industrial Boulevard Northbound					Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	108	205	0	0	313	12	0	34	0	46	0	164	34	0	198	0	0	0	0	0	557
15:15	117	240	0	0	357	18	0	29	0	47	0	164	29	0	193	0	0	0	0	0	597
15:30	121	239	0	0	360	19	0	45	0	64	0	145	59	0	204	0	0	0	0	0	628
15:45	97	254	0	0	351	25	0	45	0	70	0	199	26	0	225	0	0	0	0	0	646
Total Volume	443	938	0	0	1381	74	0	153	0	227	0	672	148	0	820	0	0	0	0	0	2428
% App Total	32.1%	67.9%	0.0%	0.0%		32.6%	0.0%	67.4%	0.0%		0.0%	82.0%	18.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.915	.923	.000	.000	.959	.740	.000	.850	.000	.811	.000	.844	.627	.000	.911	.000	.000	.000	.000	.000	.940

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-010 Hesperian Boulevard & Winton Avenue
Date : 3/1/2016

Unshifted Count = All Vehicles & Uturns

	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	18	286	267	1	572	41	262	11	1	315	9	65	28	3	105	47	69	10	0	126	1118	5
7:15	29	317	307	0	653	38	236	13	0	287	7	96	22	3	128	52	68	10	0	130	1198	3
7:30	22	328	258	1	609	66	209	21	1	297	5	126	27	2	160	57	85	16	0	158	1224	4
7:45	31	301	258	0	590	35	258	27	0	320	10	132	22	3	167	55	64	20	0	139	1216	3
Total	100	1232	1090	2	2424	180	965	72	2	1219	31	419	99	11	560	211	286	56	0	553	4756	15
8:00	21	300	227	0	548	50	210	29	0	289	10	192	45	3	250	56	63	17	0	136	1223	3
8:15	32	219	216	0	467	37	246	33	2	318	7	180	27	0	214	53	72	10	0	135	1134	2
8:30	28	289	198	0	515	65	214	22	2	303	6	116	24	1	147	47	81	4	0	132	1097	3
8:45	46	269	206	1	522	35	178	15	1	229	13	107	31	1	152	41	104	8	0	153	1056	3
Total	127	1077	847	1	2052	187	848	99	5	1139	36	595	127	5	763	197	320	39	0	556	4510	11
14:00	33	151	102	1	287	14	109	15	2	140	28	170	36	8	242	149	178	23	0	350	1019	11
14:15	40	123	88	0	251	26	131	22	4	183	22	246	69	10	347	126	174	13	0	313	1094	14
14:30	32	113	53	0	198	51	104	45	4	204	13	227	46	3	289	149	276	19	0	444	1135	7
14:45	38	184	55	0	277	39	90	39	2	170	10	313	64	9	396	134	203	13	0	350	1193	11
Total	143	571	298	1	1013	130	434	121	12	697	73	956	215	30	1274	558	831	68	0	1457	4441	43
15:00	29	145	53	0	227	60	110	35	0	205	5	252	46	6	309	171	270	27	0	468	1209	6
15:15	46	163	49	0	258	52	81	32	1	166	11	306	42	8	367	135	192	15	0	342	1133	9
15:30	29	143	49	0	221	58	92	39	0	189	10	240	52	5	307	189	262	15	0	466	1183	5
15:45	45	178	61	0	284	44	83	32	3	162	8	270	50	5	333	159	219	14	0	392	1171	8
Total	149	629	212	0	990	214	366	138	4	722	34	1068	190	24	1316	654	943	71	0	1668	4696	28
Grand Total	519	3509	2447	4	6479	711	2613	430	23	3777	174	3038	631	70	3913	1620	2380	234	0	4234	18403	97
Apprch %	8.0%	54.2%	37.8%	0.1%		18.8%	69.2%	11.4%	0.6%		4.4%	77.6%	16.1%	1.8%		38.3%	56.2%	5.5%	0.0%			
Total %	2.8%	19.1%	13.3%	0.0%	35.2%	3.9%	14.2%	2.3%	0.1%	20.5%	0.9%	16.5%	3.4%	0.4%	21.3%	8.8%	12.9%	1.3%	0.0%	23.0%	100.0%	

AM PEAK HOUR	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	29	317	307	0	653	38	236	13	0	287	7	96	22	3	128	52	68	10	0	130	1198
7:30	22	328	258	1	609	66	209	21	1	297	5	126	27	2	160	57	85	16	0	158	1224
7:45	31	301	258	0	590	35	258	27	0	320	10	132	22	3	167	55	64	20	0	139	1216
8:00	21	300	227	0	548	50	210	29	0	289	10	192	45	3	250	56	63	17	0	136	1223
Total Volume	103	1246	1050	1	2400	189	913	90	1	1193	32	546	116	11	705	220	280	63	0	563	4861
% App Total	4.3%	51.9%	43.8%	0.0%		15.8%	76.5%	7.5%	0.1%		4.5%	77.4%	16.5%	1.6%		39.1%	49.7%	11.2%	0.0%		
PHF	.831	.950	.855	.250	.919	.716	.885	.776	.250	.932	.800	.711	.644	.917	.705	.965	.824	.788	.000	.891	.993

PM PEAK HOUR	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 14:45 to 15:45																					
Peak Hour For Entire Intersection Begins at 14:45																					
14:45	38	184	55	0	277	39	90	39	2	170	10	313	64	9	396	134	203	13	0	350	1193
15:00	29	145	53	0	227	60	110	35	0	205	5	252	46	6	309	171	270	27	0	468	1209
15:15	46	163	49	0	258	52	81	32	1	166	11	306	42	8	367	135	192	15	0	342	1133
15:30	29	143	49	0	221	58	92	39	0	189	10	240	52	5	307	189	262	15	0	466	1183
Total Volume	142	635	206	0	983	209	373	145	3	730	36	1111	204	28	1379	629	927	70	0	1626	4718
% App Total	14.4%	64.6%	21.0%	0.0%		28.6%	51.1%	19.9%	0.4%		2.6%	80.6%	14.8%	2.0%		38.7%	57.0%	4.3%	0.0%		
PHF	.772	.863	.936	.000	.887	.871	.848	.929	.375	.890	.818	.887	.797	.778	.871	.832	.858	.648	.000	.869	.976

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-010 Hesperian Boulevard & Winton Avenue
Date : 3/1/2016

Bank 1 Count = Bikes & Peds

	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	2	0	2	2	0	2	0	4	2	1	0	0	3	1	0	0	0	3	0	5	12
7:15	0	2	0	2	2	0	1	1	4	2	0	0	0	2	0	0	0	0	4	0	4	12
7:30	0	0	0	1	0	0	2	0	6	2	1	2	0	5	3	1	0	0	0	1	6	12
7:45	0	2	2	3	4	0	4	0	3	4	0	0	0	0	0	0	0	0	3	0	8	9
Total	0	6	2	8	8	0	9	1	17	10	2	2	0	10	4	1	0	0	10	1	23	45
8:00	0	0	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	0	2	0	1	6
8:15	0	3	0	1	3	0	0	0	3	0	0	0	0	5	0	0	1	0	0	1	4	9
8:30	0	0	0	0	0	0	0	0	1	0	1	0	0	3	1	1	0	0	2	1	2	6
8:45	0	1	0	0	1	0	0	0	1	0	0	0	0	3	0	0	1	0	2	1	2	6
Total	0	4	0	3	4	0	1	0	6	1	1	0	0	12	1	1	2	0	6	3	9	27
14:00	0	0	0	2	0	2	0	0	3	2	0	0	0	2	0	0	0	0	1	0	2	8
14:15	0	1	0	3	1	0	0	0	2	0	0	0	0	2	0	0	1	0	1	1	2	8
14:30	0	0	0	3	0	1	0	0	3	1	0	0	0	1	0	0	0	0	1	0	1	8
14:45	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	6
Total	0	1	0	10	1	3	0	0	8	3	0	0	0	6	0	0	1	0	6	1	5	30
15:00	0	0	1	0	1	0	1	0	4	1	0	0	0	9	0	0	1	0	2	1	3	15
15:15	0	0	0	2	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	0	0	11
15:30	0	0	0	1	0	0	0	0	2	0	0	1	0	5	1	0	0	0	1	0	1	9
15:45	0	0	0	3	0	0	1	0	14	1	0	0	0	8	0	0	1	0	2	1	2	27
Total	0	0	1	6	1	0	2	0	24	2	0	1	0	27	1	0	2	0	5	2	6	62
Grand Total	0	11	3	27	14	3	12	1	55	16	3	3	0	55	6	2	5	0	27	7	43	164
Apprch %	0.0%	78.6%	21.4%			18.8%	75.0%	6.3%			50.0%	50.0%	0.0%			28.6%	71.4%	0.0%				
Total %	0.0%	25.6%	7.0%		32.6%	7.0%	27.9%	2.3%		37.2%	7.0%	7.0%	0.0%		14.0%	4.7%	11.6%	0.0%		16.3%	100.0%	

AM PEAK HOUR	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:15 to 08:15																					
Peak Hour For Entire Intersection Begins at 07:15																					
7:15	0	2	0	2	2	0	1	1	4	2	0	0	0	2	0	0	0	0	4	0	4
7:30	0	0	0	1	0	0	2	0	6	2	1	2	0	5	3	1	0	0	0	1	6
7:45	0	2	2	3	4	0	4	0	3	4	0	0	0	0	0	0	0	0	3	0	8
8:00	0	0	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	0	2	0	1
Total Volume	0	4	2	8	6	0	8	1	14	9	1	2	0	8	3	1	0	0	9	1	19
% App Total	0.0%	66.7%	33.3%			0.0%	88.9%	11.1%			33.3%	66.7%	0.0%			100.0%	0.0%	0.0%			
PHF	.000	.500	.250		.375	.000	.500	.250		.563	.250	.250	.000		.250	.250	.000	.000		.250	.594

PM PEAK HOUR	Hesperian Boulevard Southbound					Winton Avenue Westbound					Hesperian Boulevard Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 14:45 to 15:45																					
Peak Hour For Entire Intersection Begins at 14:45																					
14:45	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0
15:00	0	0	1	0	1	0	1	0	4	1	0	0	0	9	0	0	1	0	2	1	3
15:15	0	0	0	2	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	0	0
15:30	0	0	0	1	0	0	0	0	2	0	0	1	0	5	1	0	0	0	1	0	1
Total Volume	0	0	1	5	1	0	1	0	10	1	0	1	0	20	1	0	1	0	6	1	4
% App Total	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.250		.250	.000	.250	.000		.250	.000	.250	.000		.250	.000	.250	.000		.250	.333

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-011 Clawiter Road & Winton Avenue
Date : 3/1/2016

Unshifted Count = All Vehicles & Uturns

	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
7:00	0	1	0	0	1	235	285	2	1	523	40	0	37	0	77	0	79	20	0	99	700	1
7:15	0	0	0	0	0	246	271	1	0	518	41	0	42	0	83	0	78	25	0	103	704	0
7:30	0	0	0	0	0	240	233	0	1	474	42	0	51	0	93	0	66	22	0	88	655	1
7:45	0	0	0	0	0	224	317	1	1	543	51	1	47	0	99	0	70	22	0	92	734	1
Total	0	1	0	0	1	945	1106	4	3	2058	174	1	177	0	352	0	293	89	0	382	2793	3
8:00	1	0	0	0	1	213	284	1	0	498	49	0	53	0	102	0	61	23	0	84	685	0
8:15	0	0	0	0	0	207	291	4	1	503	47	0	51	0	98	0	61	22	0	83	684	1
8:30	0	0	0	0	0	216	207	0	0	423	26	1	48	0	75	0	80	35	1	116	614	1
8:45	0	0	0	0	0	199	197	4	2	402	40	0	54	0	94	1	85	24	0	110	606	2
Total	1	0	0	0	1	835	979	9	3	1826	162	1	206	0	369	1	287	104	1	393	2589	4
14:00	0	0	0	0	0	67	156	0	3	226	50	0	111	0	161	0	214	51	1	266	653	4
14:15	0	0	1	0	1	58	139	0	1	198	49	0	101	0	150	0	190	51	1	242	591	2
14:30	2	0	0	0	2	64	119	0	1	184	39	0	140	0	179	0	240	50	0	290	655	1
14:45	1	1	0	0	2	63	93	0	0	156	40	0	103	0	143	0	209	48	1	258	559	1
Total	3	1	1	0	5	252	507	0	5	764	178	0	455	0	633	0	853	200	3	1056	2458	8
15:00	0	0	0	0	0	61	84	0	1	146	32	0	127	0	159	0	254	70	0	324	629	1
15:15	1	0	0	0	1	49	102	0	0	151	32	0	144	0	176	1	195	60	2	258	586	2
15:30	6	0	0	0	6	66	93	0	3	162	32	0	97	0	129	0	324	80	0	404	701	3
15:45	0	0	0	0	0	61	82	0	2	145	35	0	149	0	184	0	202	41	0	243	572	2
Total	7	0	0	0	7	237	361	0	6	604	131	0	517	0	648	1	975	251	2	1229	2488	8
Grand Total	11	2	1	0	14	2269	2953	13	17	5252	645	2	1355	0	2002	2	2408	644	6	3060	10328	23
Apprch %	78.6%	14.3%	7.1%	0.0%		43.2%	56.2%	0.2%	0.3%		32.2%	0.1%	67.7%	0.0%		0.1%	78.7%	21.0%	0.2%			
Total %	0.1%	0.0%	0.0%	0.0%	0.1%	22.0%	28.6%	0.1%	0.2%	50.9%	6.2%	0.0%	13.1%	0.0%	19.4%	0.0%	23.3%	6.2%	0.1%	29.6%	100.0%	

AM PEAK HOUR	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	0	1	0	0	1	235	285	2	1	523	40	0	37	0	77	0	79	20	0	99	700
7:15	0	0	0	0	0	246	271	1	0	518	41	0	42	0	83	0	78	25	0	103	704
7:30	0	0	0	0	0	240	233	0	1	474	42	0	51	0	93	0	66	22	0	88	655
7:45	0	0	0	0	0	224	317	1	1	543	51	1	47	0	99	0	70	22	0	92	734
Total Volume	0	1	0	0	1	945	1106	4	3	2058	174	1	177	0	352	0	293	89	0	382	2793
% App Total	0.0%	100.0%	0.0%	0.0%		45.9%	53.7%	0.2%	0.1%		49.4%	0.3%	50.3%	0.0%		0.0%	76.7%	23.3%	0.0%		
PHF	.000	.250	.000	.000	.250	.960	.872	.500	.750	.948	.853	.250	.868	.000	.889	.000	.927	.890	.000	.927	.951

PM PEAK HOUR	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	0	0	0	0	61	84	0	1	146	32	0	127	0	159	0	254	70	0	324	629
15:15	1	0	0	0	1	49	102	0	0	151	32	0	144	0	176	1	195	60	2	258	586
15:30	6	0	0	0	6	66	93	0	3	162	32	0	97	0	129	0	324	80	0	404	701
15:45	0	0	0	0	0	61	82	0	2	145	35	0	149	0	184	0	202	41	0	243	572
Total Volume	7	0	0	0	7	237	361	0	6	604	131	0	517	0	648	1	975	251	2	1229	2488
% App Total	100.0%	0.0%	0.0%	0.0%		39.2%	59.8%	0.0%	1.0%		20.2%	0.0%	79.8%	0.0%		0.1%	79.3%	20.4%	0.2%		
PHF	.292	.000	.000	.000	.292	.898	.885	.000	.500	.932	.936	.000	.867	.000	.880	.250	.752	.784	.250	.761	.887

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7145-011 Clawiter Road & Winton Avenue
Date : 3/1/2016

Bank 1 Count = Bikes & Peds

	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
7:00	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	0	0	0	0	0	2	2
7:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3	0
7:30	0	0	0	1	0	0	3	0	0	3	0	1	0	1	1	0	1	0	0	1	5	2
7:45	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	4	0
Total	0	0	0	1	0	0	7	0	0	7	4	0	0	3	4	0	3	0	0	3	14	4
8:00	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	1	0	0	1	4	0
8:15	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	1
8:30	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
Total	0	0	0	1	0	1	1	1	0	3	2	0	0	1	2	0	3	0	0	3	8	2
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2	0
14:30	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	0	2	0	0	2	4	2
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	2	0	0	2	1	0	0	4	1	0	2	1	0	3	6	4
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3	3
15:30	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	2	1	0	3	4	3
15:45	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	3	0	0	3	4	2
Total	0	0	0	0	0	0	1	0	0	1	1	0	0	13	1	0	8	1	0	9	11	13
Grand Total	0	0	0	2	0	1	11	1	0	13	8	0	0	21	8	0	16	2	0	18	39	23
Apprch %	0.0%	0.0%	0.0%			7.7%	84.6%	7.7%			100.0%	0.0%	0.0%			0.0%	88.9%	11.1%				
Total %	0.0%	0.0%	0.0%		0.0%	2.6%	28.2%	2.6%		33.3%	20.5%	0.0%	0.0%		20.5%	0.0%	41.0%	5.1%		46.2%	100.0%	

AM PEAK HOUR	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 07:00 to 08:00																					
Peak Hour For Entire Intersection Begins at 07:00																					
7:00	0	0	0	0	0	0	1	0	0	1	1	0	0	2	1	0	0	0	0	0	2
7:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3
7:30	0	0	0	1	0	0	3	0	0	3	0	1	0	1	1	0	1	0	0	1	5
7:45	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	0	0	0	0	4
Total Volume	0	0	0	1	0	0	7	0	0	7	4	0	0	3	4	0	3	0	0	3	14
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.583	.000		.583	1.000	.000	.000		1.000	.000	.375	.000		.375	.700

PM PEAK HOUR	Clawiter Road Southbound					Winton Avenue Westbound					Clawiter Road Northbound					Winton Avenue Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3
15:30	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0	2	1	0	3	4
15:45	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0	3	0	0	3	4
Total Volume	0	0	0	0	0	0	1	0	0	1	1	0	0	13	1	0	8	1	0	9	11
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			0.0%	88.9%	11.1%			
PHF	.000	.000	.000		.000	.000	.250	.000		.250	.250	.000	.000		.250	.000	.667	.250		.750	.688

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-005 Industrial Boulevard & Clawtier Road
Date : 2/18/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Clawtier Road Westbound					Industrial Boulevard Northbound					Clawtier Road Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
14:00	0	59	69	0	128	1	0	0	0	1	3	91	1	1	96	74	0	1	0	75	300	1
14:15	0	69	53	1	123	3	1	1	0	5	2	89	1	0	92	68	1	2	0	71	291	1
14:30	0	103	47	0	150	3	0	0	0	3	3	95	0	3	101	119	0	3	0	122	376	3
14:45	1	78	44	0	123	1	0	0	0	1	5	129	0	0	134	102	1	0	0	103	361	0
Total	1	309	213	1	524	8	1	1	0	10	13	404	2	4	423	363	2	6	0	371	1328	5
15:00	0	101	55	0	156	1	0	2	0	3	6	126	0	6	138	110	2	4	0	116	413	6
15:15	0	74	49	0	123	1	0	1	0	2	2	142	0	1	145	111	1	2	0	114	384	1
15:30	0	103	46	0	149	5	1	0	0	6	4	126	0	0	130	144	0	1	0	145	430	0
15:45	1	81	47	0	129	1	0	0	0	1	6	142	0	1	149	134	0	5	0	139	418	1
Total	1	359	197	0	557	8	1	3	0	12	18	536	0	8	562	499	3	12	0	514	1645	8
Grand Total	2	668	410	1	1081	16	2	4	0	22	31	940	2	12	985	862	5	18	0	885	2973	13
Apprch %	0.2%	61.8%	37.9%	0.1%		72.7%	9.1%	18.2%	0.0%		3.1%	95.4%	0.2%	1.2%		97.4%	0.6%	2.0%	0.0%			
Total %	0.1%	22.5%	13.8%	0.0%	36.4%	0.5%	0.1%	0.1%	0.0%	0.7%	1.0%	31.6%	0.1%	0.4%	33.1%	29.0%	0.2%	0.6%	0.0%	29.8%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Clawtier Road Westbound					Industrial Boulevard Northbound					Clawtier Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	101	55	0	156	1	0	2	0	3	6	126	0	6	138	110	2	4	0	116	413
15:15	0	74	49	0	123	1	0	1	0	2	2	142	0	1	145	111	1	2	0	114	384
15:30	0	103	46	0	149	5	1	0	0	6	4	126	0	0	130	144	0	1	0	145	430
15:45	1	81	47	0	129	1	0	0	0	1	6	142	0	1	149	134	0	5	0	139	418
Total Volume	1	359	197	0	557	8	1	3	0	12	18	536	0	8	562	499	3	12	0	514	1645
% App Total	0.2%	64.5%	35.4%	0.0%		66.7%	8.3%	25.0%	0.0%		3.2%	95.4%	0.0%	1.4%		97.1%	0.6%	2.3%	0.0%		
PHF	.250	.871	.895	.000	.893	.400	.250	.375	.000	.500	.750	.944	.000	.333	.943	.866	.375	.600	.000	.886	.956

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7122-005 Industrial Boulevard & Clawtier Road
Date : 2/18/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Clawtier Road Westbound					Industrial Boulevard Northbound					Clawtier Road Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
14:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	3	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0
15:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
15:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
15:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	5	0
Grand Total	0	4	0	0	4	0	0	1	0	1	0	1	0	0	1	2	0	0	0	2	8	0
Apprch %	0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%				
Total %	0.0%	50.0%	0.0%		50.0%	0.0%	0.0%	12.5%		12.5%	0.0%	12.5%	0.0%		12.5%	25.0%	0.0%	0.0%		25.0%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Clawtier Road Westbound					Industrial Boulevard Northbound					Clawtier Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
15:15	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
15:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	5
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	0.0%	0.0%			100.0%	0.0%	0.0%			
PHF	.000	.375	.000		.375	.000	.000	.250		.250	.000	.000	.000		.000	.250	.000	.000		.250	.625

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-004 Industrial Boulevard & CA-92 WB On & Off Ramp
Date : 2/18/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					CA-92 WB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 WB On & Off Ramp Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
14:00	3	172	15	0	190	5	1	5	0	11	42	109	8	0	159	64	7	30	0	101	461	0
14:15	2	152	15	0	169	6	0	3	0	9	36	129	16	0	181	51	7	20	0	78	437	0
14:30	1	214	22	0	237	32	2	4	0	38	52	146	21	0	219	45	9	22	0	76	570	0
14:45	2	191	26	0	219	16	2	3	0	21	42	173	36	0	251	46	10	28	0	84	575	0
Total	8	729	78	0	815	59	5	15	0	79	172	557	81	0	810	206	33	100	0	339	2043	0
15:00	2	194	24	0	220	13	4	2	0	19	55	166	25	1	247	47	7	33	0	87	573	1
15:15	0	187	22	0	209	25	1	2	0	28	69	157	16	0	242	43	5	28	0	76	555	0
15:30	3	239	22	0	264	15	3	2	0	20	61	157	18	0	236	35	6	25	0	66	586	0
15:45	1	164	29	0	194	11	4	2	0	17	76	158	13	0	247	52	8	35	0	95	553	0
Total	6	784	97	0	887	64	12	8	0	84	261	638	72	1	972	177	26	121	0	324	2267	1
Grand Total	14	1513	175	0	1702	123	17	23	0	163	433	1195	153	1	1782	383	59	221	0	663	4310	1
Apprch %	0.8%	88.9%	10.3%	0.0%		75.5%	10.4%	14.1%	0.0%		24.3%	67.1%	8.6%	0.1%		57.8%	8.9%	33.3%	0.0%			
Total %	0.3%	35.1%	4.1%	0.0%	39.5%	2.9%	0.4%	0.5%	0.0%	3.8%	10.0%	27.7%	3.5%	0.0%	41.3%	8.9%	1.4%	5.1%	0.0%	15.4%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					CA-92 WB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 WB On & Off Ramp Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 14:45 to 15:45																					
Peak Hour For Entire Intersection Begins at 14:45																					
14:45	2	191	26	0	219	16	2	3	0	21	42	173	36	0	251	46	10	28	0	84	575
15:00	2	194	24	0	220	13	4	2	0	19	55	166	25	1	247	47	7	33	0	87	573
15:15	0	187	22	0	209	25	1	2	0	28	69	157	16	0	242	43	5	28	0	76	555
15:30	3	239	22	0	264	15	3	2	0	20	61	157	18	0	236	35	6	25	0	66	586
Total Volume	7	811	94	0	912	69	10	9	0	88	227	653	95	1	976	171	28	114	0	313	2289
% App Total	0.8%	88.9%	10.3%	0.0%		78.4%	11.4%	10.2%	0.0%		23.3%	66.9%	9.7%	0.1%		54.6%	8.9%	36.4%	0.0%		
PHF	.583	.848	.904	.000	.864	.690	.625	.750	.000	.786	.822	.944	.660	.250	.972	.910	.700	.864	.000	.899	.977

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7122-004 Industrial Boulevard & CA-92 WB On & Off Ramp
Date : 2/18/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					CA-92 WB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 WB On & Off Ramp Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
14:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
14:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	2
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
15:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
15:45	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Total	0	4	0	0	4	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	5	2
Grand Total	0	5	0	0	5	0	0	0	4	0	0	1	0	0	1	0	0	0	0	0	6	4
Apprch %	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	0.0%	83.3%	0.0%		83.3%	0.0%	0.0%	0.0%		0.0%	0.0%	16.7%	0.0%		16.7%	0.0%	0.0%	0.0%		0.0%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					CA-92 WB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 WB On & Off Ramp Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 14:45 to 15:45																					
Peak Hour For Entire Intersection Begins at 14:45																					
14:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
15:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	0	0	3	0	0	1	0	0	1	0	0	0	0	0	3
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.250	.000		.250	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.375

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-003 Industrial Boulevard & CA-92 EB On & Off Ramp
Date : 2/18/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					CA-92 EB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 EB On & Off Ramp Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
14:00	14	111	73	0	198	2	6	8	0	16	30	113	1	0	144	27	4	47	0	78	436	0
14:15	10	114	63	0	187	1	6	11	0	18	20	137	1	0	158	38	7	71	0	116	479	0
14:30	11	153	90	0	254	1	5	21	0	27	20	157	1	0	178	38	8	101	0	147	606	0
14:45	17	145	73	0	235	3	1	17	0	21	23	170	1	0	194	61	15	120	0	196	646	0
Total	52	523	299	0	874	7	18	57	0	82	93	577	4	0	674	164	34	339	0	537	2167	0
15:00	11	186	50	0	247	4	4	18	0	26	28	166	1	0	195	69	17	132	0	218	686	0
15:15	18	172	45	0	235	1	2	10	0	13	9	178	2	0	189	57	22	136	0	215	652	0
15:30	19	209	57	0	285	1	4	5	0	10	21	173	1	0	195	49	23	141	0	213	703	0
15:45	19	153	32	0	204	0	4	19	0	23	14	181	1	0	196	52	14	161	0	227	650	0
Total	67	720	184	0	971	6	14	52	0	72	72	698	5	0	775	227	76	570	0	873	2691	0
Grand Total	119	1243	483	0	1845	13	32	109	0	154	165	1275	9	0	1449	391	110	909	0	1410	4858	0
Apprch %	6.4%	67.4%	26.2%	0.0%		8.4%	20.8%	70.8%	0.0%		11.4%	88.0%	0.6%	0.0%		27.7%	7.8%	64.5%	0.0%			
Total %	2.4%	25.6%	9.9%	0.0%	38.0%	0.3%	0.7%	2.2%	0.0%	3.2%	3.4%	26.2%	0.2%	0.0%	29.8%	8.0%	2.3%	18.7%	0.0%	29.0%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					CA-92 EB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 EB On & Off Ramp Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	11	186	50	0	247	4	4	18	0	26	28	166	1	0	195	69	17	132	0	218	686
15:15	18	172	45	0	235	1	2	10	0	13	9	178	2	0	189	57	22	136	0	215	652
15:30	19	209	57	0	285	1	4	5	0	10	21	173	1	0	195	49	23	141	0	213	703
15:45	19	153	32	0	204	0	4	19	0	23	14	181	1	0	196	52	14	161	0	227	650
Total Volume	67	720	184	0	971	6	14	52	0	72	72	698	5	0	775	227	76	570	0	873	2691
% App Total	6.9%	74.2%	18.9%	0.0%		8.3%	19.4%	72.2%	0.0%		9.3%	90.1%	0.6%	0.0%		26.0%	8.7%	65.3%	0.0%		
PHF	.882	.861	.807	.000	.852	.375	.875	.684	.000	.692	.643	.964	.625	.000	.989	.822	.826	.885	.000	.961	.957

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-003 Industrial Boulevard & CA-92 EB On & Off Ramp
Date : 2/18/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					CA-92 EB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 EB On & Off Ramp Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
14:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0
15:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
15:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Total	1	2	0	0	3	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	4	1
Grand Total	1	3	0	0	4	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	5	2
Apprch %	25.0%	75.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	20.0%	60.0%	0.0%		80.0%	0.0%	0.0%	0.0%		0.0%	0.0%	20.0%	0.0%		20.0%	0.0%	0.0%	0.0%		0.0%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					CA-92 EB On & Off Ramp Westbound					Industrial Boulevard Northbound					CA-92 EB On & Off Ramp Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
15:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
15:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	2	0	0	3	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	4
% App Total	33.3%	66.7%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.250	.250	.000		.375	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.500

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-002 Industrial Boulevard & Mt Eden Business Park/Bridge
Date : 2/18/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Mt Eden Business Park/Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park/Bridge Apartment Driveways Eastbound					Total	Uturns Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
14:00	7	151	0	0	158	15	0	1	0	16	4	151	15	0	170	1	0	0	0	1	345	0
14:15	2	121	1	0	124	18	0	2	0	20	1	145	27	0	173	0	0	4	0	4	321	0
14:30	3	192	2	0	197	14	0	2	0	16	1	165	16	0	182	3	0	5	0	8	403	0
14:45	3	163	2	0	168	8	0	1	0	9	1	195	15	0	211	1	1	1	0	3	391	0
Total	15	627	5	0	647	55	0	6	0	61	7	656	73	0	736	5	1	10	0	16	1460	0
15:00	3	196	2	0	201	12	0	1	0	13	0	185	20	0	205	2	0	6	0	8	427	0
15:15	4	180	0	0	184	12	0	6	0	18	0	186	13	0	199	0	0	3	0	3	404	0
15:30	2	209	0	0	211	8	0	2	0	10	0	181	11	0	192	8	0	6	0	14	427	0
15:45	9	167	0	0	176	7	0	5	0	12	2	186	18	0	206	3	0	5	0	8	402	0
Total	18	752	2	0	772	39	0	14	0	53	2	738	62	0	802	13	0	20	0	33	1660	0
Grand Total	33	1379	7	0	1419	94	0	20	0	114	9	1394	135	0	1538	18	1	30	0	49	3120	0
Apprch %	2.3%	97.2%	0.5%	0.0%		82.5%	0.0%	17.5%	0.0%		0.6%	90.6%	8.8%	0.0%		36.7%	2.0%	61.2%	0.0%			
Total %	1.1%	44.2%	0.2%	0.0%	45.5%	3.0%	0.0%	0.6%	0.0%	3.7%	0.3%	44.7%	4.3%	0.0%	49.3%	0.6%	0.0%	1.0%	0.0%	1.6%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Mt Eden Business Park/Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park/Bridge Apartment Driveways Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	3	196	2	0	201	12	0	1	0	13	0	185	20	0	205	2	0	6	0	8	427
15:15	4	180	0	0	184	12	0	6	0	18	0	186	13	0	199	0	0	3	0	3	404
15:30	2	209	0	0	211	8	0	2	0	10	0	181	11	0	192	8	0	6	0	14	427
15:45	9	167	0	0	176	7	0	5	0	12	2	186	18	0	206	3	0	5	0	8	402
Total Volume	18	752	2	0	772	39	0	14	0	53	2	738	62	0	802	13	0	20	0	33	1660
% App Total	2.3%	97.4%	0.3%	0.0%		73.6%	0.0%	26.4%	0.0%		0.2%	92.0%	7.7%	0.0%		39.4%	0.0%	60.6%	0.0%		
PHF	.500	.900	.250	.000	.915	.813	.000	.583	.000	.736	.250	.992	.775	.000	.973	.406	.000	.833	.000	.589	.972

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7122-002 Industrial Boulevard & Mt Eden Business Park/Bridge
Date : 2/18/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Mt Eden Business Park/Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park/Bridge Apartment Driveways Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
14:00	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	4
14:30	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	2	0	1	4
14:45	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	1	0	1	1	0	0	0	1	0	0	1	0	5	1	0	0	0	5	0	2	12
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1	1
15:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4
15:45	0	2	0	1	2	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	2	5
Total	0	4	0	2	4	0	0	0	1	0	0	1	0	3	1	0	0	0	4	0	5	10
Grand Total	0	5	0	3	5	0	0	0	2	0	0	2	0	8	2	0	0	0	9	0	7	22
Apprch %	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%				
Total %	0.0%	71.4%	0.0%		71.4%	0.0%	0.0%	0.0%		0.0%	0.0%	28.6%	0.0%		28.6%	0.0%	0.0%	0.0%		0.0%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Mt Eden Business Park/Bridge Apartment Driveways Westbound					Industrial Boulevard Northbound					Mt Eden Business Park/Bridge Apartment Driveways Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
15:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	1
15:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
15:45	0	2	0	1	2	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	2
Total Volume	0	4	0	2	4	0	0	0	1	0	0	1	0	3	1	0	0	0	4	0	5
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.500	.000		.500	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.625

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 16-7122-001 Industrial Boulevard & Depot Road
Date : 2/18/2016

Unshifted Count = All Vehicles & Uturns

	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total	Utums Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
14:00	5	57	2	0	64	15	7	6	0	28	57	80	15	8	160	10	21	69	0	100	352	8
14:15	3	69	1	0	73	10	10	2	0	22	40	87	11	4	142	8	15	46	0	69	306	4
14:30	3	103	1	0	107	8	9	5	0	22	42	95	30	4	171	5	30	90	0	125	425	4
14:45	13	65	2	1	81	12	11	5	0	28	37	109	33	7	186	10	22	68	0	100	395	8
Total	24	294	6	1	325	45	37	18	0	100	176	371	89	23	659	33	88	273	0	394	1478	24
15:00	6	108	0	1	115	11	9	4	0	24	40	124	33	6	203	5	26	69	0	100	442	7
15:15	6	68	2	1	77	22	10	8	0	40	29	121	34	7	191	11	24	75	0	110	418	8
15:30	6	108	2	1	117	10	8	11	0	29	39	114	30	8	191	9	41	78	0	128	465	9
15:45	11	79	2	1	93	11	9	8	0	28	38	130	28	8	204	7	30	76	0	113	438	9
Total	29	363	6	4	402	54	36	31	0	121	146	489	125	29	789	32	121	298	0	451	1763	33
Grand Total	53	657	12	5	727	99	73	49	0	221	322	860	214	52	1448	65	209	571	0	845	3241	57
Apprch %	7.3%	90.4%	1.7%	0.7%		44.8%	33.0%	22.2%	0.0%		22.2%	59.4%	14.8%	3.6%		7.7%	24.7%	67.6%	0.0%			
Total %	1.6%	20.3%	0.4%	0.2%	22.4%	3.1%	2.3%	1.5%	0.0%	6.8%	9.9%	26.5%	6.6%	1.6%	44.7%	2.0%	6.4%	17.6%	0.0%	26.1%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	6	108	0	1	115	11	9	4	0	24	40	124	33	6	203	5	26	69	0	100	442
15:15	6	68	2	1	77	22	10	8	0	40	29	121	34	7	191	11	24	75	0	110	418
15:30	6	108	2	1	117	10	8	11	0	29	39	114	30	8	191	9	41	78	0	128	465
15:45	11	79	2	1	93	11	9	8	0	28	38	130	28	8	204	7	30	76	0	113	438
Total Volume	29	363	6	4	402	54	36	31	0	121	146	489	125	29	789	32	121	298	0	451	1763
% App Total	7.2%	90.3%	1.5%	1.0%		44.6%	29.8%	25.6%	0.0%		18.5%	62.0%	15.8%	3.7%		7.1%	26.8%	66.1%	0.0%		
PHF	.659	.840	.750	1.000	.859	.614	.900	.705	.000	.756	.913	.940	.919	.906	.967	.727	.738	.955	.000	.881	.948

ALL TRAFFIC DATA

City of Hayward
All Vehicles & Turns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7122-001 Industrial Boulevard & Depot Road
Date : 2/18/2016

Bank 1 Count = Bikes & Peds

	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total	Peds Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL		
14:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	2	0	0	2	3	1
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	1	1	0	3	0	0	3	5	1
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
15:15	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	2
15:30	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
15:45	1	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1	3
Total	1	1	0	1	2	0	0	0	0	0	1	0	0	5	1	0	0	1	0	1	4	6
Grand Total	1	2	0	1	3	0	0	0	0	0	1	1	0	6	2	0	3	1	0	4	9	7
Apprch %	33.3%	66.7%	0.0%			0.0%	0.0%	0.0%			50.0%	50.0%	0.0%			0.0%	75.0%	25.0%				
Total %	11.1%	22.2%	0.0%		33.3%	0.0%	0.0%	0.0%		0.0%	11.1%	11.1%	0.0%		22.2%	0.0%	33.3%	11.1%		44.4%	100.0%	

PM PEAK HOUR	Industrial Boulevard Southbound					Depot Road Westbound					Industrial Boulevard Northbound					Depot Road Eastbound					Total
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
15:15	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1
15:30	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
15:45	1	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	1
Total Volume	1	1	0	1	2	0	0	0	0	0	1	0	0	5	1	0	0	1	0	1	4
% App Total	50.0%	50.0%	0.0%			0.0%	0.0%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	100.0%			
PHF	.250	.250	.000		.500	.000	.000	.000		.000	.250	.000	.000		.250	.000	.000	.250		.250	1.000

VOLUME

Industrial Boulevard in front of #25500

Day: Tuesday
Date: 3/1/2016City: Hayward
Project #: 16-7157-001

DAILY TOTALS					NB	SB						EB	WB	Total
					10,107	9,546						0	0	19,653
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00	20	11	0	0	31	12:00	164	132	0	0	296			
00:15	14	10	0	0	24	12:15	158	162	0	0	320			
00:30	13	8	0	0	21	12:30	145	129	0	0	274			
00:45	16	63	8	37	0	12:45	134	601	182	605	0	0	0	316 1206
01:00	12	8	0	0	20	13:00	163	171	0	0	334			
01:15	5	5	0	0	10	13:15	151	170	0	0	321			
01:30	8	1	0	0	9	13:30	218	157	0	0	375			
01:45	6	31	2	16	0	13:45	199	731	164	662	0	0	0	363 1393
02:00	6	7	0	0	13	14:00	176	159	0	0	335			
02:15	13	5	0	0	18	14:15	162	185	0	0	347			
02:30	6	7	0	0	13	14:30	201	191	0	0	392			
02:45	6	31	4	23	0	14:45	195	734	201	736	0	0	0	396 1470
03:00	9	5	0	0	14	15:00	224	189	0	0	413			
03:15	10	4	0	0	14	15:15	199	205	0	0	404			
03:30	7	14	0	0	21	15:30	215	194	0	0	409			
03:45	9	35	9	32	0	15:45	194	832	197	785	0	0	0	391 1617
04:00	9	19	0	0	28	16:00	192	207	0	0	399			
04:15	28	16	0	0	44	16:15	153	240	0	0	393			
04:30	25	32	0	0	57	16:30	203	193	0	0	396			
04:45	39	101	72	139	0	16:45	215	763	168	808	0	0	0	383 1571
05:00	30	53	0	0	83	17:00	185	175	0	0	360			
05:15	63	67	0	0	130	17:15	171	151	0	0	322			
05:30	83	100	0	0	183	17:30	170	146	0	0	316			
05:45	101	277	160	380	0	17:45	147	673	148	620	0	0	0	295 1293
06:00	118	112	0	0	230	18:00	156	128	0	0	284			
06:15	178	143	0	0	321	18:15	140	112	0	0	252			
06:30	169	143	0	0	312	18:30	118	125	0	0	243			
06:45	181	646	193	591	0	18:45	90	504	123	488	0	0	0	213 992
07:00	187	172	0	0	359	19:00	66	93	0	0	159			
07:15	210	176	0	0	386	19:15	76	87	0	0	163			
07:30	197	173	0	0	370	19:30	62	72	0	0	134			
07:45	216	810	194	715	0	19:45	77	281	87	339	0	0	0	164 620
08:00	237	160	0	0	397	20:00	69	56	0	0	125			
08:15	188	159	0	0	347	20:15	65	59	0	0	124			
08:30	152	139	0	0	291	20:30	68	32	0	0	100			
08:45	161	738	129	587	0	20:45	38	240	35	182	0	0	0	73 422
09:00	110	147	0	0	257	21:00	50	45	0	0	95			
09:15	147	115	0	0	262	21:15	41	50	0	0	91			
09:30	136	133	0	0	269	21:30	39	33	0	0	72			
09:45	124	517	116	511	0	21:45	35	165	21	149	0	0	0	56 314
10:00	116	125	0	0	241	22:00	38	19	0	0	57			
10:15	132	97	0	0	229	22:15	36	24	0	0	60			
10:30	131	131	0	0	262	22:30	38	18	0	0	56			
10:45	152	531	126	479	0	22:45	14	126	8	69	0	0	0	22 195
11:00	128	120	0	0	248	23:00	24	18	0	0	42			
11:15	157	132	0	0	289	23:15	23	10	0	0	33			
11:30	156	123	0	0	279	23:30	18	13	0	0	31			
11:45	158	599	168	543	0	23:45	13	78	9	50	0	0	0	22 128
TOTALS	4379	4053			8432	TOTALS	5728	5493			11221			
SPLIT %	51.9%	48.1%			42.9%	SPLIT %	51.0%	49.0%			57.1%			

DAILY TOTALS					NB	SB						EB	WB	Total
					10,107	9,546						0	0	19,653
AM Peak Hour	07:15	07:00			07:15	PM Peak Hour	14:45	15:30			14:45			
AM Pk Volume	860	715			1563	PM Pk Volume	833	838			1622			
Pk Hr Factor	0.907	0.921			0.953	Pk Hr Factor	0.930	0.873			0.982			
7 - 9 Volume	1548	1302	0	0	2850	4 - 6 Volume	1436	1428	0	0	2864			
7 - 9 Peak Hour	07:15	07:00			07:15	4 - 6 Peak Hour	16:30	16:00			16:00			
7 - 9 Pk Volume	860	715	0	0	1563	4 - 6 Pk Volume	774	808	0	0	1571			
Pk Hr Factor	0.907	0.921	0.000	0.000	0.953	Pk Hr Factor	0.900	0.842	0.000	0.000	0.984			

Appendix B

Synchro 8 Analysis Reports

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Existing No Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	72	71	6	28	380	547	846
v/c Ratio	0.51	0.47	0.03	0.15	0.13	0.23	0.64
Control Delay	57.9	48.9	0.3	45.5	2.9	8.0	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	48.9	0.3	45.5	2.9	8.0	3.3
Queue Length 50th (ft)	50	41	0	18	20	66	0
Queue Length 95th (ft)	95	87	0	46	58	132	55
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	552	204	183	2932	2404	1324
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.03	0.15	0.13	0.23	0.64
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	2	12	4	0	2	26	352	6	0	514	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.95		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1652			1722		1770	3530			3539	1551
Flt Permitted	0.95	0.96			0.97		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1652			1722		1770	3530			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	128	2	13	4	0	2	28	374	6	0	547	846
RTOR Reduction (vph)	0	10	0	0	6	0	0	0	0	0	0	311
Lane Group Flow (vph)	72	61	0	0	0	0	28	380	0	0	547	535
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.0	8.0			1.0		11.0	82.0			67.0	67.0
Effective Green, g (s)	8.0	8.0			1.0		11.0	82.0			67.0	67.0
Actuated g/C Ratio	0.08	0.08			0.01		0.10	0.77			0.63	0.63
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	126	124			16		183	2730			2236	980
v/s Ratio Prot	c0.04	0.04			c0.00		0.02	c0.11			0.15	
v/s Ratio Perm												c0.34
v/c Ratio	0.57	0.49			0.00		0.15	0.14			0.24	0.55
Uniform Delay, d1	47.3	47.0			52.0		43.3	3.0			8.5	11.0
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.8	1.1			0.0		1.8	0.1			0.3	2.2
Delay (s)	51.2	48.2			52.0		45.0	3.2			8.7	13.1
Level of Service	D	D			D		D	A			A	B
Approach Delay (s)		49.7			52.0			6.0			11.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			69.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing No Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	17	117	274	433	398	77	6	466	52
v/c Ratio	0.05	0.04	0.27	0.75	0.77	0.17	0.07	0.04	0.39	0.09
Control Delay	35.7	34.7	8.4	52.9	43.7	7.9	2.3	49.5	30.3	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	34.7	8.4	52.9	43.7	7.9	2.3	49.5	30.3	8.3
Queue Length 50th (ft)	5	9	0	175	275	49	0	4	135	0
Queue Length 95th (ft)	21	30	47	#306	398	98	20	18	196	29
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	210	460	474	405	677	2354	1078	611	2080	952
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.04	0.25	0.68	0.64	0.17	0.07	0.01	0.22	0.05

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	16	110	95	134	28	60	347	374	72	6	438
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1562		1798			1770	3539	1583	1770	3539
Flt Permitted	0.46	1.00	1.00		0.87			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	850	1863	1562		1598			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	17	117	101	143	30	64	369	398	77	6	466
RTOR Reduction (vph)	0	0	92	0	3	0	0	0	0	27	0	0
Lane Group Flow (vph)	10	17	25	0	271	0	0	433	398	50	6	466
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	24.0	24.0	24.0		24.5			34.2	71.7	71.7	1.8	39.3
Effective Green, g (s)	24.0	24.0	24.0		24.5			34.2	71.7	71.7	1.8	39.3
Actuated g/C Ratio	0.22	0.22	0.22		0.22			0.31	0.65	0.65	0.02	0.35
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	183	402	337		352			545	2286	1022	28	1252
v/s Ratio Prot		0.01						c0.24	0.11		0.00	c0.13
v/s Ratio Perm	0.01		0.02		c0.17					0.03		
v/c Ratio	0.05	0.04	0.08		0.77			0.79	0.17	0.05	0.21	0.37
Uniform Delay, d1	34.5	34.4	34.7		40.6			35.2	7.8	7.2	53.9	26.7
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3		9.7			9.5	0.2	0.1	10.6	0.8
Delay (s)	34.9	34.5	34.9		50.3			44.7	8.0	7.3	64.5	27.5
Level of Service	C	C	C		D			D	A	A	E	C
Approach Delay (s)		34.9			50.3				25.4			27.5
Approach LOS		C			D				C			C
Intersection Summary												
HCM 2000 Control Delay			30.5			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			111.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			70.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Existing No Project AM



Movement	SBR
Lane Configurations	
Volume (vph)	49
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	52
RTOR Reduction (vph)	34
Lane Group Flow (vph)	18
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	39.3
Effective Green, g (s)	39.3
Actuated g/C Ratio	0.35
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	560
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	23.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	23.5
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Existing No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Volume (veh/h)	0	0	860	0	0	703
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	935	0	0	764
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.89	0.85			0.85	
vC, conflicting volume	1317	467			935	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	703	20			570	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	331	895			849	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	623	312	255	509
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	849	1700
Volume to Capacity	0.00	0.00	0.37	0.18	0.00	0.30
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			27.1%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing No Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	7	54	56	26	58	985	13	776
v/c Ratio	0.01	0.63	0.66	0.06	0.38	0.41	0.09	0.37
Control Delay	0.0	62.4	66.3	0.2	47.9	7.6	39.2	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	62.4	66.3	0.2	47.9	7.6	39.2	14.3
Queue Length 50th (ft)	0	27	29	0	32	149	7	135
Queue Length 95th (ft)	0	#80	#84	0	53	82	24	236
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	676	105	104	533	177	2378	177	2102
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.51	0.54	0.05	0.33	0.41	0.07	0.37

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	6	97	1	23	52	851	26	12	665	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1686	1559	1770	3521		1770	3516	
Flt Permitted		1.00		0.23	0.23	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		411	408	1559	1770	3521		1770	3516	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	7	109	1	26	58	956	29	13	747	29
RTOR Reduction (vph)	0	7	0	0	0	21	0	1	0	0	2	0
Lane Group Flow (vph)	0	0	0	54	56	5	58	984	0	13	774	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		17.2	17.2	17.2	6.4	52.6		1.8	48.0	
Effective Green, g (s)		1.4		17.2	17.2	17.2	6.4	52.6		1.8	48.0	
Actuated g/C Ratio		0.02		0.19	0.19	0.19	0.07	0.58		0.02	0.53	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	77	297	125	2057		35	1875	
v/s Ratio Prot		c0.00					0.03	c0.28		0.01	c0.22	
v/s Ratio Perm				0.13	c0.14	0.00						
v/c Ratio		0.00		0.69	0.73	0.02	0.46	0.48		0.37	0.41	
Uniform Delay, d1		43.6		33.9	34.2	29.5	40.2	10.8		43.5	12.6	
Progression Factor		1.00		1.00	1.00	1.00	1.06	0.64		1.00	1.00	
Incremental Delay, d2		0.0		19.2	24.9	0.0	0.9	0.8		2.4	0.7	
Delay (s)		43.6		53.2	59.1	29.5	43.4	7.7		46.0	13.2	
Level of Service		D		D	E	C	D	A		D	B	
Approach Delay (s)		43.6			51.1			9.7			13.8	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.3									
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			51.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing No Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	3	160	1022	8	889
v/c Ratio	0.46	0.01	0.65	0.37	0.06	0.41
Control Delay	29.4	0.0	48.7	6.1	34.1	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	0.0	48.7	6.1	34.1	12.7
Queue Length 50th (ft)	34	0	87	58	4	85
Queue Length 95th (ft)	65	0	141	254	m13	228
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	516	574	413	2774	413	2160
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.01	0.39	0.37	0.02	0.41

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School

Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Volume (vph)	53	1	32	2	0	1	142	900	10	7	742	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715			1714		1770	3533		1770	3502	
Flt Permitted		0.81			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1432			1529		1770	3533		1770	3502	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	60	1	36	2	0	1	160	1011	11	8	834	55
RTOR Reduction (vph)	0	32	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	65	0	0	0	0	160	1022	0	8	886	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.9			9.9		12.5	65.7		1.4	54.6	
Effective Green, g (s)		9.9			9.9		12.5	65.7		1.4	54.6	
Actuated g/C Ratio		0.11			0.11		0.14	0.73		0.02	0.61	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		157			168		245	2579		27	2124	
v/s Ratio Prot							c0.09	0.29		0.00	c0.25	
v/s Ratio Perm		c0.05			0.00							
v/c Ratio		0.41			0.00		0.65	0.40		0.30	0.42	
Uniform Delay, d1		37.3			35.7		36.7	4.6		43.8	9.3	
Progression Factor		1.00			1.00		1.00	1.00		0.86	1.04	
Incremental Delay, d2		0.6			0.0		4.7	0.5		2.1	0.6	
Delay (s)		38.0			35.7		41.4	5.1		39.9	10.3	
Level of Service		D			D		D	A		D	B	
Approach Delay (s)		38.0			35.7			10.0			10.5	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay		11.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.45										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		48.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	156	43	211	24	538	1167	7	639	199
v/c Ratio	0.88	0.10	0.90	0.06	0.93	0.52	0.05	0.61	0.33
Control Delay	71.6	0.5	66.0	0.3	41.6	6.3	28.5	23.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	0.5	66.0	0.3	41.6	6.3	28.5	23.0	5.0
Queue Length 50th (ft)	60	0	81	0	195	123	3	116	0
Queue Length 95th (ft)	#157	0	#192	0	#344	93	13	168	42
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	186	432	247	427	599	2248	190	1056	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.10	0.85	0.06	0.90	0.52	0.04	0.61	0.33

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	6	39	157	33	22	484	930	121	6	575	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1778	1583		1789	1559	1770	3467		1770	3539	1563
Flt Permitted		0.47	1.00		0.62	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		867	1583		1147	1559	1770	3467		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	149	7	43	174	37	24	538	1033	134	7	639	199
RTOR Reduction (vph)	0	0	34	0	0	19	0	12	0	0	0	140
Lane Group Flow (vph)	0	156	9	0	211	5	538	1155	0	7	639	59
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		13.3	13.3		13.3	13.3	21.3	39.6		1.1	19.4	19.4
Effective Green, g (s)		13.3	13.3		13.3	13.3	21.3	39.6		1.1	19.4	19.4
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.33	0.61		0.02	0.30	0.30
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		177	323		234	318	580	2112		29	1056	466
v/s Ratio Prot							c0.30	c0.33		0.00	0.18	
v/s Ratio Perm		0.18	0.01		c0.18	0.00						0.04
v/c Ratio		0.88	0.03		0.90	0.02	0.93	0.55		0.24	0.61	0.13
Uniform Delay, d1		25.1	20.7		25.2	20.6	21.1	7.4		31.5	19.5	16.6
Progression Factor		1.00	1.00		1.00	1.00	0.88	0.81		1.00	1.00	1.00
Incremental Delay, d2		35.6	0.0		33.1	0.0	18.2	0.9		1.6	2.6	0.6
Delay (s)		60.6	20.7		58.3	20.6	36.8	6.9		33.1	22.1	17.2
Level of Service		E	C		E	C	D	A		C	C	B
Approach Delay (s)		52.0			54.5			16.3			21.0	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			23.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			69.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Existing No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	156	340	62	166	113	1371	4	40	809
v/c Ratio	0.68	0.61	0.21	0.40	0.48	0.61	0.00	0.25	0.43
Control Delay	40.3	8.1	23.6	7.4	32.5	10.2	0.0	20.6	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	8.1	23.6	7.4	32.5	10.2	0.0	20.6	19.4
Queue Length 50th (ft)	58	0	21	0	42	115	0	13	146
Queue Length 95th (ft)	#112	59	49	43	81	291	0	m22	m203
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	276	607	353	466	599	2258	1034	190	1882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.56	0.18	0.36	0.19	0.61	0.00	0.21	0.43

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	6	309	18	38	151	103	1248	4	36	535	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1833	1560	1770	3539	1583	1770	3382	
Flt Permitted		0.69	1.00		0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1286	1583		1642	1560	1770	3539	1583	1770	3382	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	149	7	340	20	42	166	113	1371	4	40	588	221
RTOR Reduction (vph)	0	0	279	0	0	136	0	0	2	0	39	0
Lane Group Flow (vph)	0	156	61	0	62	30	113	1371	2	40	770	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		11.6	11.6		11.6	11.6	7.6	39.6	39.6	2.8	34.8	
Effective Green, g (s)		11.6	11.6		11.6	11.6	7.6	39.6	39.6	2.8	34.8	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.12	0.61	0.61	0.04	0.54	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		229	282		293	278	206	2156	964	76	1810	
v/s Ratio Prot							c0.06	c0.39		0.02	0.23	
v/s Ratio Perm		c0.12	0.04		0.04	0.02			0.00			
v/c Ratio		0.68	0.22		0.21	0.11	0.55	0.64	0.00	0.53	0.43	
Uniform Delay, d1		25.0	22.8		22.8	22.4	27.1	8.1	5.0	30.5	9.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.65	1.98	
Incremental Delay, d2		6.5	0.1		0.1	0.1	1.6	1.4	0.0	2.3	0.6	
Delay (s)		31.5	23.0		22.9	22.4	28.7	9.5	5.0	22.1	18.6	
Level of Service		C	C		C	C	C	A	A	C	B	
Approach Delay (s)		25.6			22.6			11.0			18.7	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		16.4										
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		62.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing No Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	692	321	958	106	760
v/c Ratio	0.80	0.55	0.52	0.58	0.38
Control Delay	38.3	7.4	17.7	54.8	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	7.4	17.7	54.8	12.9
Queue Length 50th (ft)	182	0	207	66	138
Queue Length 95th (ft)	250	74	291	115	180
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	922	605	1843	283	2008
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.53	0.52	0.37	0.38
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

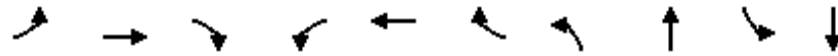
Hayward Crosspoint School
Existing No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	437	525	868	42	101	722
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3290	1416	3513		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3290	1416	3513		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	460	553	914	44	106	760
RTOR Reduction (vph)	68	243	3	0	0	0
Lane Group Flow (vph)	624	78	955	0	106	760
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	24.3	24.3	52.4		10.3	56.7
Effective Green, g (s)	24.3	24.3	52.4		10.3	56.7
Actuated g/C Ratio	0.24	0.24	0.52		0.10	0.57
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	799	344	1840		182	2006
v/s Ratio Prot	c0.19		c0.27		c0.06	0.21
v/s Ratio Perm		0.06				
v/c Ratio	0.78	0.23	0.52		0.58	0.38
Uniform Delay, d1	35.4	30.3	15.6		42.8	11.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.3	0.5	1.1		3.0	0.5
Delay (s)	40.6	30.8	16.6		45.8	12.5
Level of Service	D	C	B		D	B
Approach Delay (s)	37.5		16.6			16.6
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			24.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			59.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Existing No Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	149	195	43	242	782	259	105	1214	173	1105
v/c Ratio	0.77	0.24	0.10	0.88	0.81	0.51	1.84	0.65	0.84	0.58
Control Delay	81.0	40.7	1.5	83.8	50.9	22.9	470.7	37.9	87.2	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.0	40.7	1.5	83.8	50.9	22.9	470.7	37.9	87.2	33.2
Queue Length 50th (ft)	123	71	0	199	320	91	~134	323	143	265
Queue Length 95th (ft)	195	100	6	#331	385	172	#256	405	#249	338
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	552	57	1854	231	1918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.20	0.09	0.81	0.73	0.47	1.84	0.65	0.75	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		 			 				  		 	  
Volume (vph)	136	177	39	220	712	236	16	79	1055	50	157	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.97
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1766	5038		1770	4935
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		572	5038		1770	4935
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	149	195	43	242	782	259	18	87	1159	55	173	916
RTOR Reduction (vph)	0	0	33	0	0	91	0	0	4	0	0	22
Lane Group Flow (vph)	149	195	10	242	782	168	0	105	1210	0	173	1083
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	14.2	29.5	29.5	20.3	35.6	35.6		13.0	47.8		15.2	50.0
Effective Green, g (s)	14.2	29.5	29.5	20.3	35.6	35.6		13.0	47.8		15.2	50.0
Actuated g/C Ratio	0.11	0.23	0.23	0.16	0.27	0.27		0.10	0.37		0.12	0.38
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	193	803	347	276	969	420		57	1852		206	1898
v/s Ratio Prot	0.08	0.06		c0.14	c0.22				c0.24		0.10	0.22
v/s Ratio Perm			0.01			0.11		c0.18				
v/c Ratio	0.77	0.24	0.03	0.88	0.81	0.40		1.84	0.65		0.84	0.57
Uniform Delay, d1	56.3	41.1	39.1	53.6	44.0	38.5		58.5	34.2		56.2	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	15.9	0.2	0.0	24.8	5.0	0.6		438.6	1.8		23.9	1.3
Delay (s)	72.2	41.3	39.1	78.4	49.0	39.1		497.1	36.0		80.1	32.8
Level of Service	E	D	D	E	D	D		F	D		F	C
Approach Delay (s)		52.9			52.6				72.7			39.2
Approach LOS		D			D				E			D
Intersection Summary												
HCM 2000 Control Delay			54.8			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			80.7%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Existing No Project AM



Movement	SBR
*** Lane Configurations	
Volume (vph)	172
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	189
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing No Project AM

							
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	386	974	1166	96	98	203	1
v/c Ratio	0.26	0.92	0.42	0.54	0.57	0.53	0.01
Control Delay	19.9	50.5	5.3	53.8	55.9	10.4	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	50.5	5.3	53.8	55.9	10.4	35.0
Queue Length 50th (ft)	78	331	103	69	70	0	1
Queue Length 95th (ft)	142	#426	240	108	111	57	5
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1498	1123	2761	330	317	537	297
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.87	0.42	0.29	0.31	0.38	0.00

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	275	92	925	1105	3	183	1	193	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)		3393		3433	3538		1681	1686	1554		1770	
Flt Permitted		1.00		0.95	1.00		0.76	0.73	1.00		0.65	
Satd. Flow (perm)		3393		3433	3538		1340	1289	1554		1208	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	289	97	974	1163	3	193	1	203	1	0	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	176	0	0	0
Lane Group Flow (vph)	0	362	0	974	1166	0	96	98	27	0	1	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		47.8		34.0	85.8		14.7	14.7	14.7		14.7	
Effective Green, g (s)		47.8		34.0	85.8		14.7	14.7	14.7		14.7	
Actuated g/C Ratio		0.43		0.31	0.78		0.13	0.13	0.13		0.13	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1474		1061	2759		179	172	207		161	
v/s Ratio Prot		0.11		c0.28	c0.33							
v/s Ratio Perm							0.07	c0.08	0.02		0.00	
v/c Ratio		0.25		0.92	0.42		0.54	0.57	0.13		0.01	
Uniform Delay, d1		19.7		36.7	4.0		44.5	44.7	42.0		41.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4		12.0	0.5		1.5	2.6	0.1		0.0	
Delay (s)		20.1		48.7	4.4		46.0	47.3	42.1		41.3	
Level of Service		C		D	A		D	D	D		D	
Approach Delay (s)		20.1			24.6			44.3			41.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			26.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			64.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing No Project AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	222	347	192	922	91	43	552	117	105	1259	1061
v/c Ratio	1.10	0.29	1.50	1.04	0.20	0.55	0.22	0.14	0.52	0.47	1.16
Control Delay	154.5	41.5	304.3	92.0	10.1	93.6	21.3	3.7	75.7	23.2	109.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.5	41.5	304.3	92.0	10.1	93.6	21.3	3.7	75.7	23.2	109.9
Queue Length 50th (ft)	~122	89	~251	~491	3	41	106	0	50	278	~1089
Queue Length 95th (ft)	#211	121	#413	#627	48	#93	134	34	82	320	#1355
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1196	128	890	451	79	2507	816	224	2654	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.29	1.50	1.04	0.20	0.54	0.22	0.14	0.47	0.47	1.16

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	220	280	63	190	913	90	43	546	116	104	1246	1050
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4923		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4923		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	222	283	64	192	922	91	43	552	117	105	1259	1061
RTOR Reduction (vph)	0	25	0	0	0	65	0	0	59	0	0	113
Lane Group Flow (vph)	222	322	0	192	922	26	43	552	58	105	1259	948
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.5	71.5	8.5	74.8	74.8
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.5	71.5	8.5	74.8	74.8
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.52	0.52
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1171		128	890	386	63	2507	756	201	2623	795
v/s Ratio Prot	0.06	0.07		c0.11	c0.26		0.02	0.11		c0.03	0.25	
v/s Ratio Perm						0.02			0.04			c0.61
v/c Ratio	1.10	0.27		1.50	1.04	0.07	0.68	0.22	0.08	0.52	0.48	1.19
Uniform Delay, d1	68.2	45.1		67.2	54.2	41.3	69.1	20.9	19.4	66.3	22.6	35.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	94.2	0.0		261.3	39.8	0.0	21.6	0.2	0.2	1.1	0.6	99.0
Delay (s)	162.5	45.1		328.6	94.1	41.3	90.6	21.1	19.6	67.4	23.2	134.1
Level of Service	F	D		F	F	D	F	C	B	E	C	F
Approach Delay (s)		90.9			127.5			25.0			73.6	
Approach LOS		F			F			C			E	
Intersection Summary												
HCM 2000 Control Delay	81.8			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.17											
Actuated Cycle Length (s)	145.0			Sum of lost time (s)			20.0					
Intersection Capacity Utilization	109.2%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Existing No Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	270	265	12	27	558	1	374	205
v/c Ratio	0.78	0.76	0.13	0.15	0.24	0.01	0.20	0.22
Control Delay	54.6	52.9	44.7	45.4	9.8	48.0	15.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	52.9	44.7	45.4	9.8	48.0	15.0	3.4
Queue Length 50th (ft)	184	178	6	17	62	1	62	0
Queue Length 95th (ft)	255	249	25	44	174	7	128	46
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	101	183	2340	183	1899	924
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.48	0.12	0.15	0.24	0.01	0.20	0.22
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	499	3	12	8	1	3	26	536	0	1	359	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1677			1728		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.95			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1677			1728		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	520	3	12	8	1	3	27	558	0	1	374	205
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	0	0	0	103
Lane Group Flow (vph)	270	263	0	0	9	0	27	558	0	1	374	102
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	21.9	21.9			1.2		11.0	62.9		1.0	52.9	52.9
Effective Green, g (s)	21.9	21.9			1.2		11.0	62.9		1.0	52.9	52.9
Actuated g/C Ratio	0.21	0.21			0.01		0.10	0.59		0.01	0.50	0.50
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	347	346			19		183	2100		16	1766	772
v/s Ratio Prot	c0.16	0.16			c0.01		c0.02	c0.16		0.00	0.11	
v/s Ratio Perm												0.07
v/c Ratio	0.78	0.76			0.48		0.15	0.27		0.06	0.21	0.13
Uniform Delay, d1	39.8	39.6			52.1		43.2	10.4		52.0	14.9	14.2
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.6	8.6			6.7		1.7	0.3		0.6	0.3	0.4
Delay (s)	49.4	48.2			58.8		44.9	10.7		52.6	15.1	14.6
Level of Service	D	D			E		D	B		D	B	B
Approach Delay (s)		48.8			58.8			12.3			15.0	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			24.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			49.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	127	314	128	185	515	132	35	382	6
v/c Ratio	0.22	0.48	0.64	0.65	0.57	0.22	0.12	0.19	0.20	0.01
Control Delay	43.6	47.4	11.3	54.0	45.5	8.0	2.0	46.8	13.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	47.4	11.3	54.0	45.5	8.0	2.0	46.8	13.5	0.0
Queue Length 50th (ft)	21	81	0	76	115	70	0	22	63	0
Queue Length 95th (ft)	52	143	80	142	192	121	25	56	115	0
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	293	498	644	358	732	2393	1091	661	2250	1000
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.26	0.49	0.36	0.25	0.22	0.12	0.05	0.17	0.01
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	32	121	298	54	36	31	29	146	489	125	33	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1545		1747			1770	3539	1551	1770	3539
Flt Permitted	0.59	1.00	1.00		0.72			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1097	1863	1545		1286			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	127	314	57	38	33	31	154	515	132	35	382
RTOR Reduction (vph)	0	0	270	0	9	0	0	0	0	44	0	0
Lane Group Flow (vph)	34	127	44	0	119	0	0	185	515	88	35	382
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	14.2	14.2	14.2		14.7			18.5	67.9	67.9	6.4	55.8
Effective Green, g (s)	14.2	14.2	14.2		14.7			18.5	67.9	67.9	6.4	55.8
Actuated g/C Ratio	0.14	0.14	0.14		0.14			0.18	0.67	0.67	0.06	0.55
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	152	259	215		185			321	2355	1032	111	1936
v/s Ratio Prot		0.07						c0.10	c0.15		0.02	0.11
v/s Ratio Perm	0.03		0.03		c0.09					0.06		
v/c Ratio	0.22	0.49	0.20		0.64			0.58	0.22	0.09	0.32	0.20
Uniform Delay, d1	39.0	40.6	38.9		41.2			38.2	6.7	6.0	45.7	11.7
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	4.1	1.3		7.4			4.9	0.2	0.2	4.6	0.2
Delay (s)	41.1	44.6	40.2		48.5			43.1	6.9	6.2	50.3	12.0
Level of Service	D	D	D		D			D	A	A	D	B
Approach Delay (s)		41.5			48.5				14.8			15.1
Approach LOS		D			D				B			B
Intersection Summary												
HCM 2000 Control Delay			24.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			102.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			60.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Existing No Project PM



Movement	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1550
Flt Permitted	1.00
Satd. Flow (perm)	1550
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	6
RTOR Reduction (vph)	3
Lane Group Flow (vph)	3
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	55.8
Effective Green, g (s)	55.8
Actuated g/C Ratio	0.55
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	847
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.00
Uniform Delay, d1	10.5
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	10.5
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	20	20	14	2	842	19	827
v/c Ratio	0.12	0.19	0.19	0.04	0.01	0.33	0.12	0.31
Control Delay	0.9	36.5	36.5	0.2	46.5	6.7	39.3	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.9	36.5	36.5	0.2	46.5	6.7	39.3	8.7
Queue Length 50th (ft)	0	11	11	0	1	97	10	83
Queue Length 95th (ft)	0	28	28	0	m3	53	31	248
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	409	231	231	534	177	2526	177	2674
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.09	0.09	0.03	0.01	0.33	0.11	0.31

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	0	20	39	0	14	2	755	62	18	800	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1642		1676	1676	1561	1770	3493		1770	3538	
Flt Permitted		0.87		0.51	0.51	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1448		905	905	1561	1770	3493		1770	3538	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	0	21	40	0	14	2	778	64	19	825	2
RTOR Reduction (vph)	0	32	0	0	0	13	0	3	0	0	0	0
Lane Group Flow (vph)	0	2	0	20	20	1	2	839	0	19	827	0
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4		4						
Actuated Green, G (s)		4.2		7.8	7.8	7.8	1.4	56.6		4.4	59.6	
Effective Green, g (s)		4.2		7.8	7.8	7.8	1.4	56.6		4.4	59.6	
Actuated g/C Ratio		0.05		0.09	0.09	0.09	0.02	0.63		0.05	0.66	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		67		78	78	135	27	2196		86	2342	
v/s Ratio Prot							0.00	c0.24		0.01	c0.23	
v/s Ratio Perm		c0.00		c0.02	0.02	0.00						
v/c Ratio		0.02		0.26	0.26	0.01	0.07	0.38		0.22	0.35	
Uniform Delay, d1		40.9		38.4	38.4	37.6	43.7	8.2		41.2	6.7	
Progression Factor		1.00		1.00	1.00	1.00	1.20	0.62		1.00	1.00	
Incremental Delay, d2		0.1		0.6	0.6	0.0	0.4	0.5		0.5	0.4	
Delay (s)		41.0		39.0	39.0	37.6	52.9	5.5		41.6	7.1	
Level of Service		D		D	D	D	D	A		D	A	
Approach Delay (s)		41.0			38.7			5.6			7.9	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.4									
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			46.2%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	17	33	815	4	882
v/c Ratio	0.52	0.09	0.23	0.31	0.03	0.36
Control Delay	21.9	23.9	42.7	5.7	34.0	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	23.9	42.7	5.7	34.0	9.3
Queue Length 50th (ft)	28	5	18	40	0	72
Queue Length 95th (ft)	67	20	46	193	m9	197
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	568	541	413	2658	413	2451
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.03	0.08	0.31	0.01	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	5	80	8	2	7	32	779	12	4	799	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1708		1770	3530		1770	3498	
Flt Permitted		0.88			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1494			1562		1770	3530		1770	3498	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	45	5	82	8	2	7	33	803	12	4	824	58
RTOR Reduction (vph)	0	72	0	0	6	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	60	0	0	11	0	33	814	0	4	879	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		11.1			11.1		4.5	64.5		1.4	61.4	
Effective Green, g (s)		11.1			11.1		4.5	64.5		1.4	61.4	
Actuated g/C Ratio		0.12			0.12		0.05	0.72		0.02	0.68	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		184			192		88	2529		27	2386	
v/s Ratio Prot							c0.02	c0.23		0.00	c0.25	
v/s Ratio Perm		c0.04			0.01							
v/c Ratio		0.33			0.06		0.38	0.32		0.15	0.37	
Uniform Delay, d1		36.0			34.8		41.4	4.7		43.7	6.1	
Progression Factor		1.00			1.00		1.00	1.00		0.87	1.20	
Incremental Delay, d2		0.4			0.0		1.0	0.3		0.9	0.4	
Delay (s)		36.4			34.9		42.4	5.0		39.1	7.7	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		36.4			34.9			6.5			7.8	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.5				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			42.8%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Existing No Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	209	125	78	8	270	732	6	808	100
v/c Ratio	0.82	0.30	0.40	0.02	0.87	0.31	0.05	0.47	0.12
Control Delay	54.2	7.3	32.1	0.1	71.7	4.8	34.2	15.1	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	7.3	32.1	0.1	71.7	4.8	34.2	15.1	3.3
Queue Length 50th (ft)	92	0	31	0	140	50	3	137	0
Queue Length 95th (ft)	#191	40	70	0	#254	m103	14	187	24
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	291	451	223	431	326	2354	163	1705	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.28	0.35	0.02	0.83	0.31	0.04	0.47	0.12

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	26	121	64	12	8	262	638	72	6	784	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1785	1583		1787	1583	1770	3477		1770	3539	1561
Flt Permitted		0.70	1.00		0.54	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1302	1583		999	1583	1770	3477		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	182	27	125	66	12	8	270	658	74	6	808	100
RTOR Reduction (vph)	0	0	100	0	0	6	0	9	0	0	0	52
Lane Group Flow (vph)	0	209	25	0	78	2	270	723	0	6	808	48
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		15.0	15.0		15.0	15.0	13.4	48.9		1.1	36.6	36.6
Effective Green, g (s)		15.0	15.0		15.0	15.0	13.4	48.9		1.1	36.6	36.6
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.18	0.64		0.01	0.48	0.48
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		256	312		197	312	312	2237		25	1704	751
v/s Ratio Prot							c0.15	0.21		0.00	c0.23	
v/s Ratio Perm		c0.16	0.02		0.08	0.00						0.03
v/c Ratio		0.82	0.08		0.40	0.01	0.87	0.32		0.24	0.47	0.06
Uniform Delay, d1		29.2	24.9		26.6	24.5	30.4	6.1		37.0	13.2	10.5
Progression Factor		1.00	1.00		1.00	1.00	1.51	0.77		1.00	1.00	1.00
Incremental Delay, d2		17.1	0.0		0.5	0.0	19.9	0.3		1.8	0.9	0.2
Delay (s)		46.2	24.9		27.0	24.5	66.0	5.0		38.8	14.2	10.7
Level of Service		D	C		C	C	E	A		D	B	B
Approach Delay (s)		38.3			26.8			21.5			14.0	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM 2000 Control Delay		21.1										
HCM 2000 Volume to Capacity ratio		0.63										
Actuated Cycle Length (s)		76.0								11.0		
Intersection Capacity Utilization		64.0%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	315	594	21	54	75	727	5	70	942
v/c Ratio	0.99	0.94	0.06	0.13	0.42	0.36	0.01	0.48	0.49
Control Delay	80.3	37.8	23.8	2.2	38.7	10.1	0.0	44.7	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	37.8	23.8	2.2	38.7	10.1	0.0	44.7	6.9
Queue Length 50th (ft)	149	116	8	0	34	97	0	36	57
Queue Length 95th (ft)	#304	#326	25	9	70	133	0	m78	84
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	319	631	378	431	326	2010	903	163	1908
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.94	0.06	0.13	0.23	0.36	0.01	0.43	0.49

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	227	76	570	6	14	52	72	698	5	67	720	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1583		1837	1583	1770	3539	1547	1770	3422	
Flt Permitted		0.77	1.00		0.91	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1583		1692	1583	1770	3539	1547	1770	3422	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	236	79	594	6	15	54	75	727	5	70	750	192
RTOR Reduction (vph)	0	0	277	0	0	42	0	0	2	0	25	0
Lane Group Flow (vph)	0	315	317	0	21	12	75	727	3	70	917	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	6.7	42.6	42.6	5.4	41.3	
Effective Green, g (s)		17.0	17.0		17.0	17.0	6.7	42.6	42.6	5.4	41.3	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.09	0.56	0.56	0.07	0.54	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		319	354		378	354	156	1983	867	125	1859	
v/s Ratio Prot							0.04	0.21		c0.04	c0.27	
v/s Ratio Perm		c0.22	0.20		0.01	0.01			0.00			
v/c Ratio		0.99	0.90		0.06	0.03	0.48	0.37	0.00	0.56	0.49	
Uniform Delay, d1		29.4	28.6		23.2	23.1	33.0	9.2	7.4	34.2	10.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.04	0.56	
Incremental Delay, d2		46.4	23.3		0.0	0.0	0.9	0.5	0.0	3.1	0.9	
Delay (s)		75.8	51.9		23.2	23.1	33.8	9.8	7.4	38.8	6.9	
Level of Service		E	D		C	C	C	A	A	D	A	
Approach Delay (s)		60.2			23.1			12.0			9.1	
Approach LOS		E			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		26.9										
HCM 2000 Volume to Capacity ratio		0.62										
Actuated Cycle Length (s)		76.0										
Intersection Capacity Utilization		77.7%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing No Project PM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	161	81	872	471	998
v/c Ratio	0.44	0.40	0.41	1.66	0.39
Control Delay	25.4	15.8	10.2	343.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	15.8	10.2	343.6	6.2
Queue Length 50th (ft)	24	0	130	~439	111
Queue Length 95th (ft)	54	47	184	#634	161
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	894	427	2142	283	2547
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.19	0.41	1.66	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

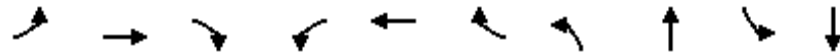
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing No Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	74	153	672	148	443	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.92	0.85	0.97		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3207	1414	3436		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3207	1414	3436		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	79	163	715	157	471	998
RTOR Reduction (vph)	75	74	13	0	0	0
Lane Group Flow (vph)	86	7	859	0	471	998
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.0	9.0	62.0		16.0	72.0
Effective Green, g (s)	9.0	9.0	62.0		16.0	72.0
Actuated g/C Ratio	0.09	0.09	0.62		0.16	0.72
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	288	127	2130		283	2548
v/s Ratio Prot	c0.03		0.25		c0.27	c0.28
v/s Ratio Perm		0.01				
v/c Ratio	0.30	0.06	0.40		1.66	0.39
Uniform Delay, d1	42.6	41.6	9.6		42.0	5.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.3	0.6		314.1	0.5
Delay (s)	43.4	41.9	10.2		356.1	5.9
Level of Service	D	D	B		F	A
Approach Delay (s)	42.9		10.2			118.2
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			74.7		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			63.3%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	171	501	69	257	258	203	81	1233	273	939
v/c Ratio	0.82	0.74	0.17	0.87	0.30	0.44	1.31	0.71	4.48	0.43
Control Delay	80.3	52.0	0.8	76.0	37.3	17.4	260.5	37.6	1614.0	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	52.0	0.8	76.0	37.3	17.4	260.5	37.6	1614.0	25.4
Queue Length 50th (ft)	129	194	0	192	86	49	~81	305	~391	185
Queue Length 95th (ft)	#229	241	0	#320	117	113	#185	388	#563	243
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1728	61	2160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.60	0.14	0.79	0.25	0.38	1.31	0.71	4.48	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	162	476	66	244	245	193	43	34	1053	119	26	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.99
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1501	1770	3539	1536		1766	4956			1748
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1501	1770	3539	1536		930	4956			409
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	171	501	69	257	258	203	45	36	1108	125	27	246
RTOR Reduction (vph)	0	0	56	0	0	94	0	0	10	0	0	0
Lane Group Flow (vph)	171	501	13	257	258	109	0	81	1223	0	0	273
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	14.2	23.1	23.1	20.1	29.0	29.0		8.0	41.6			18.0
Effective Green, g (s)	14.2	23.1	23.1	20.1	29.0	29.0		8.0	41.6			18.0
Actuated g/C Ratio	0.12	0.19	0.19	0.17	0.24	0.24		0.07	0.35			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	209	681	288	296	855	371		62	1718			61
v/s Ratio Prot	0.10	c0.14		c0.15	0.07				c0.25			
v/s Ratio Perm			0.01			0.07		0.09				c0.67
v/c Ratio	0.82	0.74	0.05	0.87	0.30	0.29		1.31	0.71			4.48
Uniform Delay, d1	51.6	45.6	39.5	48.7	37.2	37.1		56.0	34.0			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	20.4	4.1	0.1	22.1	0.2	0.4		216.7	2.5			1601.1
Delay (s)	72.0	49.7	39.5	70.7	37.4	37.6		272.7	36.5			1652.1
Level of Service	E	D	D	E	D	D		F	D			F
Approach Delay (s)		53.9			49.4				51.1			
Approach LOS		D			D				D			
Intersection Summary												
HCM 2000 Control Delay			154.7				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			89.3%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

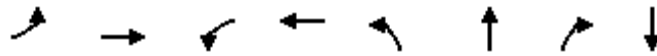
Existing No Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	808	84
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5004	
Flt Permitted	1.00	
Satd. Flow (perm)	5004	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	851	88
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	930	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	51.6	
Effective Green, g (s)	51.6	
Actuated g/C Ratio	0.43	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	2151	
v/s Ratio Prot	0.19	
v/s Ratio Perm		
v/c Ratio	0.43	
Uniform Delay, d1	23.9	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	24.6	
Level of Service	C	
Approach Delay (s)	391.2	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	3	1378	273	406	73	74	581	8
v/c Ratio	0.04	0.69	0.76	0.16	0.26	0.27	1.18	0.03
Control Delay	61.3	20.7	70.7	7.0	46.2	46.2	129.6	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	20.7	70.7	7.0	46.2	46.2	129.6	41.6
Queue Length 50th (ft)	3	402	115	51	54	55	~439	5
Queue Length 95th (ft)	13	478	161	88	103	104	#656	19
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	2001	396	2490	277	277	492	274
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.69	0.69	0.16	0.26	0.27	1.18	0.03

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	975	251	243	361	0	131	0	517	7	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3405		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	0.75	1.00		0.71	
Satd. Flow (perm)	1770	3405		3433	3539		1332	1332	1563		1316	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	1096	282	273	406	0	147	0	581	8	0	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	0	166	0	0	0
Lane Group Flow (vph)	3	1361	0	273	406	0	73	74	415	0	8	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	1.1	75.8		13.6	88.3		27.1	27.1	27.1		27.1	
Effective Green, g (s)	1.1	75.8		13.6	88.3		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.01	0.58		0.10	0.68		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	14	1985		359	2403		277	277	325		274	
v/s Ratio Prot	0.00	c0.40		c0.08	0.11							
v/s Ratio Perm							0.05	0.06	c0.27		0.01	
v/c Ratio	0.21	0.69		0.76	0.17		0.26	0.27	1.28		0.03	
Uniform Delay, d1	64.0	18.8		56.6	7.6		43.1	43.1	51.5		41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.8	2.0		8.3	0.2		0.2	0.2	146.1		0.0	
Delay (s)	66.8	20.8		64.9	7.7		43.3	43.3	197.5		41.0	
Level of Service	E	C		E	A		D	D	F		D	
Approach Delay (s)		20.9			30.7			166.4			41.0	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			61.2			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			85.9%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing No Project PM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	674	1045	223	377	142	60	1101	196	154	648	219
v/c Ratio	1.77	0.90	0.80	0.38	0.27	1.13	0.55	0.29	0.63	0.32	0.29
Control Delay	393.2	62.6	77.0	41.0	6.2	220.2	35.2	13.4	74.5	31.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	393.2	62.6	77.0	41.0	6.2	220.2	35.2	13.4	74.5	31.2	5.0
Queue Length 50th (ft)	~471	334	198	144	0	~63	286	42	71	151	0
Queue Length 95th (ft)	#595	393	275	177	47	#163	370	113	109	203	58
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1206	436	1327	670	53	2015	677	281	1999	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.77	0.87	0.51	0.28	0.21	1.13	0.55	0.29	0.55	0.32	0.29

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	654	943	71	216	366	138	24	34	1068	190	149	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	5015		1770	3539	1549		1766	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	5015		1770	3539	1549		708	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	674	972	73	223	377	142	25	35	1101	196	154	648
RTOR Reduction (vph)	0	6	0	0	0	102	0	0	0	76	0	0
Lane Group Flow (vph)	674	1039	0	223	377	40	0	60	1101	120	154	648
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	32.4		22.1	39.0	39.0		10.5	55.4	55.4	10.1	55.0
Effective Green, g (s)	15.5	32.4		22.1	39.0	39.0		10.5	55.4	55.4	10.1	55.0
Actuated g/C Ratio	0.11	0.23		0.16	0.28	0.28		0.08	0.40	0.40	0.07	0.39
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1160		279	985	431		53	2012	601	247	1997
v/s Ratio Prot	c0.20	c0.21		c0.13	0.11				c0.22		0.04	0.13
v/s Ratio Perm						0.03		c0.08		0.08		
v/c Ratio	1.77	0.90		0.80	0.38	0.09		1.13	0.55	0.20	0.62	0.32
Uniform Delay, d1	62.2	52.2		56.8	40.8	37.4		64.8	32.6	27.8	63.1	29.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	358.7	9.0		13.8	0.1	0.0		164.6	1.1	0.7	3.5	0.4
Delay (s)	420.9	61.1		70.6	40.9	37.4		229.3	33.7	28.5	66.6	30.0
Level of Service	F	E		E	D	D		F	C	C	E	C
Approach Delay (s)		202.2			49.2				41.6			35.1
Approach LOS		F			D				D			D
Intersection Summary												
HCM 2000 Control Delay			98.4				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		20.0			
Intersection Capacity Utilization			88.1%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

11: Hesperian Blvd & Winton Ave

Existing No Project PM

Movement	SBR
APP Configurations	
Volume (vph)	212
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1554
Flt Permitted	1.00
Satd. Flow (perm)	1554
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	219
RTOR Reduction (vph)	133
Lane Group Flow (vph)	86
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	55.0
Effective Green, g (s)	55.0
Actuated g/C Ratio	0.39
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	610
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.14
Uniform Delay, d1	27.3
Progression Factor	1.00
Incremental Delay, d2	0.5
Delay (s)	27.8
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing Plus Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	72	71	6	28	391	567	846
v/c Ratio	0.51	0.47	0.03	0.15	0.13	0.24	0.64
Control Delay	57.9	48.9	0.3	45.5	2.9	8.1	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	48.9	0.3	45.5	2.9	8.1	3.3
Queue Length 50th (ft)	50	41	0	18	21	68	0
Queue Length 95th (ft)	95	87	0	46	60	137	55
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	552	204	183	2932	2404	1324
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.03	0.15	0.13	0.24	0.64
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	2	12	4	0	2	26	362	6	0	533	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.95		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1652			1722		1770	3530			3539	1551
Flt Permitted	0.95	0.96			0.97		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1652			1722		1770	3530			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	128	2	13	4	0	2	28	385	6	0	567	846
RTOR Reduction (vph)	0	10	0	0	6	0	0	0	0	0	0	311
Lane Group Flow (vph)	72	61	0	0	0	0	28	391	0	0	567	535
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.0	8.0			1.0		11.0	82.0			67.0	67.0
Effective Green, g (s)	8.0	8.0			1.0		11.0	82.0			67.0	67.0
Actuated g/C Ratio	0.08	0.08			0.01		0.10	0.77			0.63	0.63
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	126	124			16		183	2730			2236	980
v/s Ratio Prot	c0.04	0.04			c0.00		0.02	c0.11			0.16	
v/s Ratio Perm												c0.34
v/c Ratio	0.57	0.49			0.00		0.15	0.14			0.25	0.55
Uniform Delay, d1	47.3	47.0			52.0		43.3	3.1			8.5	11.0
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.8	1.1			0.0		1.8	0.1			0.3	2.2
Delay (s)	51.2	48.2			52.0		45.0	3.2			8.8	13.1
Level of Service	D	D			D		D	A			A	B
Approach Delay (s)		49.7			52.0			6.0			11.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			69.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing Plus Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	17	117	274	451	409	77	6	486	52
v/c Ratio	0.05	0.04	0.27	0.76	0.77	0.17	0.07	0.04	0.42	0.09
Control Delay	36.1	35.2	8.4	54.1	43.2	7.9	2.3	50.0	31.5	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	35.2	8.4	54.1	43.2	7.9	2.3	50.0	31.5	8.4
Queue Length 50th (ft)	6	10	0	182	290	50	0	4	148	0
Queue Length 95th (ft)	21	30	47	#307	419	101	20	18	205	29
Internal Link Dist (ft)		790		717		564			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	206	454	469	399	668	2365	1083	603	2053	940
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.04	0.25	0.69	0.68	0.17	0.07	0.01	0.24	0.06

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	16	110	95	134	28	77	347	384	72	6	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.99			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1562		1798			1770	3539	1583	1770	3539
Flt Permitted	0.45	1.00	1.00		0.87			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	846	1863	1562		1597			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	17	117	101	143	30	82	369	409	77	6	486
RTOR Reduction (vph)	0	0	92	0	3	0	0	0	0	27	0	0
Lane Group Flow (vph)	10	17	25	0	271	0	0	451	409	50	6	486
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	24.1	24.1	24.1		24.6			36.0	73.0	73.0	1.8	38.8
Effective Green, g (s)	24.1	24.1	24.1		24.6			36.0	73.0	73.0	1.8	38.8
Actuated g/C Ratio	0.21	0.21	0.21		0.22			0.32	0.65	0.65	0.02	0.35
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	181	399	334		349			566	2298	1028	28	1221
v/s Ratio Prot		0.01						c0.25	0.12		0.00	c0.14
v/s Ratio Perm	0.01		0.02		c0.17					0.03		
v/c Ratio	0.06	0.04	0.08		0.78			0.80	0.18	0.05	0.21	0.40
Uniform Delay, d1	35.1	35.0	35.3		41.3			34.9	7.8	7.1	54.6	27.9
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3		10.3			9.3	0.2	0.1	10.6	1.0
Delay (s)	35.5	35.1	35.5		51.7			44.1	8.0	7.2	65.2	28.9
Level of Service	D	D	D		D			D	A	A	E	C
Approach Delay (s)		35.5			51.7				25.3			28.9
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			30.9			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			112.4			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			71.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Exising Plus Project AM



Movement	SBR
Lane Configurations	
Volume (vph)	49
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	52
RTOR Reduction (vph)	34
Lane Group Flow (vph)	18
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.8
Effective Green, g (s)	38.8
Actuated g/C Ratio	0.35
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	546
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	24.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	24.5
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Existing Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	69	13	860	65	10	729
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	14	935	71	11	792
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.87	0.82			0.82	
vC, conflicting volume	1388	503			1005	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	0			572	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	77	98			99	
cM capacity (veh/h)	330	891			819	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	75	14	623	382	275	528
Volume Left	75	0	0	0	11	0
Volume Right	0	14	0	71	0	0
cSH	330	891	1700	1700	819	1700
Volume to Capacity	0.23	0.02	0.37	0.22	0.01	0.31
Queue Length 95th (ft)	22	1	0	0	1	0
Control Delay (s)	19.1	9.1	0.0	0.0	0.5	0.0
Lane LOS	C	A			A	
Approach Delay (s)	17.5		0.0		0.2	
Approach LOS	C					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			37.7%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing Plus Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	7	54	56	26	58	1130	13	873
v/c Ratio	0.01	0.63	0.66	0.06	0.38	0.47	0.09	0.41
Control Delay	0.0	62.4	66.3	0.2	48.5	8.4	39.2	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	62.4	66.3	0.2	48.5	8.4	39.2	14.9
Queue Length 50th (ft)	0	27	29	0	32	180	7	157
Queue Length 95th (ft)	0	#80	#84	0	56	128	24	272
Internal Link Dist (ft)	163		472			468		302
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	673	105	104	533	177	2379	177	2104
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.51	0.54	0.05	0.33	0.47	0.07	0.41

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	6	97	1	23	52	980	26	12	751	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1686	1559	1770	3523		1770	3519	
Flt Permitted		1.00		0.23	0.23	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		411	408	1559	1770	3523		1770	3519	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	7	109	1	26	58	1101	29	13	844	29
RTOR Reduction (vph)	0	7	0	0	0	21	0	1	0	0	2	0
Lane Group Flow (vph)	0	0	0	54	56	5	58	1129	0	13	871	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		17.2	17.2	17.2	6.4	52.6		1.8	48.0	
Effective Green, g (s)		1.4		17.2	17.2	17.2	6.4	52.6		1.8	48.0	
Actuated g/C Ratio		0.02		0.19	0.19	0.19	0.07	0.58		0.02	0.53	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	77	297	125	2058		35	1876	
v/s Ratio Prot		c0.00					0.03	c0.32		0.01	c0.25	
v/s Ratio Perm				0.13	c0.14	0.00						
v/c Ratio		0.00		0.69	0.73	0.02	0.46	0.55		0.37	0.46	
Uniform Delay, d1		43.6		33.9	34.2	29.5	40.2	11.4		43.5	13.0	
Progression Factor		1.00		1.00	1.00	1.00	1.07	0.63		1.00	1.00	
Incremental Delay, d2		0.0		19.2	24.9	0.0	0.9	1.0		2.4	0.8	
Delay (s)		43.6		53.2	59.1	29.5	44.1	8.2		46.0	13.9	
Level of Service		D		D	E	C	D	A		D	B	
Approach Delay (s)		43.6			51.1			9.9			14.3	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.3									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 17.0
Intersection Capacity Utilization			54.9%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing Plus Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	3	160	1167	8	985
v/c Ratio	0.46	0.01	0.65	0.42	0.06	0.46
Control Delay	29.4	0.0	48.7	6.5	32.6	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	0.0	48.7	6.5	32.6	13.5
Queue Length 50th (ft)	34	0	87	71	4	96
Queue Length 95th (ft)	65	0	141	305	m11	261
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	516	574	413	2778	413	2163
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.01	0.39	0.42	0.02	0.46

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	1	32	2	0	1	142	1029	10	7	828	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715			1714		1770	3533		1770	3505	
Flt Permitted		0.81			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1432			1529		1770	3533		1770	3505	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	60	1	36	2	0	1	160	1156	11	8	930	55
RTOR Reduction (vph)	0	32	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	65	0	0	0	0	160	1167	0	8	982	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.9			9.9		12.5	65.7		1.4	54.6	
Effective Green, g (s)		9.9			9.9		12.5	65.7		1.4	54.6	
Actuated g/C Ratio		0.11			0.11		0.14	0.73		0.02	0.61	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		157			168		245	2579		27	2126	
v/s Ratio Prot							c0.09	c0.33		0.00	0.28	
v/s Ratio Perm		c0.05			0.00							
v/c Ratio		0.41			0.00		0.65	0.45		0.30	0.46	
Uniform Delay, d1		37.3			35.7		36.7	4.9		43.8	9.7	
Progression Factor		1.00			1.00		1.00	1.00		0.82	1.06	
Incremental Delay, d2		0.6			0.0		4.7	0.6		2.1	0.7	
Delay (s)		38.0			35.7		41.4	5.5		38.1	10.9	
Level of Service		D			D		D	A		D	B	
Approach Delay (s)		38.0			35.7			9.8			11.1	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay		11.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		51.7%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Exising Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	291	43	211	24	538	1175	7	734	199
v/c Ratio	1.54	0.10	1.55	0.06	0.93	0.53	0.05	0.72	0.34
Control Delay	292.7	0.5	306.6	0.3	41.6	6.6	28.5	25.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	292.7	0.5	306.6	0.3	41.6	6.6	28.5	25.9	5.2
Queue Length 50th (ft)	~166	0	~121	0	195	126	3	138	1
Queue Length 95th (ft)	#301	0	#239	0	#345	94	13	197	43
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	189	432	136	427	599	2213	190	1020	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.54	0.10	1.55	0.06	0.90	0.53	0.04	0.72	0.34

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	6	39	157	33	22	484	937	121	6	661	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1776	1583		1789	1559	1770	3468		1770	3539	1563
Flt Permitted		0.47	1.00		0.34	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		879	1583		634	1559	1770	3468		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	284	7	43	174	37	24	538	1041	134	7	734	199
RTOR Reduction (vph)	0	0	34	0	0	19	0	12	0	0	0	140
Lane Group Flow (vph)	0	291	9	0	211	5	538	1163	0	7	734	59
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		14.0	14.0		14.0	14.0	21.3	38.9		1.1	18.7	18.7
Effective Green, g (s)		14.0	14.0		14.0	14.0	21.3	38.9		1.1	18.7	18.7
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.33	0.60		0.02	0.29	0.29
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		189	340		136	335	580	2075		29	1018	449
v/s Ratio Prot							c0.30	0.34		0.00	c0.21	
v/s Ratio Perm		0.33	0.01		c0.33	0.00						0.04
v/c Ratio		1.54	0.03		1.55	0.02	0.93	0.56		0.24	0.72	0.13
Uniform Delay, d1		25.5	20.1		25.5	20.1	21.1	7.9		31.5	20.8	17.1
Progression Factor		1.00	1.00		1.00	1.00	0.89	0.82		1.00	1.00	1.00
Incremental Delay, d2		267.5	0.0		281.0	0.0	18.1	0.9		1.6	4.4	0.6
Delay (s)		293.0	20.1		306.5	20.1	36.8	7.4		33.1	25.2	17.7
Level of Service		F	C		F	C	D	A		C	C	B
Approach Delay (s)		257.9			277.3			16.6			23.7	
Approach LOS		F			F			B			C	
Intersection Summary												
HCM 2000 Control Delay			62.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			76.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Exising Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	156	340	62	166	113	1379	4	40	903
v/c Ratio	0.68	0.61	0.21	0.40	0.48	0.61	0.00	0.25	0.48
Control Delay	40.3	8.1	23.6	7.4	32.5	10.2	0.0	18.0	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	8.1	23.6	7.4	32.5	10.2	0.0	18.0	19.1
Queue Length 50th (ft)	58	0	21	0	42	116	0	12	168
Queue Length 95th (ft)	#112	59	49	43	81	294	0	m16	m206
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	276	607	353	466	599	2258	1034	190	1889
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.56	0.18	0.36	0.19	0.61	0.00	0.21	0.48

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	136	6	309	18	38	151	103	1255	4	36	540	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected		0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1833	1560	1770	3539	1583	1770	3342	
Flt Permitted		0.69	1.00		0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1286	1583		1642	1560	1770	3539	1583	1770	3342	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	149	7	340	20	42	166	113	1379	4	40	593	310
RTOR Reduction (vph)	0	0	279	0	0	136	0	0	2	0	67	0
Lane Group Flow (vph)	0	156	61	0	62	30	113	1379	2	40	836	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		11.6	11.6		11.6	11.6	7.6	39.6	39.6	2.8	34.8	
Effective Green, g (s)		11.6	11.6		11.6	11.6	7.6	39.6	39.6	2.8	34.8	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.12	0.61	0.61	0.04	0.54	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		229	282		293	278	206	2156	964	76	1789	
v/s Ratio Prot							c0.06	c0.39		0.02	0.25	
v/s Ratio Perm		c0.12	0.04		0.04	0.02			0.00			
v/c Ratio		0.68	0.22		0.21	0.11	0.55	0.64	0.00	0.53	0.47	
Uniform Delay, d1		25.0	22.8		22.8	22.4	27.1	8.1	5.0	30.5	9.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.59	2.03	
Incremental Delay, d2		6.5	0.1		0.1	0.1	1.6	1.5	0.0	1.6	0.5	
Delay (s)		31.5	23.0		22.9	22.4	28.7	9.6	5.0	19.4	19.4	
Level of Service		C	C		C	C	C	A	A	B	B	
Approach Delay (s)		25.6			22.6			11.0			19.4	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		16.7										
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		62.5%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing Plus Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	693	321	964	107	764
v/c Ratio	0.80	0.55	0.52	0.58	0.38
Control Delay	38.3	7.4	17.8	54.9	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	7.4	17.8	54.9	12.9
Queue Length 50th (ft)	182	0	209	66	138
Queue Length 95th (ft)	250	74	294	116	181
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	923	605	1841	283	2008
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.53	0.52	0.38	0.38
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

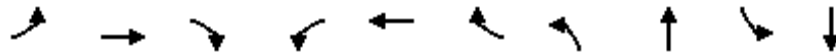
Hayward Crosspoint School
Existing Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	437	526	874	42	102	726
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3289	1416	3513		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3289	1416	3513		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	460	554	920	44	107	764
RTOR Reduction (vph)	69	243	3	0	0	0
Lane Group Flow (vph)	624	78	961	0	107	764
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	24.3	24.3	52.3		10.4	56.7
Effective Green, g (s)	24.3	24.3	52.3		10.4	56.7
Actuated g/C Ratio	0.24	0.24	0.52		0.10	0.57
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	799	344	1837		184	2006
v/s Ratio Prot	c0.19		c0.27		c0.06	0.22
v/s Ratio Perm		0.06				
v/c Ratio	0.78	0.23	0.52		0.58	0.38
Uniform Delay, d1	35.4	30.3	15.7		42.7	12.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.3	0.5	1.1		3.0	0.6
Delay (s)	40.6	30.8	16.7		45.7	12.5
Level of Service	D	C	B		D	B
Approach Delay (s)	37.5		16.7			16.6
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			24.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			60.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Exising Plus Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	149	196	43	242	784	259	105	1214	173	1105
v/c Ratio	0.77	0.24	0.10	0.88	0.81	0.51	1.84	0.66	0.84	0.58
Control Delay	81.0	40.7	1.5	83.8	51.0	22.9	470.7	37.9	87.2	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.0	40.7	1.5	83.8	51.0	22.9	470.7	37.9	87.2	33.2
Queue Length 50th (ft)	123	71	0	199	320	91	~134	323	143	265
Queue Length 95th (ft)	195	100	6	#331	386	172	#256	405	#249	338
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	552	57	1852	231	1917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.20	0.09	0.81	0.73	0.47	1.84	0.66	0.75	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations		 			 				  		 	  
Volume (vph)	136	178	39	220	713	236	16	79	1055	50	157	834
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.97
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1766	5038		1770	4935
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		572	5038		1770	4935
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	149	196	43	242	784	259	18	87	1159	55	173	916
RTOR Reduction (vph)	0	0	33	0	0	91	0	0	4	0	0	22
Lane Group Flow (vph)	149	196	10	242	784	168	0	105	1210	0	173	1083
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	14.2	29.6	29.6	20.3	35.7	35.7		13.0	47.7		15.2	49.9
Effective Green, g (s)	14.2	29.6	29.6	20.3	35.7	35.7		13.0	47.7		15.2	49.9
Actuated g/C Ratio	0.11	0.23	0.23	0.16	0.27	0.27		0.10	0.37		0.12	0.38
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	193	805	348	276	971	421		57	1848		206	1894
v/s Ratio Prot	0.08	0.06		c0.14	c0.22				c0.24		0.10	0.22
v/s Ratio Perm			0.01			0.11		c0.18				
v/c Ratio	0.77	0.24	0.03	0.88	0.81	0.40		1.84	0.65		0.84	0.57
Uniform Delay, d1	56.3	41.0	39.0	53.6	43.9	38.4		58.5	34.3		56.2	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	15.9	0.2	0.0	24.8	5.0	0.6		438.6	1.8		23.9	1.3
Delay (s)	72.2	41.2	39.1	78.4	48.9	39.0		497.1	36.1		80.1	32.9
Level of Service	E	D	D	E	D	D		F	D		F	C
Approach Delay (s)		52.9			52.5				72.8			39.3
Approach LOS		D			D				E			D
Intersection Summary												
HCM 2000 Control Delay			54.8				HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			80.7%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Exising Plus Project AM



Movement	SBR
AAA	
Left Lane Configurations	
Volume (vph)	172
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	189
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Exising Plus Project AM



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	386	994	1166	96	98	214	1
v/c Ratio	0.26	0.93	0.42	0.54	0.57	0.54	0.01
Control Delay	20.0	51.6	5.3	53.8	55.9	10.5	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	51.6	5.3	53.8	55.9	10.5	35.0
Queue Length 50th (ft)	78	340	103	69	70	0	1
Queue Length 95th (ft)	142	#455	240	108	111	59	5
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1488	1123	2761	330	317	545	297
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.89	0.42	0.29	0.31	0.39	0.00

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	275	92	944	1105	3	183	1	203	1	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)		3393		3433	3538		1681	1686	1554		1770	
Flt Permitted		1.00		0.95	1.00		0.76	0.73	1.00		0.65	
Satd. Flow (perm)		3393		3433	3538		1340	1289	1554		1208	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	289	97	994	1163	3	193	1	214	1	0	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	185	0	0	0
Lane Group Flow (vph)	0	362	0	994	1166	0	96	98	29	0	1	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		47.5		34.3	85.8		14.7	14.7	14.7		14.7	
Effective Green, g (s)		47.5		34.3	85.8		14.7	14.7	14.7		14.7	
Actuated g/C Ratio		0.43		0.31	0.78		0.13	0.13	0.13		0.13	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1465		1070	2759		179	172	207		161	
v/s Ratio Prot		0.11		c0.29	c0.33							
v/s Ratio Perm							0.07	c0.08	0.02		0.00	
v/c Ratio		0.25		0.93	0.42		0.54	0.57	0.14		0.01	
Uniform Delay, d1		19.9		36.7	4.0		44.5	44.7	42.1		41.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4		13.3	0.5		1.5	2.6	0.1		0.0	
Delay (s)		20.3		50.0	4.4		46.0	47.3	42.2		41.3	
Level of Service		C		D	A		D	D	D		D	
Approach Delay (s)		20.3			25.4			44.3			41.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			27.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			64.8%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School

Exising Plus Project AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	351	192	932	91	43	552	117	105	1259	1070
v/c Ratio	1.13	0.29	1.50	1.05	0.20	0.55	0.22	0.14	0.52	0.47	1.17
Control Delay	162.9	41.7	304.3	94.9	10.1	93.6	21.3	3.7	75.7	23.2	113.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	162.9	41.7	304.3	94.9	10.1	93.6	21.3	3.7	75.7	23.2	113.8
Queue Length 50th (ft)	~128	90	~251	~501	3	41	106	0	50	278	~1107
Queue Length 95th (ft)	#218	123	#413	#637	48	#93	134	34	82	320	#1373
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1196	128	890	451	79	2507	816	224	2654	916
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.29	1.50	1.05	0.20	0.54	0.22	0.14	0.47	0.47	1.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	226	284	63	190	923	90	43	546	116	104	1246	1059
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4925		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4925		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	228	287	64	192	932	91	43	552	117	105	1259	1070
RTOR Reduction (vph)	0	24	0	0	0	65	0	0	59	0	0	113
Lane Group Flow (vph)	228	327	0	192	932	26	43	552	58	105	1259	957
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.5	71.5	8.5	74.8	74.8
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.5	71.5	8.5	74.8	74.8
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.52	0.52
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1171		128	890	386	63	2507	756	201	2623	795
v/s Ratio Prot	0.07	0.07		c0.11	c0.26		0.02	0.11		c0.03	0.25	
v/s Ratio Perm						0.02			0.04			c0.62
v/c Ratio	1.13	0.28		1.50	1.05	0.07	0.68	0.22	0.08	0.52	0.48	1.20
Uniform Delay, d1	68.2	45.1		67.2	54.2	41.3	69.1	20.9	19.4	66.3	22.6	35.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	104.3	0.0		261.3	43.3	0.0	21.6	0.2	0.2	1.1	0.6	103.6
Delay (s)	172.5	45.1		328.6	97.5	41.3	90.6	21.1	19.6	67.4	23.2	138.7
Level of Service	F	D		F	F	D	F	C	B	E	C	F
Approach Delay (s)		95.3			129.8			25.0			75.9	
Approach LOS		F			F			C			E	
Intersection Summary												
HCM 2000 Control Delay	84.1			HCM 2000 Level of Service					F			
HCM 2000 Volume to Capacity ratio	1.18											
Actuated Cycle Length (s)	145.0			Sum of lost time (s)					20.0			
Intersection Capacity Utilization	110.0%			ICU Level of Service					H			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Existing Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	873	0	0	739
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	949	0	0	803
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			1176			644
pX, platoon unblocked	0.91	0.86			0.86	
vC, conflicting volume	1351	474			949	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	691	51			605	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	343	861			830	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	474	474	402	402	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	861	1700	1700	1700	1700	
Volume to Capacity	0.02	0.28	0.28	0.24	0.24	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.3	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.3	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			34.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Existing Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	925	64	9	789
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1005	70	10	858
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			382			
pX, platoon unblocked	0.81	0.81			0.81	
vC, conflicting volume	1489	538			1075	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1125	0			612	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	158	874			776	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	670	405	296	572		
Volume Left	0	0	10	0		
Volume Right	0	70	0	0		
cSH	1700	1700	776	1700		
Volume to Capacity	0.39	0.24	0.01	0.34		
Queue Length 95th (ft)	0	0	1	0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			31.5%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	270	265	12	27	569	1	383	205
v/c Ratio	0.78	0.76	0.13	0.15	0.24	0.01	0.20	0.22
Control Delay	54.6	52.9	44.7	45.4	9.9	48.0	15.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	52.9	44.7	45.4	9.9	48.0	15.0	3.4
Queue Length 50th (ft)	184	178	6	17	63	1	63	0
Queue Length 95th (ft)	255	249	25	44	177	7	132	46
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	101	183	2340	183	1899	924
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.48	0.12	0.15	0.24	0.01	0.20	0.22
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	499	3	12	8	1	3	26	546	0	1	368	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.95			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1677			1728		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.95			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1677			1728		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	520	3	12	8	1	3	27	569	0	1	383	205
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	0	0	0	103
Lane Group Flow (vph)	270	263	0	0	9	0	27	569	0	1	383	102
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	21.9	21.9			1.2		11.0	62.9		1.0	52.9	52.9
Effective Green, g (s)	21.9	21.9			1.2		11.0	62.9		1.0	52.9	52.9
Actuated g/C Ratio	0.21	0.21			0.01		0.10	0.59		0.01	0.50	0.50
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	347	346			19		183	2100		16	1766	772
v/s Ratio Prot	c0.16	0.16			c0.01		c0.02	c0.16		0.00	0.11	
v/s Ratio Perm												0.07
v/c Ratio	0.78	0.76			0.48		0.15	0.27		0.06	0.22	0.13
Uniform Delay, d1	39.8	39.6			52.1		43.2	10.4		52.0	14.9	14.2
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.6	8.6			6.7		1.7	0.3		0.6	0.3	0.4
Delay (s)	49.4	48.2			58.8		44.9	10.8		52.6	15.2	14.6
Level of Service	D	D			E		D	B		D	B	B
Approach Delay (s)		48.8			58.8			12.3			15.1	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			24.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			49.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	34	127	314	128	203	525	132	35	392	6
v/c Ratio	0.22	0.48	0.64	0.65	0.59	0.22	0.12	0.19	0.21	0.01
Control Delay	43.6	47.4	11.3	54.0	45.3	8.1	2.0	46.8	14.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	47.4	11.3	54.0	45.3	8.1	2.0	46.8	14.1	0.0
Queue Length 50th (ft)	21	81	0	76	126	72	0	22	66	0
Queue Length 95th (ft)	52	143	80	142	206	123	25	56	122	0
Internal Link Dist (ft)		790		717		557			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	293	498	644	358	732	2393	1091	661	2250	1000
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.26	0.49	0.36	0.28	0.22	0.12	0.05	0.17	0.01
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	32	121	298	54	36	31	47	146	499	125	33	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.97			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1545		1747			1770	3539	1551	1770	3539
Flt Permitted	0.59	1.00	1.00		0.72			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1097	1863	1545		1286			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	34	127	314	57	38	33	49	154	525	132	35	392
RTOR Reduction (vph)	0	0	270	0	9	0	0	0	0	44	0	0
Lane Group Flow (vph)	34	127	44	0	119	0	0	203	525	88	35	392
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	14.2	14.2	14.2		14.7			19.4	67.9	67.9	6.4	54.9
Effective Green, g (s)	14.2	14.2	14.2		14.7			19.4	67.9	67.9	6.4	54.9
Actuated g/C Ratio	0.14	0.14	0.14		0.14			0.19	0.67	0.67	0.06	0.54
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	152	259	215		185			336	2355	1032	111	1904
v/s Ratio Prot		0.07						c0.11	c0.15		0.02	0.11
v/s Ratio Perm	0.03		0.03		c0.09					0.06		
v/c Ratio	0.22	0.49	0.20		0.64			0.60	0.22	0.09	0.32	0.21
Uniform Delay, d1	39.0	40.6	38.9		41.2			37.8	6.7	6.0	45.7	12.2
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	4.1	1.3		7.4			5.4	0.2	0.2	4.6	0.2
Delay (s)	41.1	44.6	40.2		48.5			43.2	6.9	6.2	50.3	12.5
Level of Service	D	D	D		D			D	A	A	D	B
Approach Delay (s)		41.5			48.5				15.4			15.5
Approach LOS		D			D				B			B
Intersection Summary												
HCM 2000 Control Delay			24.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			102.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			61.6%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Existing With Project PM



Movement	SBR
Lane Configurations	
Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	6
RTOR Reduction (vph)	3
Lane Group Flow (vph)	3
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	54.9
Effective Green, g (s)	54.9
Actuated g/C Ratio	0.54
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	833
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.00
Uniform Delay, d1	10.9
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	10.9
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Existing With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	73	14	789	32	5	807
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	15	858	35	5	877
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			758			1064
pX, platoon unblocked	0.90	0.89			0.89	
vC, conflicting volume	1324	446			892	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1051	135			635	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	60	98			99	
cM capacity (veh/h)	199	793			841	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	79	15	572	321	298	585
Volume Left	79	0	0	0	5	0
Volume Right	0	15	0	35	0	0
cSH	199	793	1700	1700	841	1700
Volume to Capacity	0.40	0.02	0.34	0.19	0.01	0.34
Queue Length 95th (ft)	45	1	0	0	0	0
Control Delay (s)	34.6	9.6	0.0	0.0	0.2	0.0
Lane LOS	D	A			A	
Approach Delay (s)	30.6		0.0		0.1	
Approach LOS	D					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			36.5%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	20	20	14	2	908	19	921
v/c Ratio	0.12	0.19	0.19	0.04	0.01	0.36	0.12	0.34
Control Delay	0.9	36.5	36.5	0.2	45.5	6.9	39.3	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.9	36.5	36.5	0.2	45.5	6.9	39.3	9.0
Queue Length 50th (ft)	0	11	11	0	1	106	10	95
Queue Length 95th (ft)	0	28	28	0	m3	55	31	284
Internal Link Dist (ft)	163		472			468		303
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	409	231	231	534	177	2526	177	2674
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.09	0.09	0.03	0.01	0.36	0.11	0.34

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	0	20	39	0	14	2	819	62	18	891	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1642		1676	1676	1561	1770	3496		1770	3538	
Flt Permitted		0.87		0.51	0.51	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1448		905	905	1561	1770	3496		1770	3538	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	0	21	40	0	14	2	844	64	19	919	2
RTOR Reduction (vph)	0	32	0	0	0	13	0	3	0	0	0	0
Lane Group Flow (vph)	0	2	0	20	20	1	2	905	0	19	921	0
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		4.2		7.8	7.8	7.8	1.4	56.6		4.4	59.6	
Effective Green, g (s)		4.2		7.8	7.8	7.8	1.4	56.6		4.4	59.6	
Actuated g/C Ratio		0.05		0.09	0.09	0.09	0.02	0.63		0.05	0.66	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		67		78	78	135	27	2198		86	2342	
v/s Ratio Prot							0.00	c0.26		0.01	c0.26	
v/s Ratio Perm		c0.00		c0.02	0.02	0.00						
v/c Ratio		0.02		0.26	0.26	0.01	0.07	0.41		0.22	0.39	
Uniform Delay, d1		40.9		38.4	38.4	37.6	43.7	8.4		41.2	6.9	
Progression Factor		1.00		1.00	1.00	1.00	1.17	0.61		1.00	1.00	
Incremental Delay, d2		0.1		0.6	0.6	0.0	0.4	0.5		0.5	0.5	
Delay (s)		41.0		39.0	39.0	37.6	51.6	5.7		41.6	7.4	
Level of Service		D		D	D	D	D	A		D	A	
Approach Delay (s)		41.0			38.7			5.8			8.1	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.4									
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			48.0%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	132	17	33	881	4	976
v/c Ratio	0.52	0.09	0.23	0.33	0.03	0.40
Control Delay	21.9	23.9	42.7	5.9	33.5	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	23.9	42.7	5.9	33.5	10.0
Queue Length 50th (ft)	28	5	18	44	0	81
Queue Length 95th (ft)	67	20	46	213	m6	231
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	568	541	413	2657	413	2454
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.03	0.08	0.33	0.01	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School

Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	
Volume (vph)	44	5	80	8	2	7	32	843	12	4	890	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1708		1770	3531		1770	3502	
Flt Permitted		0.88			0.89		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1494			1562		1770	3531		1770	3502	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	45	5	82	8	2	7	33	869	12	4	918	58
RTOR Reduction (vph)	0	72	0	0	6	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	60	0	0	11	0	33	881	0	4	974	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		11.1			11.1		4.5	64.5		1.4	61.4	
Effective Green, g (s)		11.1			11.1		4.5	64.5		1.4	61.4	
Actuated g/C Ratio		0.12			0.12		0.05	0.72		0.02	0.68	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		184			192		88	2530		27	2389	
v/s Ratio Prot							c0.02	c0.25		0.00	c0.28	
v/s Ratio Perm		c0.04			0.01							
v/c Ratio		0.33			0.06		0.38	0.35		0.15	0.41	
Uniform Delay, d1		36.0			34.8		41.4	4.8		43.7	6.3	
Progression Factor		1.00			1.00		1.00	1.00		0.86	1.23	
Incremental Delay, d2		0.4			0.0		1.0	0.4		0.9	0.5	
Delay (s)		36.4			34.9		42.4	5.2		38.4	8.2	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		36.4			34.9			6.5			8.3	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.6									
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			42.8%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	271	125	78	8	270	736	6	902	100
v/c Ratio	0.95	0.28	0.40	0.02	0.87	0.32	0.05	0.56	0.13
Control Delay	74.5	6.9	32.6	0.1	72.7	5.3	34.2	16.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.5	6.9	32.6	0.1	72.7	5.3	34.2	16.9	3.4
Queue Length 50th (ft)	126	0	32	0	140	51	3	159	0
Queue Length 95th (ft)	#267	40	72	0	#254	m103	14	215	24
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	288	451	195	431	326	2270	163	1618	768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.28	0.40	0.02	0.83	0.32	0.04	0.56	0.13

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	237	26	121	64	12	8	262	642	72	6	875	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1782	1583		1787	1583	1770	3477		1770	3539	1561
Flt Permitted		0.69	1.00		0.47	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1289	1583		875	1583	1770	3477		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	244	27	125	66	12	8	270	662	74	6	902	100
RTOR Reduction (vph)	0	0	97	0	0	6	0	9	0	0	0	54
Lane Group Flow (vph)	0	271	28	0	78	2	270	727	0	6	902	46
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		16.8	16.8		16.8	16.8	13.4	47.1		1.1	34.8	34.8
Effective Green, g (s)		16.8	16.8		16.8	16.8	13.4	47.1		1.1	34.8	34.8
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.62		0.01	0.46	0.46
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		284	349		193	349	312	2154		25	1620	714
v/s Ratio Prot							c0.15	0.21		0.00	c0.25	
v/s Ratio Perm		c0.21	0.02		0.09	0.00						0.03
v/c Ratio		0.95	0.08		0.40	0.01	0.87	0.34		0.24	0.56	0.06
Uniform Delay, d1		29.2	23.5		25.3	23.1	30.4	6.9		37.0	15.0	11.5
Progression Factor		1.00	1.00		1.00	1.00	1.55	0.80		1.00	1.00	1.00
Incremental Delay, d2		40.5	0.0		0.5	0.0	19.9	0.4		1.8	1.4	0.2
Delay (s)		69.7	23.5		25.8	23.1	67.0	5.9		38.8	16.4	11.7
Level of Service		E	C		C	C	E	A		D	B	B
Approach Delay (s)		55.1			25.6			22.3			16.0	
Approach LOS		E			C			C			B	
Intersection Summary												
HCM 2000 Control Delay		25.1										
HCM 2000 Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		76.0								11.0		
Intersection Capacity Utilization		69.9%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	315	594	21	54	75	731	5	70	1036
v/c Ratio	0.99	0.94	0.06	0.13	0.42	0.36	0.01	0.48	0.54
Control Delay	80.3	38.5	23.8	2.2	38.7	10.1	0.0	44.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	38.5	23.8	2.2	38.7	10.1	0.0	44.0	6.7
Queue Length 50th (ft)	149	117	8	0	34	97	0	36	58
Queue Length 95th (ft)	#304	#327	25	9	70	134	0	m66	85
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	319	629	378	431	326	2010	903	163	1904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.94	0.06	0.13	0.23	0.36	0.01	0.43	0.54

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	227	76	570	6	14	52	72	702	5	67	725	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1583		1837	1583	1770	3539	1547	1770	3383	
Flt Permitted		0.77	1.00		0.91	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1428	1583		1692	1583	1770	3539	1547	1770	3383	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	236	79	594	6	15	54	75	731	5	70	755	281
RTOR Reduction (vph)	0	0	276	0	0	42	0	0	2	0	42	0
Lane Group Flow (vph)	0	315	318	0	21	12	75	731	3	70	994	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	6.7	42.6	42.6	5.4	41.3	
Effective Green, g (s)		17.0	17.0		17.0	17.0	6.7	42.6	42.6	5.4	41.3	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.09	0.56	0.56	0.07	0.54	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		319	354		378	354	156	1983	867	125	1838	
v/s Ratio Prot							0.04	0.21		c0.04	c0.29	
v/s Ratio Perm		c0.22	0.20		0.01	0.01			0.00			
v/c Ratio		0.99	0.90		0.06	0.03	0.48	0.37	0.00	0.56	0.54	
Uniform Delay, d1		29.4	28.7		23.2	23.1	33.0	9.3	7.4	34.2	11.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.03	0.52	
Incremental Delay, d2		46.4	23.9		0.0	0.0	0.9	0.5	0.0	3.0	1.0	
Delay (s)		75.8	52.5		23.2	23.1	33.8	9.8	7.4	38.3	6.9	
Level of Service		E	D		C	C	C	A	A	D	A	
Approach Delay (s)		60.6			23.1			12.0			8.9	
Approach LOS		E			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		26.3										
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		76.0										
Intersection Capacity Utilization		80.6%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing With Project PM



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	161	82	875	472	1002
v/c Ratio	0.44	0.41	0.41	1.67	0.39
Control Delay	25.4	15.9	10.2	345.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	15.9	10.2	345.1	6.2
Queue Length 50th (ft)	24	0	130	~441	112
Queue Length 95th (ft)	54	47	185	#634	162
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	894	428	2142	283	2547
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.19	0.41	1.67	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

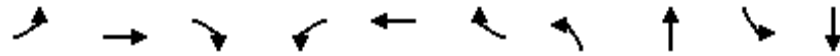
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Existing With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	74	154	675	148	444	942
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.92	0.85	0.97		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3207	1414	3436		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3207	1414	3436		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	79	164	718	157	472	1002
RTOR Reduction (vph)	75	75	13	0	0	0
Lane Group Flow (vph)	86	7	862	0	472	1002
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.0	9.0	62.0		16.0	72.0
Effective Green, g (s)	9.0	9.0	62.0		16.0	72.0
Actuated g/C Ratio	0.09	0.09	0.62		0.16	0.72
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	288	127	2130		283	2548
v/s Ratio Prot	c0.03		0.25		c0.27	c0.28
v/s Ratio Perm		0.01				
v/c Ratio	0.30	0.06	0.40		1.67	0.39
Uniform Delay, d1	42.6	41.6	9.6		42.0	5.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.3	0.6		315.7	0.5
Delay (s)	43.4	41.9	10.2		357.7	5.9
Level of Service	D	D	B		F	A
Approach Delay (s)	42.9		10.2			118.6
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			74.9		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			63.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	171	502	69	257	259	203	81	1233	273	939
v/c Ratio	0.82	0.74	0.17	0.87	0.30	0.44	1.31	0.71	4.48	0.43
Control Delay	80.3	52.1	0.8	76.0	37.3	17.4	260.5	37.6	1614.0	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.3	52.1	0.8	76.0	37.3	17.4	260.5	37.6	1614.0	25.4
Queue Length 50th (ft)	129	194	0	192	86	49	~81	305	~391	185
Queue Length 95th (ft)	#229	241	0	#320	117	113	#185	388	#563	243
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1727	61	2159
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.60	0.14	0.79	0.26	0.38	1.31	0.71	4.48	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		 			 				  			
Volume (vph)	162	477	66	244	246	193	43	34	1053	119	26	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.99
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1501	1770	3539	1536		1766	4956			1748
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1501	1770	3539	1536		930	4956			409
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	171	502	69	257	259	203	45	36	1108	125	27	246
RTOR Reduction (vph)	0	0	56	0	0	94	0	0	10	0	0	0
Lane Group Flow (vph)	171	502	13	257	259	109	0	81	1223	0	0	273
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	14.2	23.2	23.2	20.1	29.1	29.1		8.0	41.5			18.0
Effective Green, g (s)	14.2	23.2	23.2	20.1	29.1	29.1		8.0	41.5			18.0
Actuated g/C Ratio	0.12	0.19	0.19	0.17	0.24	0.24		0.07	0.35			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	209	684	290	296	858	372		62	1713			61
v/s Ratio Prot	0.10	c0.14		c0.15	0.07				c0.25			
v/s Ratio Perm			0.01			0.07		0.09				c0.67
v/c Ratio	0.82	0.73	0.05	0.87	0.30	0.29		1.31	0.71			4.48
Uniform Delay, d1	51.6	45.5	39.4	48.7	37.1	37.1		56.0	34.1			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	20.4	4.1	0.1	22.1	0.2	0.4		216.7	2.6			1601.1
Delay (s)	72.0	49.6	39.5	70.7	37.3	37.5		272.7	36.7			1652.1
Level of Service	E	D	D	E	D	D		F	D			F
Approach Delay (s)		53.8			49.3				51.2			
Approach LOS		D			D				D			
Intersection Summary												
HCM 2000 Control Delay			154.7				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			89.4%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

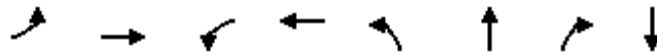
Existing With Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	808	84
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5004	
Flt Permitted	1.00	
Satd. Flow (perm)	5004	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	851	88
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	930	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	51.5	
Effective Green, g (s)	51.5	
Actuated g/C Ratio	0.43	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	2147	
v/s Ratio Prot	0.19	
v/s Ratio Perm		
v/c Ratio	0.43	
Uniform Delay, d1	24.0	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	24.7	
Level of Service	C	
Approach Delay (s)	391.2	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	3	1378	283	406	73	74	592	8
v/c Ratio	0.04	0.69	0.78	0.16	0.26	0.27	1.20	0.03
Control Delay	61.3	20.9	71.4	7.0	46.2	46.2	138.3	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	20.9	71.4	7.0	46.2	46.2	138.3	41.6
Queue Length 50th (ft)	3	405	120	51	54	55	~458	5
Queue Length 95th (ft)	13	478	167	88	103	104	#677	19
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	1996	396	2490	277	277	492	274
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.69	0.71	0.16	0.26	0.27	1.20	0.03

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	975	251	252	361	0	131	0	527	7	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3405		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	0.75	1.00		0.71	
Satd. Flow (perm)	1770	3405		3433	3539		1332	1332	1563		1316	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	1096	282	283	406	0	147	0	592	8	0	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	0	166	0	0	0
Lane Group Flow (vph)	3	1361	0	283	406	0	73	74	426	0	8	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	1.1	75.6		13.8	88.3		27.1	27.1	27.1		27.1	
Effective Green, g (s)	1.1	75.6		13.8	88.3		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.01	0.58		0.11	0.68		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	14	1980		364	2403		277	277	325		274	
v/s Ratio Prot	0.00	c0.40		c0.08	0.11							
v/s Ratio Perm							0.05	0.06	c0.27		0.01	
v/c Ratio	0.21	0.69		0.78	0.17		0.26	0.27	1.31		0.03	
Uniform Delay, d1	64.0	19.0		56.6	7.6		43.1	43.1	51.5		41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.8	2.0		9.2	0.2		0.2	0.2	160.0		0.0	
Delay (s)	66.8	20.9		65.8	7.7		43.3	43.3	211.4		41.0	
Level of Service	E	C		E	A		D	D	F		D	
Approach Delay (s)		21.0			31.6			178.0			41.0	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			64.8			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			86.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing With Project PM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	680	1049	223	382	142	60	1101	196	154	648	223
v/c Ratio	1.79	0.90	0.80	0.39	0.27	1.13	0.55	0.29	0.63	0.32	0.30
Control Delay	399.9	62.8	77.0	41.1	6.2	220.2	35.2	13.4	74.5	31.2	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	399.9	62.8	77.0	41.1	6.2	220.2	35.2	13.4	74.5	31.2	5.0
Queue Length 50th (ft)	~477	336	198	146	0	~63	286	42	71	151	0
Queue Length 95th (ft)	#602	394	275	179	47	#163	370	113	109	203	58
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1206	436	1327	670	53	2014	676	281	1998	745
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.79	0.87	0.51	0.29	0.21	1.13	0.55	0.29	0.55	0.32	0.30

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Existing With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations	 	  			 				  		  	  
Volume (vph)	660	947	71	216	371	138	24	34	1068	190	149	629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	5016		1770	3539	1549		1766	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	5016		1770	3539	1549		708	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	680	976	73	223	382	142	25	35	1101	196	154	648
RTOR Reduction (vph)	0	6	0	0	0	102	0	0	0	76	0	0
Lane Group Flow (vph)	680	1043	0	223	382	40	0	60	1101	120	154	648
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	32.4		22.1	39.0	39.0		10.5	55.4	55.4	10.1	55.0
Effective Green, g (s)	15.5	32.4		22.1	39.0	39.0		10.5	55.4	55.4	10.1	55.0
Actuated g/C Ratio	0.11	0.23		0.16	0.28	0.28		0.08	0.40	0.40	0.07	0.39
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1160		279	985	431		53	2012	601	247	1997
v/s Ratio Prot	c0.20	c0.21		c0.13	0.11				c0.22		0.04	0.13
v/s Ratio Perm						0.03		c0.08		0.08		
v/c Ratio	1.79	0.90		0.80	0.39	0.09		1.13	0.55	0.20	0.62	0.32
Uniform Delay, d1	62.2	52.2		56.8	40.8	37.4		64.8	32.6	27.8	63.1	29.6
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	365.7	9.2		13.8	0.1	0.0		164.6	1.1	0.7	3.5	0.4
Delay (s)	427.9	61.4		70.6	40.9	37.4		229.3	33.7	28.5	66.6	30.0
Level of Service	F	E		E	D	D		F	C	C	E	C
Approach Delay (s)		205.6			49.1				41.6			35.0
Approach LOS		F			D				D			D
Intersection Summary												
HCM 2000 Control Delay			99.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			88.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

11: Hesperian Blvd & Winton Ave

Existing With Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	216
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1554
Flt Permitted	1.00
Satd. Flow (perm)	1554
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	223
RTOR Reduction (vph)	135
Lane Group Flow (vph)	88
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	55.0
Effective Green, g (s)	55.0
Actuated g/C Ratio	0.39
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	610
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.14
Uniform Delay, d1	27.3
Progression Factor	1.00
Incremental Delay, d2	0.5
Delay (s)	27.8
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Existing With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	803	0	0	812
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	873	0	0	883
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			1185			637
pX, platoon unblocked	0.94	0.92			0.92	
vC, conflicting volume	1314	436			873	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1014	224			696	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	222	720			827	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	436	436	441	441	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	720	1700	1700	1700	1700	
Volume to Capacity	0.02	0.26	0.26	0.26	0.26	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			32.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Existing With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	821	32	4	876
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	892	35	4	952
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			383			
pX, platoon unblocked	0.88	0.88			0.88	
vC, conflicting volume	1395	464			927	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1167	105			634	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	163	814			828	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	595	332	322	635		
Volume Left	0	0	4	0		
Volume Right	0	35	0	0		
cSH	1700	1700	828	1700		
Volume to Capacity	0.35	0.20	0.01	0.37		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.2	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.1			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			30.3%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Background No Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	78	75	13	34	414	559	856
v/c Ratio	0.53	0.47	0.07	0.19	0.14	0.23	0.65
Control Delay	58.1	46.1	0.8	46.2	3.1	8.2	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	46.1	0.8	46.2	3.1	8.2	3.4
Queue Length 50th (ft)	54	41	0	21	22	68	0
Queue Length 95th (ft)	102	87	0	52	65	137	55
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	553	202	183	2914	2393	1325
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.06	0.19	0.14	0.23	0.65
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	6	16	7	0	6	32	380	9	0	525	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.94		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1647			1701		1770	3524			3539	1551
Flt Permitted	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1647			1701		1770	3524			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	130	6	17	7	0	6	34	404	10	0	559	856
RTOR Reduction (vph)	0	14	0	0	13	0	0	0	0	0	0	317
Lane Group Flow (vph)	78	61	0	0	0	0	34	414	0	0	559	539
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Effective Green, g (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Actuated g/C Ratio	0.08	0.08			0.01		0.10	0.77			0.63	0.63
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	131	128			16		183	2716			2226	975
v/s Ratio Prot	c0.05	0.04			c0.00		c0.02	0.12			0.16	
v/s Ratio Perm												c0.35
v/c Ratio	0.60	0.48			0.01		0.19	0.15			0.25	0.55
Uniform Delay, d1	47.2	46.8			52.0		43.4	3.2			8.7	11.2
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.8	1.0			0.1		2.2	0.1			0.3	2.3
Delay (s)	52.0	47.8			52.1		45.6	3.3			8.9	13.4
Level of Service	D	D			D		D	A			A	B
Approach Delay (s)		49.9			52.1			6.5			11.6	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			69.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background No Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	18	127	303	463	424	81	10	499	64
v/c Ratio	0.05	0.04	0.27	0.78	0.79	0.18	0.08	0.07	0.45	0.12
Control Delay	36.3	35.5	8.0	55.4	45.0	8.4	2.3	50.3	33.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	35.5	8.0	55.4	45.0	8.4	2.3	50.3	33.1	7.8
Queue Length 50th (ft)	6	10	0	208	301	53	0	7	157	0
Queue Length 95th (ft)	22	31	50	#359	436	105	21	25	211	32
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	189	438	464	387	644	2320	1065	581	1981	914
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.04	0.27	0.78	0.72	0.18	0.08	0.02	0.25	0.07

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	17	119	98	137	50	65	370	399	76	9	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1562		1782			1770	3539	1583	1770	3539
Flt Permitted	0.43	1.00	1.00		0.88			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	803	1863	1562		1595			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	18	127	104	146	53	69	394	424	81	10	499
RTOR Reduction (vph)	0	0	98	0	5	0	0	0	0	29	0	0
Lane Group Flow (vph)	10	18	29	0	298	0	0	463	424	52	10	499
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.5	26.5	26.5		27.0			37.4	73.9	73.9	2.0	38.5
Effective Green, g (s)	26.5	26.5	26.5		27.0			37.4	73.9	73.9	2.0	38.5
Actuated g/C Ratio	0.23	0.23	0.23		0.23			0.32	0.64	0.64	0.02	0.33
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	183	425	357		371			571	2256	1009	30	1175
v/s Ratio Prot		0.01						c0.26	0.12		0.01	c0.14
v/s Ratio Perm	0.01		0.02		c0.19					0.03		
v/c Ratio	0.05	0.04	0.08		0.80			0.81	0.19	0.05	0.33	0.42
Uniform Delay, d1	34.9	34.8	35.1		41.9			36.0	8.6	7.9	56.3	30.1
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3		11.8			10.1	0.2	0.1	17.6	1.1
Delay (s)	35.3	34.9	35.4		53.7			46.1	8.8	8.0	73.9	31.2
Level of Service	D	C	D		D			D	A	A	E	C
Approach Delay (s)		35.3			53.7				26.6			31.4
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			32.8			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			115.9			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			74.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Background No Project AM



Movement	SBR
Lane Configurations	
Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	64
RTOR Reduction (vph)	43
Lane Group Flow (vph)	21
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.5
Effective Green, g (s)	38.5
Actuated g/C Ratio	0.33
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	525
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	26.2
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	26.3
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Background No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	900	0	0	720
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	978	0	0	783
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.86	0.81			0.81	
vC, conflicting volume	1370	489			978	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	614	0			512	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	364	881			853	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	652	326	261	522
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	853	1700
Volume to Capacity	0.00	0.00	0.38	0.19	0.00	0.31
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			28.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background No Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	61	64	30	65	1025	18	797
v/c Ratio	0.01	0.79	0.84	0.06	0.42	0.50	0.12	0.42
Control Delay	0.0	90.6	101.2	0.2	48.4	10.6	39.2	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	90.6	101.2	0.2	48.4	10.6	39.2	15.7
Queue Length 50th (ft)	0	33	35	0	36	159	10	141
Queue Length 95th (ft)	0	#104	#111	0	59	114	30	243
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	660	85	84	533	177	2059	177	1881
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.72	0.76	0.06	0.37	0.50	0.10	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	7	109	3	27	58	883	29	16	680	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1688	1559	1770	3519		1770	3514	
Flt Permitted		1.00		0.19	0.19	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		337	329	1559	1770	3519		1770	3514	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	8	122	3	30	65	992	33	18	764	33
RTOR Reduction (vph)	0	8	0	0	0	23	0	2	0	0	3	0
Lane Group Flow (vph)	0	0	0	61	64	7	65	1023	0	18	794	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Effective Green, g (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Actuated g/C Ratio		0.02		0.23	0.23	0.23	0.07	0.52		0.04	0.49	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	76	363	127	1837		70	1721	
v/s Ratio Prot		c0.00					0.04	c0.29		0.01	c0.23	
v/s Ratio Perm				0.18	c0.19	0.00						
v/c Ratio		0.01		0.78	0.84	0.02	0.51	0.56		0.26	0.46	
Uniform Delay, d1		43.6		32.4	32.9	26.6	40.2	14.5		41.9	15.1	
Progression Factor		1.00		1.00	1.00	1.00	1.05	0.70		1.00	1.00	
Incremental Delay, d2		0.0		36.3	52.0	0.0	1.4	1.2		0.7	0.9	
Delay (s)		43.6		68.6	84.9	26.6	43.5	11.3		42.6	16.0	
Level of Service		D		E	F	C	D	B		D	B	
Approach Delay (s)		43.6			67.2			13.2			16.6	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.7									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 17.0
Intersection Capacity Utilization			52.7%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

Queues

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background No Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	7	164	1049	11	911
v/c Ratio	0.51	0.03	0.66	0.38	0.08	0.43
Control Delay	31.4	0.2	48.6	6.3	34.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	0.2	48.6	6.3	34.3	12.9
Queue Length 50th (ft)	41	0	89	65	6	85
Queue Length 95th (ft)	76	0	143	263	m15	236
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	519	597	413	2760	413	2135
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.01	0.40	0.38	0.03	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School

Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	3	37	4	0	3	146	922	12	10	755	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715			1697		1770	3532		1770	3497	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1437			1597		1770	3532		1770	3497	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	3	42	4	0	3	164	1036	13	11	848	63
RTOR Reduction (vph)	0	33	0	0	6	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	78	0	0	1	0	164	1049	0	11	908	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Effective Green, g (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Actuated g/C Ratio		0.11			0.11		0.14	0.73		0.02	0.60	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		162			180		249	2566		27	2102	
v/s Ratio Prot							c0.09	0.30		0.01	c0.26	
v/s Ratio Perm		c0.05			0.00							
v/c Ratio		0.48			0.00		0.66	0.41		0.41	0.43	
Uniform Delay, d1		37.4			35.4		36.6	4.8		43.9	9.7	
Progression Factor		1.00			1.00		1.00	1.00		0.85	1.02	
Incremental Delay, d2		0.8			0.0		4.7	0.5		3.3	0.6	
Delay (s)		38.3			35.4		41.3	5.3		40.8	10.4	
Level of Service		D			D		D	A		D	B	
Approach Delay (s)		38.3			35.4			10.1			10.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay		11.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		49.6%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Background No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	172	51	237	29	592	1210	8	662	221
v/c Ratio	1.01	0.12	1.01	0.07	0.99	0.55	0.06	0.68	0.37
Control Delay	104.0	0.7	91.8	0.3	52.9	6.6	28.6	25.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.0	0.7	91.8	0.3	52.9	6.6	28.6	25.0	5.2
Queue Length 50th (ft)	~70	0	~95	0	221	110	3	122	0
Queue Length 95th (ft)	#182	2	#225	0	#382	95	15	175	45
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	170	432	235	427	599	2206	190	980	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.12	1.01	0.07	0.99	0.55	0.04	0.68	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	7	46	175	39	26	533	940	149	7	596	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1778	1583		1790	1559	1770	3453		1770	3539	1563
Flt Permitted		0.42	1.00		0.59	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		790	1583		1095	1559	1770	3453		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	164	8	51	194	43	29	592	1044	166	8	662	221
RTOR Reduction (vph)	0	0	40	0	0	23	0	16	0	0	0	160
Lane Group Flow (vph)	0	172	11	0	237	6	592	1194	0	8	662	61
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		14.0	14.0		14.0	14.0	22.0	38.9		1.1	18.0	18.0
Effective Green, g (s)		14.0	14.0		14.0	14.0	22.0	38.9		1.1	18.0	18.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.34	0.60		0.02	0.28	0.28
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		170	340		235	335	599	2066		29	980	432
v/s Ratio Prot							c0.33	0.35		0.00	c0.19	
v/s Ratio Perm		c0.22	0.01		0.22	0.00						0.04
v/c Ratio		1.01	0.03		1.01	0.02	0.99	0.58		0.28	0.68	0.14
Uniform Delay, d1		25.5	20.1		25.5	20.1	21.4	8.0		31.6	20.9	17.7
Progression Factor		1.00	1.00		1.00	1.00	0.89	0.80		1.00	1.00	1.00
Incremental Delay, d2		72.1	0.0		60.9	0.0	29.9	1.0		1.9	3.7	0.7
Delay (s)		97.6	20.2		86.4	20.1	49.0	7.4		33.4	24.6	18.4
Level of Service		F	C		F	C	D	A		C	C	B
Approach Delay (s)		79.9			79.2			21.0			23.2	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay		30.6										
HCM 2000 Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		74.4%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Background No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	163	388	68	173	132	1438	5	41	859
v/c Ratio	0.71	0.64	0.23	0.41	0.53	0.64	0.00	0.26	0.47
Control Delay	41.8	8.3	23.8	7.3	32.7	10.8	0.0	21.1	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	8.3	23.8	7.3	32.7	10.8	0.0	21.1	19.7
Queue Length 50th (ft)	60	0	23	0	49	128	0	14	154
Queue Length 95th (ft)	#127	63	52	44	91	315	0	m19	m234
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	275	645	349	471	599	2247	1029	190	1841
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.60	0.19	0.37	0.22	0.64	0.00	0.22	0.47

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	7	353	21	41	157	120	1309	5	37	577	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1832	1560	1770	3539	1583	1770	3389	
Flt Permitted		0.69	1.00		0.87	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1280	1583		1623	1560	1770	3539	1583	1770	3389	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	8	388	23	45	173	132	1438	5	41	634	225
RTOR Reduction (vph)	0	0	318	0	0	142	0	0	2	0	36	0
Lane Group Flow (vph)	0	163	70	0	68	31	132	1438	3	41	823	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		11.8	11.8		11.8	11.8	8.2	39.4	39.4	2.8	34.0	
Effective Green, g (s)		11.8	11.8		11.8	11.8	8.2	39.4	39.4	2.8	34.0	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.13	0.61	0.61	0.04	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		232	287		294	283	223	2145	959	76	1772	
v/s Ratio Prot							c0.07	c0.41		0.02	0.24	
v/s Ratio Perm		c0.13	0.04		0.04	0.02			0.00			
v/c Ratio		0.70	0.25		0.23	0.11	0.59	0.67	0.00	0.54	0.46	
Uniform Delay, d1		25.0	22.8		22.7	22.2	26.8	8.5	5.1	30.5	9.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.67	1.83	
Incremental Delay, d2		7.6	0.2		0.1	0.1	2.8	1.7	0.0	2.5	0.6	
Delay (s)		32.6	22.9		22.9	22.3	29.6	10.2	5.1	23.0	18.5	
Level of Service		C	C		C	C	C	B	A	C	B	
Approach Delay (s)		25.8			22.4			11.8			18.7	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		16.8										
HCM 2000 Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		64.4%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background No Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	731	336	1015	115	842
v/c Ratio	0.83	0.56	0.56	0.60	0.42
Control Delay	40.3	7.6	18.9	54.9	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	7.6	18.9	54.9	13.6
Queue Length 50th (ft)	198	2	226	71	157
Queue Length 95th (ft)	268	80	318	122	202
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	921	613	1808	283	1991
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.55	0.56	0.41	0.42
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

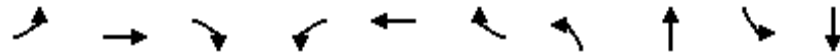
Hayward Crosspoint School
Background No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	464	550	914	50	109	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3291	1416	3509		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3291	1416	3509		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	488	579	962	53	115	842
RTOR Reduction (vph)	66	250	3	0	0	0
Lane Group Flow (vph)	665	86	1012	0	115	842
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	24.7	24.7	51.5		10.8	56.3
Effective Green, g (s)	24.7	24.7	51.5		10.8	56.3
Actuated g/C Ratio	0.25	0.25	0.52		0.11	0.56
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	812	349	1807		191	1992
v/s Ratio Prot	c0.20		c0.29		c0.06	0.24
v/s Ratio Perm		0.06				
v/c Ratio	0.82	0.25	0.56		0.60	0.42
Uniform Delay, d1	35.5	30.2	16.5		42.6	12.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	0.5	1.3		3.6	0.7
Delay (s)	42.3	30.7	17.8		46.2	13.2
Level of Service	D	C	B		D	B
Approach Delay (s)	38.7		17.8			17.2
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			24.9		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			62.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Background No Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	204	48	290	791	273	128	1278	214	1364
v/c Ratio	0.78	0.26	0.12	0.97	0.81	0.53	2.25	0.72	0.94	0.72
Control Delay	81.9	41.5	2.7	98.6	51.1	23.6	639.0	40.5	102.6	37.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	41.5	2.7	98.6	51.1	23.6	639.0	40.5	102.6	37.4
Queue Length 50th (ft)	128	74	0	246	323	98	~174	349	181	358
Queue Length 95th (ft)	202	104	10	#426	391	183	#305	432	#335	445
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	555	57	1775	231	1902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.21	0.10	0.97	0.74	0.49	2.25	0.72	0.93	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	141	186	44	264	720	248	18	98	1102	61	195	1061
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1767	5031		1770	4957
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		572	5031		1770	4957
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	204	48	290	791	273	20	108	1211	67	214	1166
RTOR Reduction (vph)	0	0	38	0	0	94	0	0	5	0	0	17
Lane Group Flow (vph)	155	204	10	290	791	179	0	128	1273	0	214	1347
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Effective Green, g (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Actuated g/C Ratio	0.11	0.22	0.22	0.17	0.28	0.28		0.10	0.35		0.13	0.38
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	198	773	334	299	974	422		57	1768		227	1883
v/s Ratio Prot	0.09	0.06		c0.16	c0.22				0.25		0.12	c0.27
v/s Ratio Perm			0.01			0.12		c0.22				
v/c Ratio	0.78	0.26	0.03	0.97	0.81	0.42		2.25	0.72		0.94	0.72
Uniform Delay, d1	56.2	42.1	40.0	53.7	44.0	38.6		58.5	36.6		56.2	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	16.8	0.2	0.0	43.2	5.2	0.7		612.6	2.6		43.4	2.4
Delay (s)	72.9	42.3	40.0	96.8	49.2	39.3		671.1	39.2		99.6	36.7
Level of Service	E	D	D	F	D	D		F	D		F	D
Approach Delay (s)		53.7			57.4				96.7			45.2
Approach LOS		D			E				F			D
Intersection Summary												
HCM 2000 Control Delay			64.7				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			83.2%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis 9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Background No Project AM

Movement	SBR
Lane Configurations	
Volume (vph)	180
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frbp, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	198
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background No Project AM



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	403	1041	1190	104	102	227	3
v/c Ratio	0.28	0.95	0.43	0.58	0.59	0.56	0.02
Control Delay	20.5	54.1	5.4	55.6	56.4	10.4	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	54.1	5.4	55.6	56.4	10.4	36.0
Queue Length 50th (ft)	82	363	108	74	73	0	2
Queue Length 95th (ft)	147	#492	247	116	115	60	9
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1457	1123	2752	329	318	555	291
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.93	0.43	0.32	0.32	0.41	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	100	989	1126	5	193	3	216	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)		3387		3433	3537		1681	1688	1554		1770	
Flt Permitted		1.00		0.95	1.00		0.76	0.73	1.00		0.63	
Satd. Flow (perm)		3387		3433	3537		1338	1293	1554		1182	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	298	105	1041	1185	5	203	3	227	3	0	0
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	196	0	0	0
Lane Group Flow (vph)	0	376	0	1041	1190	0	104	102	31	0	3	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		46.5		35.2	85.7		14.8	14.8	14.8		14.8	
Effective Green, g (s)		46.5		35.2	85.7		14.8	14.8	14.8		14.8	
Actuated g/C Ratio		0.42		0.32	0.78		0.13	0.13	0.13		0.13	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1431		1098	2755		180	173	209		159	
v/s Ratio Prot		0.11		c0.30	c0.34							
v/s Ratio Perm							0.08	c0.08	0.02		0.00	
v/c Ratio		0.26		0.95	0.43		0.58	0.59	0.15		0.02	
Uniform Delay, d1		20.6		36.5	4.0		44.7	44.7	42.0		41.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.4		15.9	0.5		2.8	3.3	0.1		0.0	
Delay (s)		21.1		52.4	4.5		47.4	48.0	42.1		41.3	
Level of Service		C		D	A		D	D	D		D	
Approach Delay (s)		21.1			26.9			44.8			41.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			28.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			66.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School

Background No Project AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	244	361	220	941	102	49	717	137	115	1552	1107
v/c Ratio	1.21	0.30	1.72	1.06	0.23	0.63	0.29	0.17	0.56	0.58	1.21
Control Delay	187.6	40.6	391.5	97.7	12.2	100.9	22.3	5.9	77.1	25.4	132.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	187.6	40.6	391.5	97.7	12.2	100.9	22.3	5.9	77.1	25.4	132.2
Queue Length 50th (ft)	~144	90	~305	~511	10	46	144	13	55	372	~1188
Queue Length 95th (ft)	#236	123	#478	#646	59	#108	175	50	89	421	#1456
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1198	128	890	452	79	2501	811	224	2654	913
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.30	1.72	1.06	0.23	0.62	0.29	0.17	0.51	0.58	1.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background No Project AM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	242	284	73	218	932	101	49	710	136	114	1536	1096	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5	
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3433	4905		1770	3539	1535	1770	5085	1535	3433	5085	1542	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3433	4905		1770	3539	1535	1770	5085	1535	3433	5085	1542	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Adj. Flow (vph)	244	287	74	220	941	102	49	717	137	115	1552	1107	
RTOR Reduction (vph)	0	32	0	0	0	66	0	0	56	0	0	109	
Lane Group Flow (vph)	244	329	0	220	941	36	49	717	81	115	1552	998	
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9	
Confl. Bikes (#/hr)			1			9			3			6	
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	3	8		7	4		5	2		1	6		
Permitted Phases						4			2			6	
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8	
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8	
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.52	0.52	
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	201	1167		128	890	386	63	2500	754	205	2623	795	
v/s Ratio Prot	0.07	0.07		c0.12	c0.27		0.03	0.14		c0.03	0.31		
v/s Ratio Perm						0.02			0.05			c0.65	
v/c Ratio	1.21	0.28		1.72	1.06	0.09	0.78	0.29	0.11	0.56	0.59	1.25	
Uniform Delay, d1	68.2	45.1		67.2	54.2	41.6	69.3	21.8	19.8	66.3	24.5	35.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	133.0	0.0		354.1	46.5	0.0	41.1	0.3	0.3	2.1	1.0	124.9	
Delay (s)	201.3	45.2		421.4	100.7	41.6	110.4	22.1	20.1	68.4	25.4	160.0	
Level of Service	F	D		F	F	D	F	C	C	E	C	F	
Approach Delay (s)		108.1			151.8			26.6			80.9		
Approach LOS		F			F			C			F		
Intersection Summary													
HCM 2000 Control Delay			91.2									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.24										
Actuated Cycle Length (s)			145.0							20.0			
Intersection Capacity Utilization			112.5%							H			
Analysis Period (min)			15										
c Critical Lane Group													

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Background No Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	276	277	22	34	607	3	395	218
v/c Ratio	0.78	0.78	0.23	0.19	0.27	0.04	0.22	0.24
Control Delay	53.6	53.2	46.1	46.2	11.6	49.0	17.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	53.2	46.1	46.2	11.6	49.0	17.0	3.8
Queue Length 50th (ft)	188	186	11	21	70	2	66	0
Queue Length 95th (ft)	256	255	37	52	196	12	138	48
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	103	183	2245	183	1807	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.50	0.21	0.19	0.27	0.02	0.22	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	510	5	16	13	3	5	33	583	0	3	379	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1675			1741		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1675			1741		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	531	5	17	14	3	5	34	607	0	3	395	218
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	0	0	0	113
Lane Group Flow (vph)	276	275	0	0	17	0	34	607	0	3	395	105
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	22.5	22.5			2.4		11.0	61.0		1.1	51.1	51.1
Effective Green, g (s)	22.5	22.5			2.4		11.0	61.0		1.1	51.1	51.1
Actuated g/C Ratio	0.21	0.21			0.02		0.10	0.58		0.01	0.48	0.48
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	356	355			39		183	2036		18	1706	746
v/s Ratio Prot	c0.16	0.16			c0.01		c0.02	c0.17		0.00	0.11	
v/s Ratio Perm												0.07
v/c Ratio	0.78	0.77			0.44		0.19	0.30		0.17	0.23	0.14
Uniform Delay, d1	39.4	39.3			51.1		43.4	11.5		52.0	16.0	15.3
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.3	9.2			2.9		2.2	0.4		1.6	0.3	0.4
Delay (s)	48.6	48.6			54.0		45.6	11.9		53.6	16.3	15.6
Level of Service	D	D			D		D	B		D	B	B
Approach Delay (s)		48.6			54.0			13.7			16.3	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			25.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			53.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background No Project PM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	134	340	145	221	547	133	43	404	7
v/c Ratio	0.25	0.47	0.65	0.69	0.63	0.24	0.13	0.23	0.22	0.01
Control Delay	44.3	47.1	10.6	57.2	47.9	9.9	2.2	49.4	15.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	47.1	10.6	57.2	47.9	9.9	2.2	49.4	15.8	0.0
Queue Length 50th (ft)	25	86	0	89	141	81	0	28	74	0
Queue Length 95th (ft)	58	149	81	162	229	141	27	67	136	0
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	267	472	646	334	694	2268	1041	626	2132	950
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.28	0.53	0.43	0.32	0.24	0.13	0.07	0.19	0.01
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	38	127	323	60	41	37	32	178	520	126	41	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1547		1745			1770	3539	1551	1770	3539
Flt Permitted	0.57	1.00	1.00		0.71			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1054	1863	1547		1264			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	134	340	63	43	39	34	187	547	133	43	404
RTOR Reduction (vph)	0	0	288	0	9	0	0	0	0	48	0	0
Lane Group Flow (vph)	40	134	52	0	136	0	0	221	547	85	43	404
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	16.3	16.3	16.3		16.8			21.0	67.7	67.7	9.0	55.7
Effective Green, g (s)	16.3	16.3	16.3		16.8			21.0	67.7	67.7	9.0	55.7
Actuated g/C Ratio	0.15	0.15	0.15		0.16			0.20	0.64	0.64	0.08	0.52
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	161	285	236		199			349	2249	985	149	1850
v/s Ratio Prot		0.07						c0.12	c0.15		0.02	0.11
v/s Ratio Perm	0.04		0.03		c0.11					0.05		
v/c Ratio	0.25	0.47	0.22		0.68			0.63	0.24	0.09	0.29	0.22
Uniform Delay, d1	39.7	41.2	39.5		42.3			39.2	8.4	7.5	45.7	13.7
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	3.4	1.3		9.3			6.1	0.3	0.2	3.0	0.3
Delay (s)	42.0	44.6	40.9		51.6			45.4	8.6	7.6	48.8	13.9
Level of Service	D	D	D		D			D	A	A	D	B
Approach Delay (s)		41.9			51.6				17.5			17.2
Approach LOS		D			D				B			B
Intersection Summary												
HCM 2000 Control Delay			26.1			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			106.5			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			65.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Background No Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	7
RTOR Reduction (vph)	3
Lane Group Flow (vph)	4
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	55.7
Effective Green, g (s)	55.7
Actuated g/C Ratio	0.52
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	810
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.00
Uniform Delay, d1	12.1
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	12.2
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Background No Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	824	0	0	810
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	896	0	0	880
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.90	0.89			0.89	
vC, conflicting volume	1336	448			896	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1023	135			638	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	209	792			839	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	597	299	293	587	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	839	1700	
Volume to Capacity	0.00	0.35	0.18	0.00	0.35	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			26.1%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background No Project PM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	22	23	15	4	888	22	849
v/c Ratio	0.15	0.21	0.22	0.04	0.03	0.35	0.14	0.32
Control Delay	1.2	37.2	37.6	0.3	43.5	7.0	39.7	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.2	37.2	37.6	0.3	43.5	7.0	39.7	8.8
Queue Length 50th (ft)	0	12	13	0	2	106	12	86
Queue Length 95th (ft)	0	30	31	0	m6	66	35	256
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	407	228	228	534	177	2521	177	2668
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.10	0.10	0.03	0.02	0.35	0.12	0.32

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	0	24	44	0	15	4	792	70	21	820	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1650		1677	1677	1561	1770	3490		1770	3536	
Flt Permitted		0.85		0.51	0.51	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1437		894	894	1561	1770	3490		1770	3536	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	18	0	25	45	0	15	4	816	72	22	845	4
RTOR Reduction (vph)	0	41	0	0	0	14	0	4	0	0	0	0
Lane Group Flow (vph)	0	2	0	22	23	1	4	884	0	22	849	0
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		4.2		7.9	7.9	7.9	1.4	56.5		4.4	59.5	
Effective Green, g (s)		4.2		7.9	7.9	7.9	1.4	56.5		4.4	59.5	
Actuated g/C Ratio		0.05		0.09	0.09	0.09	0.02	0.63		0.05	0.66	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		67		78	78	137	27	2190		86	2337	
v/s Ratio Prot							0.00	c0.25		0.01	c0.24	
v/s Ratio Perm		c0.00		0.02	c0.03	0.00						
v/c Ratio		0.03		0.28	0.29	0.01	0.15	0.40		0.26	0.36	
Uniform Delay, d1		41.0		38.4	38.4	37.5	43.7	8.4		41.2	6.8	
Progression Factor		1.00		1.00	1.00	1.00	1.12	0.63		1.00	1.00	
Incremental Delay, d2		0.1		0.7	0.8	0.0	0.9	0.5		0.6	0.4	
Delay (s)		41.0		39.1	39.2	37.5	49.9	5.8		41.8	7.2	
Level of Service		D		D	D	D	D	A		D	A	
Approach Delay (s)		41.0			38.7			6.0			8.1	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.8									
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			47.5%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background No Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	143	20	36	836	5	926
v/c Ratio	0.55	0.10	0.25	0.32	0.04	0.38
Control Delay	23.3	23.6	43.0	5.9	34.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	23.6	43.0	5.9	34.2	9.6
Queue Length 50th (ft)	32	7	20	44	3	76
Queue Length 95th (ft)	73	22	48	200	m10	211
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	566	546	413	2645	413	2439
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.09	0.32	0.01	0.38

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	6	82	8	4	8	35	797	14	5	837	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1667			1717		1770	3529		1770	3497	
Flt Permitted		0.87			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1481			1571		1770	3529		1770	3497	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	6	85	8	4	8	36	822	14	5	863	63
RTOR Reduction (vph)	0	74	0	0	7	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	69	0	0	13	0	36	835	0	5	923	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		11.3			11.3		4.6	64.3		1.4	61.1	
Effective Green, g (s)		11.3			11.3		4.6	64.3		1.4	61.1	
Actuated g/C Ratio		0.13			0.13		0.05	0.71		0.02	0.68	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		185			197		90	2521		27	2374	
v/s Ratio Prot							c0.02	c0.24		0.00	c0.26	
v/s Ratio Perm		c0.05			0.01							
v/c Ratio		0.37			0.07		0.40	0.33		0.19	0.39	
Uniform Delay, d1		36.1			34.7		41.4	4.8		43.7	6.3	
Progression Factor		1.00			1.00		1.00	1.00		0.87	1.18	
Incremental Delay, d2		0.5			0.1		1.1	0.4		1.2	0.5	
Delay (s)		36.6			34.7		42.4	5.2		39.4	7.9	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		36.6			34.7			6.7			8.1	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.8									
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			46.7%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background No Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	225	180	86	8	314	789	7	832	116
v/c Ratio	0.85	0.39	0.46	0.02	0.96	0.34	0.06	0.50	0.15
Control Delay	58.1	7.0	34.6	0.1	87.5	4.8	34.3	15.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	7.0	34.6	0.1	87.5	4.8	34.3	15.8	3.4
Queue Length 50th (ft)	100	0	35	0	164	53	3	143	1
Queue Length 95th (ft)	#210	47	78	0	#311	m106	15	194	27
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	292	493	207	431	326	2325	163	1657	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.37	0.42	0.02	0.96	0.34	0.04	0.50	0.15

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	182	36	175	70	14	8	305	662	104	7	807	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1788	1583		1788	1583	1770	3456		1770	3539	1561
Flt Permitted		0.70	1.00		0.50	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1308	1583		926	1583	1770	3456		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	188	37	180	72	14	8	314	682	107	7	832	116
RTOR Reduction (vph)	0	0	144	0	0	6	0	13	0	0	0	61
Lane Group Flow (vph)	0	225	36	0	86	2	314	776	0	7	832	55
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		15.4	15.4		15.4	15.4	14.0	48.5		1.1	35.6	35.6
Effective Green, g (s)		15.4	15.4		15.4	15.4	14.0	48.5		1.1	35.6	35.6
Actuated g/C Ratio		0.20	0.20		0.20	0.20	0.18	0.64		0.01	0.47	0.47
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		265	320		187	320	326	2205		25	1657	731
v/s Ratio Prot							c0.18	0.22		0.00	c0.24	
v/s Ratio Perm		c0.17	0.02		0.09	0.00						0.04
v/c Ratio		0.85	0.11		0.46	0.01	0.96	0.35		0.28	0.50	0.08
Uniform Delay, d1		29.2	24.7		26.6	24.2	30.7	6.4		37.1	14.0	11.1
Progression Factor		1.00	1.00		1.00	1.00	1.52	0.76		1.00	1.00	1.00
Incremental Delay, d2		20.8	0.1		0.7	0.0	38.1	0.4		2.2	1.1	0.2
Delay (s)		50.0	24.8		27.3	24.2	84.8	5.2		39.3	15.1	11.3
Level of Service		D	C		C	C	F	A		D	B	B
Approach Delay (s)		38.8			27.0			27.9			14.8	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			24.7				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			67.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Background No Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	335	686	25	57	97	818	10	77	1016
v/c Ratio	1.05	1.10	0.07	0.13	0.49	0.41	0.01	0.52	0.54
Control Delay	97.5	84.8	24.0	2.5	39.4	10.5	0.0	45.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.5	84.8	24.0	2.5	39.4	10.5	0.0	45.9	7.8
Queue Length 50th (ft)	~176	~235	9	0	44	113	0	40	66
Queue Length 95th (ft)	#329	#440	29	10	84	153	0	m80	100
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	318	622	369	431	326	2008	902	163	1872
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.10	0.07	0.13	0.30	0.41	0.01	0.47	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	81	659	7	17	55	93	785	10	74	759	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1583		1837	1583	1770	3539	1547	1770	3412	
Flt Permitted		0.76	1.00		0.89	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1423	1583		1650	1583	1770	3539	1547	1770	3412	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	251	84	686	7	18	57	97	818	10	77	791	225
RTOR Reduction (vph)	0	0	269	0	0	44	0	0	4	0	29	0
Lane Group Flow (vph)	0	335	417	0	25	13	97	818	6	77	987	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	7.5	42.5	42.5	5.5	40.5	
Effective Green, g (s)		17.0	17.0		17.0	17.0	7.5	42.5	42.5	5.5	40.5	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.10	0.56	0.56	0.07	0.53	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		318	354		369	354	174	1979	865	128	1818	
v/s Ratio Prot							c0.05	0.23		0.04	c0.29	
v/s Ratio Perm		0.24	c0.26		0.02	0.01			0.00			
v/c Ratio		1.05	1.18		0.07	0.04	0.56	0.41	0.01	0.60	0.54	
Uniform Delay, d1		29.5	29.5		23.3	23.1	32.7	9.6	7.4	34.2	11.7	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.03	0.57	
Incremental Delay, d2		65.2	106.0		0.0	0.0	2.2	0.6	0.0	4.8	1.1	
Delay (s)		94.7	135.5		23.3	23.1	34.9	10.2	7.4	40.1	7.7	
Level of Service		F	F		C	C	C	B	A	D	A	
Approach Delay (s)		122.1			23.2			12.8			10.0	
Approach LOS		F			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			47.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			85.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background No Project PM



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	174	93	1000	505	1084
v/c Ratio	0.46	0.44	0.47	1.78	0.43
Control Delay	24.3	15.6	11.0	394.9	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	15.6	11.0	394.9	6.5
Queue Length 50th (ft)	25	0	158	~485	125
Queue Length 95th (ft)	56	50	223	#684	181
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	900	436	2145	283	2545
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.21	0.47	1.78	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

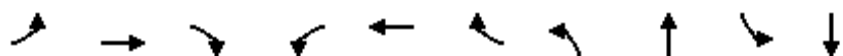
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background No Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	75	176	787	153	475	1019
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.92	0.85	0.98		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3193	1414	3446		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3193	1414	3446		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	80	187	837	163	505	1084
RTOR Reduction (vph)	85	85	11	0	0	0
Lane Group Flow (vph)	89	8	989	0	505	1084
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	61.9		16.0	71.9
Effective Green, g (s)	9.1	9.1	61.9		16.0	71.9
Actuated g/C Ratio	0.09	0.09	0.62		0.16	0.72
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	290	128	2133		283	2544
v/s Ratio Prot	c0.03		c0.29		c0.29	0.31
v/s Ratio Perm		0.01				
v/c Ratio	0.31	0.07	0.46		1.78	0.43
Uniform Delay, d1	42.5	41.6	10.2		42.0	5.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.3	0.7		366.9	0.5
Delay (s)	43.3	41.9	10.9		408.9	6.2
Level of Service	D	D	B		F	A
Approach Delay (s)	42.8		10.9			134.2
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			82.5		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			68.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background No Project PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	541	73	285	271	221	139	1419	371	1012
v/c Ratio	0.83	0.76	0.17	0.91	0.30	0.45	2.24	0.86	6.08	0.49
Control Delay	82.0	52.6	0.9	82.0	36.3	18.8	633.1	44.5	2331.3	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	52.6	0.9	82.0	36.3	18.8	633.1	44.5	2331.3	27.2
Queue Length 50th (ft)	134	209	0	217	90	60	~174	376	~548	207
Queue Length 95th (ft)	#240	261	0	#372	122	130	#306	#509	#714	266
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1641	61	2077
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.65	0.15	0.88	0.27	0.42	2.24	0.86	6.08	0.49

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		 			 				  			
Volume (vph)	168	514	69	271	257	210	48	84	1185	163	29	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.99
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1501	1770	3539	1537		1767	4931			1753
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1501	1770	3539	1537		930	4931			410
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	541	73	285	271	221	51	88	1247	172	31	340
RTOR Reduction (vph)	0	0	58	0	0	92	0	0	14	0	0	0
Lane Group Flow (vph)	177	541	15	285	271	129	0	139	1405	0	0	371
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	14.4	24.0	24.0	21.2	30.8	30.8		8.0	39.6			18.0
Effective Green, g (s)	14.4	24.0	24.0	21.2	30.8	30.8		8.0	39.6			18.0
Actuated g/C Ratio	0.12	0.20	0.20	0.18	0.26	0.26		0.07	0.33			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	212	707	300	312	908	394		62	1627			61
v/s Ratio Prot	0.10	c0.15		c0.16	0.08				c0.28			
v/s Ratio Perm			0.01			0.08		0.15				c0.90
v/c Ratio	0.83	0.77	0.05	0.91	0.30	0.33		2.24	0.86			6.08
Uniform Delay, d1	51.6	45.3	38.8	48.5	35.9	36.2		56.0	37.7			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	22.8	4.9	0.1	29.4	0.2	0.5		607.1	6.3			2321.7
Delay (s)	74.4	50.3	38.8	77.8	36.1	36.7		663.1	44.0			2372.7
Level of Service	E	D	D	E	D	D		F	D			F
Approach Delay (s)		54.6			51.6				99.2			
Approach LOS		D			D				F			
Intersection Summary												
HCM 2000 Control Delay			254.0				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.76									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			96.3%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

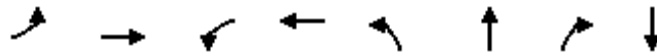
Background No Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	874	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5006	
Flt Permitted	1.00	
Satd. Flow (perm)	5006	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	920	92
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1003	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	49.6	
Effective Green, g (s)	49.6	
Actuated g/C Ratio	0.41	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	2069	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.48	
Uniform Delay, d1	25.8	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	26.6	
Level of Service	C	
Approach Delay (s)	656.0	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background No Project PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	3	1433	273	406	73	74	662	8
v/c Ratio	0.04	0.72	0.76	0.16	0.26	0.27	1.36	0.03
Control Delay	61.3	21.6	70.7	7.0	46.2	46.2	205.0	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	21.6	70.7	7.0	46.2	46.2	205.0	41.6
Queue Length 50th (ft)	3	431	115	51	54	55	~594	5
Queue Length 95th (ft)	13	512	161	88	103	104	#818	19
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	2004	396	2490	277	277	485	274
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.72	0.69	0.16	0.26	0.27	1.36	0.03

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1024	251	243	361	0	131	0	589	7	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3410		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	0.75	1.00		0.71	
Satd. Flow (perm)	1770	3410		3433	3539		1332	1332	1563		1316	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	1151	282	273	406	0	147	0	662	8	0	0
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	160	0	0	0
Lane Group Flow (vph)	3	1417	0	273	406	0	73	74	502	0	8	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	1.1	75.8		13.6	88.3		27.1	27.1	27.1		27.1	
Effective Green, g (s)	1.1	75.8		13.6	88.3		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.01	0.58		0.10	0.68		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	14	1988		359	2403		277	277	325		274	
v/s Ratio Prot	0.00	c0.42		c0.08	0.11							
v/s Ratio Perm							0.05	0.06	c0.32		0.01	
v/c Ratio	0.21	0.71		0.76	0.17		0.26	0.27	1.54		0.03	
Uniform Delay, d1	64.0	19.3		56.6	7.6		43.1	43.1	51.5		41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.8	2.2		8.3	0.2		0.2	0.2	260.0		0.0	
Delay (s)	66.8	21.5		64.9	7.7		43.3	43.3	311.5		41.0	
Level of Service	E	C		E	A		D	D	F		D	
Approach Delay (s)		21.6			30.7			262.8			41.0	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			90.3			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			91.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background No Project PM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	680	1064	245	378	167	73	1328	259	180	792	240
v/c Ratio	1.79	0.91	0.82	0.37	0.29	1.38	0.69	0.40	0.69	0.41	0.33
Control Delay	399.9	63.4	76.5	39.4	5.8	298.5	40.2	19.5	77.5	33.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	399.9	63.4	76.5	39.4	5.8	298.5	40.2	19.5	77.5	33.9	5.2
Queue Length 50th (ft)	~477	342	218	142	0	~88	378	87	83	195	0
Queue Length 95th (ft)	#602	401	297	173	50	#196	476	181	124	257	61
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1206	436	1327	685	53	1926	652	281	1929	738
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.79	0.88	0.56	0.28	0.24	1.38	0.69	0.40	0.64	0.41	0.33

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	660	955	77	238	367	162	27	44	1288	251	175	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	5011		1770	3539	1549		1766	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	5011		1770	3539	1549		708	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	680	985	79	245	378	167	28	45	1328	259	180	792
RTOR Reduction (vph)	0	7	0	0	0	118	0	0	0	78	0	0
Lane Group Flow (vph)	680	1057	0	245	378	49	0	73	1328	181	180	792
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	32.6		23.8	40.9	40.9		10.5	53.0	53.0	10.6	53.1
Effective Green, g (s)	15.5	32.6		23.8	40.9	40.9		10.5	53.0	53.0	10.6	53.1
Actuated g/C Ratio	0.11	0.23		0.17	0.29	0.29		0.08	0.38	0.38	0.08	0.38
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1166		300	1033	452		53	1925	575	259	1928
v/s Ratio Prot	c0.20	c0.21		c0.14	0.11				c0.26		0.05	0.16
v/s Ratio Perm						0.03		c0.10		0.12		
v/c Ratio	1.79	0.91		0.82	0.37	0.11		1.38	0.69	0.32	0.69	0.41
Uniform Delay, d1	62.2	52.2		56.0	39.3	36.2		64.8	36.6	30.7	63.1	31.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	365.7	9.9		14.9	0.1	0.0		253.0	2.0	1.4	6.4	0.6
Delay (s)	427.9	62.2		70.9	39.4	36.3		317.8	38.6	32.1	69.5	32.6
Level of Service	F	E		E	D	D		F	D	C	E	C
Approach Delay (s)		204.8			48.5				49.9			37.4
Approach LOS		F			D				D			D
Intersection Summary												
HCM 2000 Control Delay			96.9				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		20.0			
Intersection Capacity Utilization			89.4%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background No Project PM

Movement	SBR
Left Lane Configurations	Left
Volume (vph)	233
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1554
Flt Permitted	1.00
Satd. Flow (perm)	1554
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	240
RTOR Reduction (vph)	149
Lane Group Flow (vph)	91
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	53.1
Effective Green, g (s)	53.1
Actuated g/C Ratio	0.38
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	589
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.15
Uniform Delay, d1	28.6
Progression Factor	1.00
Incremental Delay, d2	0.6
Delay (s)	29.2
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	78	75	13	34	425	579	856
v/c Ratio	0.53	0.47	0.07	0.19	0.15	0.24	0.65
Control Delay	58.1	46.1	0.8	46.2	3.1	8.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	46.1	0.8	46.2	3.1	8.3	3.4
Queue Length 50th (ft)	54	41	0	21	23	71	0
Queue Length 95th (ft)	102	87	0	52	67	143	55
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	553	202	183	2914	2393	1325
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.14	0.06	0.19	0.15	0.24	0.65
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	6	16	7	0	6	32	390	9	0	544	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.94		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1647			1701		1770	3525			3539	1551
Flt Permitted	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1647			1701		1770	3525			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	130	6	17	7	0	6	34	415	10	0	579	856
RTOR Reduction (vph)	0	14	0	0	13	0	0	0	0	0	0	317
Lane Group Flow (vph)	78	61	0	0	0	0	34	425	0	0	579	539
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Effective Green, g (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Actuated g/C Ratio	0.08	0.08			0.01		0.10	0.77			0.63	0.63
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	131	128			16		183	2716			2226	975
v/s Ratio Prot	c0.05	0.04			c0.00		c0.02	0.12			0.16	
v/s Ratio Perm												c0.35
v/c Ratio	0.60	0.48			0.01		0.19	0.16			0.26	0.55
Uniform Delay, d1	47.2	46.8			52.0		43.4	3.2			8.7	11.2
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.8	1.0			0.1		2.2	0.1			0.3	2.3
Delay (s)	52.0	47.8			52.1		45.6	3.3			9.0	13.4
Level of Service	D	D			D		D	A			A	B
Approach Delay (s)		49.9			52.1			6.4			11.6	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			69.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	18	127	303	481	435	81	10	519	64
v/c Ratio	0.05	0.04	0.28	0.80	0.79	0.19	0.08	0.07	0.48	0.12
Control Delay	36.4	35.6	8.1	57.3	45.0	8.3	2.3	50.4	34.2	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	35.6	8.1	57.3	45.0	8.3	2.3	50.4	34.2	7.8
Queue Length 50th (ft)	6	11	0	210	316	54	0	7	166	0
Queue Length 95th (ft)	22	31	50	#359	458	108	21	25	220	32
Internal Link Dist (ft)		790		717		564			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	184	431	459	381	633	2339	1073	572	1947	899
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.04	0.28	0.80	0.76	0.19	0.08	0.02	0.27	0.07

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	17	119	98	137	50	82	370	409	76	9	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1562		1782			1770	3539	1583	1770	3539
Flt Permitted	0.43	1.00	1.00		0.88			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	796	1863	1562		1595			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	18	127	104	146	53	87	394	435	81	10	519
RTOR Reduction (vph)	0	0	98	0	5	0	0	0	0	29	0	0
Lane Group Flow (vph)	10	18	29	0	298	0	0	481	435	52	10	519
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	26.5	26.5	26.5		27.0			39.3	75.7	75.7	2.0	38.4
Effective Green, g (s)	26.5	26.5	26.5		27.0			39.3	75.7	75.7	2.0	38.4
Actuated g/C Ratio	0.23	0.23	0.23		0.23			0.33	0.64	0.64	0.02	0.33
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	179	419	351		365			591	2276	1018	30	1154
v/s Ratio Prot		0.01						c0.27	0.12		0.01	c0.15
v/s Ratio Perm	0.01		0.02		c0.19					0.03		
v/c Ratio	0.06	0.04	0.08		0.82			0.81	0.19	0.05	0.33	0.45
Uniform Delay, d1	35.8	35.7	36.0		43.0			35.9	8.5	7.7	57.2	31.3
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3		13.1			9.9	0.2	0.1	17.6	1.3
Delay (s)	36.2	35.8	36.3		56.1			45.8	8.7	7.8	74.8	32.6
Level of Service	D	D	D		E			D	A	A	E	C
Approach Delay (s)		36.2			56.1				26.5			32.7
Approach LOS		D			E				C			C
Intersection Summary												
HCM 2000 Control Delay			33.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			117.7			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			76.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Background Plus Project AM



Movement	SBR
Lane Configurations	
Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	64
RTOR Reduction (vph)	43
Lane Group Flow (vph)	21
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.4
Effective Green, g (s)	38.4
Actuated g/C Ratio	0.33
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	516
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	27.1
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	27.2
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Background Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	69	13	900	65	10	746
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	14	978	71	11	811
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.83	0.78			0.78	
vC, conflicting volume	1441	524			1049	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	0			491	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	98			99	
cM capacity (veh/h)	371	843			831	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	75	14	652	397	281	541
Volume Left	75	0	0	0	11	0
Volume Right	0	14	0	71	0	0
cSH	371	843	1700	1700	831	1700
Volume to Capacity	0.20	0.02	0.38	0.23	0.01	0.32
Queue Length 95th (ft)	19	1	0	0	1	0
Control Delay (s)	17.1	9.3	0.0	0.0	0.5	0.0
Lane LOS	C	A			A	
Approach Delay (s)	15.9		0.0		0.2	
Approach LOS	C					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			38.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	8	61	64	30	65	1170	18	894
v/c Ratio	0.01	0.79	0.84	0.06	0.42	0.57	0.12	0.48
Control Delay	0.0	90.6	101.2	0.2	48.8	11.8	39.2	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	90.6	101.2	0.2	48.8	11.8	39.2	16.5
Queue Length 50th (ft)	0	33	35	0	36	191	10	164
Queue Length 95th (ft)	0	#104	#111	0	62	#235	30	280
Internal Link Dist (ft)	163		472			468		302
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	657	85	84	533	177	2061	177	1880
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.72	0.76	0.06	0.37	0.57	0.10	0.48

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School

Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	7	109	3	27	58	1012	29	16	766	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1688	1559	1770	3522		1770	3517	
Flt Permitted		1.00		0.19	0.19	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		337	329	1559	1770	3522		1770	3517	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	8	122	3	30	65	1137	33	18	861	33
RTOR Reduction (vph)	0	8	0	0	0	23	0	1	0	0	2	0
Lane Group Flow (vph)	0	0	0	61	64	7	65	1169	0	18	892	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Effective Green, g (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Actuated g/C Ratio		0.02		0.23	0.23	0.23	0.07	0.52		0.04	0.49	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	76	363	127	1839		70	1723	
v/s Ratio Prot		c0.00					0.04	c0.33		0.01	c0.25	
v/s Ratio Perm				0.18	c0.19	0.00						
v/c Ratio		0.01		0.78	0.84	0.02	0.51	0.64		0.26	0.52	
Uniform Delay, d1		43.6		32.4	32.9	26.6	40.2	15.4		41.9	15.7	
Progression Factor		1.00		1.00	1.00	1.00	1.06	0.69		1.00	1.00	
Incremental Delay, d2		0.0		36.3	52.0	0.0	1.3	1.6		0.7	1.1	
Delay (s)		43.6		68.6	84.9	26.6	44.0	12.2		42.6	16.8	
Level of Service		D		E	F	C	D	B		D	B	
Approach Delay (s)		43.6			67.2			13.8			17.3	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					17.0		
Intersection Capacity Utilization			56.2%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	111	7	164	1194	11	1008
v/c Ratio	0.51	0.03	0.66	0.43	0.08	0.47
Control Delay	31.4	0.2	48.6	6.7	33.2	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	0.2	48.6	6.7	33.2	13.7
Queue Length 50th (ft)	41	0	89	78	6	96
Queue Length 95th (ft)	76	0	143	315	m13	270
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	519	597	413	2760	413	2138
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.01	0.40	0.43	0.03	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	3	37	4	0	3	146	1051	12	10	841	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715			1697		1770	3533		1770	3501	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1437			1597		1770	3533		1770	3501	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	3	42	4	0	3	164	1181	13	11	945	63
RTOR Reduction (vph)	0	33	0	0	6	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	78	0	0	1	0	164	1194	0	11	1005	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Effective Green, g (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Actuated g/C Ratio		0.11			0.11		0.14	0.73		0.02	0.60	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		162			180		249	2567		27	2104	
v/s Ratio Prot							c0.09	c0.34		0.01	0.29	
v/s Ratio Perm		c0.05			0.00							
v/c Ratio		0.48			0.00		0.66	0.47		0.41	0.48	
Uniform Delay, d1		37.4			35.4		36.6	5.1		43.9	10.0	
Progression Factor		1.00			1.00		1.00	1.00		0.83	1.03	
Incremental Delay, d2		0.8			0.0		4.7	0.6		3.2	0.7	
Delay (s)		38.3			35.4		41.3	5.7		39.5	11.1	
Level of Service		D			D		D	A		D	B	
Approach Delay (s)		38.3			35.4			10.0			11.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay		11.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		53.1%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Background Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	308	51	237	29	592	1218	8	758	221
v/c Ratio	1.83	0.12	1.93	0.07	0.99	0.55	0.06	0.77	0.38
Control Delay	420.0	0.7	467.8	0.3	52.8	6.6	28.6	28.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	420.0	0.7	467.8	0.3	52.8	6.6	28.6	28.2	5.7
Queue Length 50th (ft)	~190	0	~149	0	221	110	3	144	3
Queue Length 95th (ft)	#328	2	#272	0	#382	98	15	#206	48
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	168	432	123	427	599	2207	190	980	586
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.83	0.12	1.93	0.07	0.99	0.55	0.04	0.77	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	7	46	175	39	26	533	947	149	7	682	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1776	1583		1790	1559	1770	3454		1770	3539	1563
Flt Permitted		0.42	1.00		0.31	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		783	1583		573	1559	1770	3454		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	300	8	51	194	43	29	592	1052	166	8	758	221
RTOR Reduction (vph)	0	0	40	0	0	23	0	16	0	0	0	153
Lane Group Flow (vph)	0	308	11	0	237	6	592	1202	0	8	758	68
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		14.0	14.0		14.0	14.0	22.0	38.9		1.1	18.0	18.0
Effective Green, g (s)		14.0	14.0		14.0	14.0	22.0	38.9		1.1	18.0	18.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.34	0.60		0.02	0.28	0.28
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		168	340		123	335	599	2067		29	980	432
v/s Ratio Prot							c0.33	0.35		0.00	c0.21	
v/s Ratio Perm		0.39	0.01		c0.41	0.00						0.04
v/c Ratio		1.83	0.03		1.93	0.02	0.99	0.58		0.28	0.77	0.16
Uniform Delay, d1		25.5	20.1		25.5	20.1	21.4	8.0		31.6	21.6	17.8
Progression Factor		1.00	1.00		1.00	1.00	0.89	0.80		1.00	1.00	1.00
Incremental Delay, d2		397.3	0.0		445.6	0.0	29.9	1.0		1.9	5.9	0.8
Delay (s)		422.8	20.2		471.1	20.1	48.9	7.4		33.4	27.6	18.5
Level of Service		F	C		F	C	D	A		C	C	B
Approach Delay (s)		365.6			421.9			21.0			25.6	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay		89.6										
HCM 2000 Volume to Capacity ratio		1.16										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		80.4%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Background Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	163	388	68	173	132	1446	5	41	954
v/c Ratio	0.71	0.64	0.23	0.41	0.53	0.64	0.00	0.26	0.52
Control Delay	41.8	8.3	23.8	7.3	32.7	10.9	0.0	18.5	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	8.3	23.8	7.3	32.7	10.9	0.0	18.5	19.7
Queue Length 50th (ft)	60	0	23	0	49	131	0	12	180
Queue Length 95th (ft)	#127	63	52	44	91	318	0	m14	m212
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	275	645	349	471	599	2247	1029	190	1845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.60	0.19	0.37	0.22	0.64	0.00	0.22	0.52

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	7	353	21	41	157	120	1316	5	37	582	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected		0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1832	1560	1770	3539	1583	1770	3350	
Flt Permitted		0.69	1.00		0.87	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1280	1583		1623	1560	1770	3539	1583	1770	3350	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	8	388	23	45	173	132	1446	5	41	640	314
RTOR Reduction (vph)	0	0	318	0	0	142	0	0	2	0	61	0
Lane Group Flow (vph)	0	163	70	0	68	31	132	1446	3	41	893	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		11.8	11.8		11.8	11.8	8.2	39.4	39.4	2.8	34.0	
Effective Green, g (s)		11.8	11.8		11.8	11.8	8.2	39.4	39.4	2.8	34.0	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.13	0.61	0.61	0.04	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		232	287		294	283	223	2145	959	76	1752	
v/s Ratio Prot							c0.07	c0.41		0.02	0.27	
v/s Ratio Perm		c0.13	0.04		0.04	0.02			0.00			
v/c Ratio		0.70	0.25		0.23	0.11	0.59	0.67	0.00	0.54	0.51	
Uniform Delay, d1		25.0	22.8		22.7	22.2	26.8	8.5	5.1	30.5	10.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.63	1.89	
Incremental Delay, d2		7.6	0.2		0.1	0.1	2.8	1.7	0.0	1.2	0.4	
Delay (s)		32.6	22.9		22.9	22.3	29.6	10.2	5.1	20.3	19.4	
Level of Service		C	C		C	C	C	B	A	C	B	
Approach Delay (s)		25.8			22.4			11.8			19.4	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		17.1										
HCM 2000 Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		64.6%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background Plus Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	732	336	1021	116	846
v/c Ratio	0.83	0.56	0.57	0.60	0.42
Control Delay	40.3	7.6	19.0	54.9	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	7.6	19.0	54.9	13.6
Queue Length 50th (ft)	198	2	229	72	158
Queue Length 95th (ft)	268	80	322	123	204
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	921	613	1806	283	1991
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.55	0.57	0.41	0.42
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

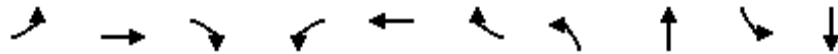
Hayward Crosspoint School
Background Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	464	551	920	50	110	804
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3291	1416	3509		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3291	1416	3509		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	488	580	968	53	116	846
RTOR Reduction (vph)	67	250	3	0	0	0
Lane Group Flow (vph)	665	86	1018	0	116	846
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	24.7	24.7	51.4		10.9	56.3
Effective Green, g (s)	24.7	24.7	51.4		10.9	56.3
Actuated g/C Ratio	0.25	0.25	0.51		0.11	0.56
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	812	349	1803		192	1992
v/s Ratio Prot	c0.20		c0.29		c0.07	0.24
v/s Ratio Perm		0.06				
v/c Ratio	0.82	0.25	0.56		0.60	0.42
Uniform Delay, d1	35.5	30.2	16.6		42.5	12.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	0.5	1.3		3.6	0.7
Delay (s)	42.3	30.7	17.9		46.1	13.2
Level of Service	D	C	B		D	B
Approach Delay (s)	38.7		17.9			17.2
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			25.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			63.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Background Plus Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	205	48	290	792	273	128	1278	214	1364
v/c Ratio	0.78	0.27	0.12	0.97	0.81	0.53	2.25	0.72	0.94	0.72
Control Delay	81.9	41.5	2.7	98.6	51.1	23.6	639.0	40.5	102.6	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	41.5	2.7	98.6	51.1	23.6	639.0	40.5	102.6	37.5
Queue Length 50th (ft)	128	74	0	246	323	98	~174	349	181	358
Queue Length 95th (ft)	202	104	10	#426	391	183	#305	432	#335	445
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	555	57	1773	231	1900
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.21	0.10	0.97	0.74	0.49	2.25	0.72	0.93	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	141	187	44	264	721	248	18	98	1102	61	195	1061
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1767	5031		1770	4957
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		572	5031		1770	4957
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	205	48	290	792	273	20	108	1211	67	214	1166
RTOR Reduction (vph)	0	0	38	0	0	94	0	0	5	0	0	17
Lane Group Flow (vph)	155	205	10	290	792	179	0	128	1273	0	214	1347
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Effective Green, g (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Actuated g/C Ratio	0.11	0.22	0.22	0.17	0.28	0.28		0.10	0.35		0.13	0.38
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	198	773	334	299	974	422		57	1768		227	1883
v/s Ratio Prot	0.09	0.06		c0.16	c0.22				0.25		0.12	c0.27
v/s Ratio Perm			0.01			0.12		c0.22				
v/c Ratio	0.78	0.27	0.03	0.97	0.81	0.42		2.25	0.72		0.94	0.72
Uniform Delay, d1	56.2	42.1	40.0	53.7	44.0	38.6		58.5	36.6		56.2	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	16.8	0.2	0.0	43.2	5.3	0.7		612.6	2.6		43.4	2.4
Delay (s)	72.9	42.3	40.0	96.8	49.2	39.3		671.1	39.2		99.6	36.7
Level of Service	E	D	D	F	D	D		F	D		F	D
Approach Delay (s)		53.7			57.4				96.7			45.2
Approach LOS		D			E				F			D
Intersection Summary												
HCM 2000 Control Delay			64.7				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			83.2%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Background Plus Project AM



Movement	SBR
*** Lane Configurations	
Volume (vph)	180
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	198
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	403	1061	1190	104	102	238	3
v/c Ratio	0.28	0.96	0.43	0.58	0.59	0.57	0.02
Control Delay	20.5	56.1	5.4	55.6	56.4	10.5	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	56.1	5.4	55.6	56.4	10.5	36.0
Queue Length 50th (ft)	82	373	108	74	73	0	2
Queue Length 95th (ft)	147	#508	247	116	115	62	9
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1450	1123	2752	329	318	563	291
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.94	0.43	0.32	0.32	0.42	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	100	1008	1126	5	193	3	226	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)		3387		3433	3537		1681	1688	1554		1770	
Flt Permitted		1.00		0.95	1.00		0.76	0.73	1.00		0.63	
Satd. Flow (perm)		3387		3433	3537		1338	1293	1554		1182	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	298	105	1061	1185	5	203	3	238	3	0	0
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	206	0	0	0
Lane Group Flow (vph)	0	376	0	1061	1190	0	104	102	32	0	3	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		46.3		35.4	85.7		14.8	14.8	14.8		14.8	
Effective Green, g (s)		46.3		35.4	85.7		14.8	14.8	14.8		14.8	
Actuated g/C Ratio		0.42		0.32	0.78		0.13	0.13	0.13		0.13	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1425		1104	2755		180	173	209		159	
v/s Ratio Prot		0.11		c0.31	c0.34							
v/s Ratio Perm							0.08	c0.08	0.02		0.00	
v/c Ratio		0.26		0.96	0.43		0.58	0.59	0.15		0.02	
Uniform Delay, d1		20.8		36.6	4.0		44.7	44.7	42.1		41.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.5		18.3	0.5		2.8	3.3	0.1		0.0	
Delay (s)		21.2		54.9	4.5		47.4	48.0	42.2		41.3	
Level of Service		C		D	A		D	D	D		D	
Approach Delay (s)		21.2			28.3			44.8			41.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			29.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			66.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	251	365	220	952	102	49	717	137	115	1552	1116
v/c Ratio	1.25	0.30	1.72	1.07	0.23	0.63	0.29	0.17	0.56	0.58	1.22
Control Delay	199.3	41.0	391.5	101.3	12.5	100.9	22.3	5.9	77.1	25.4	136.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	199.3	41.0	391.5	101.3	12.5	100.9	22.3	5.9	77.1	25.4	136.8
Queue Length 50th (ft)	~152	92	~305	~522	11	46	144	13	55	372	~1206
Queue Length 95th (ft)	#244	126	#478	#659	60	#108	175	50	89	421	#1475
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1198	128	890	451	79	2501	811	224	2654	912
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.30	1.72	1.07	0.23	0.62	0.29	0.17	0.51	0.58	1.22

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	248	288	73	218	942	101	49	710	136	114	1536	1105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4907		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4907		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	251	291	74	220	952	102	49	717	137	115	1552	1116
RTOR Reduction (vph)	0	30	0	0	0	65	0	0	56	0	0	109
Lane Group Flow (vph)	251	335	0	220	952	37	49	717	81	115	1552	1007
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.52	0.52
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1167		128	890	386	63	2500	754	205	2623	795
v/s Ratio Prot	0.07	0.07		c0.12	c0.27		0.03	0.14		c0.03	0.31	
v/s Ratio Perm						0.02			0.05			c0.65
v/c Ratio	1.25	0.29		1.72	1.07	0.10	0.78	0.29	0.11	0.56	0.59	1.27
Uniform Delay, d1	68.2	45.2		67.2	54.2	41.6	69.3	21.8	19.8	66.3	24.5	35.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	146.3	0.0		354.1	50.6	0.0	41.1	0.3	0.3	2.1	1.0	130.0
Delay (s)	214.6	45.2		421.4	104.8	41.6	110.4	22.1	20.1	68.4	25.4	165.1
Level of Service	F	D		F	F	D	F	C	C	E	C	F
Approach Delay (s)		114.2			154.4			26.6			83.2	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			93.7			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			113.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Background Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	913	0	0	756
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	992	0	0	822
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1176			644
pX, platoon unblocked	0.86	0.81			0.81	
vC, conflicting volume	1403	496			992	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579	0			517	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	385	877			845	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	496	496	411	411	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	877	1700	1700	1700	1700	
Volume to Capacity	0.02	0.29	0.29	0.24	0.24	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.2	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			35.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Background Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	965	64	9	806
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1049	70	10	876
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			382			
pX, platoon unblocked	0.76	0.76			0.76	
vC, conflicting volume	1541	559			1118	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1091	0			537	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	158	828			785	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	699	419	302	584		
Volume Left	0	0	10	0		
Volume Right	0	70	0	0		
cSH	1700	1700	785	1700		
Volume to Capacity	0.41	0.25	0.01	0.34		
Queue Length 95th (ft)	0	0	1	0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			32.0%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background With Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	276	277	22	34	618	3	404	218
v/c Ratio	0.78	0.78	0.23	0.19	0.28	0.04	0.22	0.24
Control Delay	53.6	53.2	46.1	46.2	11.7	49.0	17.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	53.2	46.1	46.2	11.7	49.0	17.1	3.8
Queue Length 50th (ft)	188	186	11	21	71	2	68	0
Queue Length 95th (ft)	256	255	37	52	200	12	141	48
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	103	183	2245	183	1807	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.50	0.21	0.19	0.28	0.02	0.22	0.24
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	510	5	16	13	3	5	33	593	0	3	388	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1675			1741		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1675			1741		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	531	5	17	14	3	5	34	618	0	3	404	218
RTOR Reduction (vph)	0	2	0	0	5	0	0	0	0	0	0	113
Lane Group Flow (vph)	276	275	0	0	17	0	34	618	0	3	404	105
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	22.5	22.5			2.4		11.0	61.0		1.1	51.1	51.1
Effective Green, g (s)	22.5	22.5			2.4		11.0	61.0		1.1	51.1	51.1
Actuated g/C Ratio	0.21	0.21			0.02		0.10	0.58		0.01	0.48	0.48
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	356	355			39		183	2036		18	1706	746
v/s Ratio Prot	c0.16	0.16			c0.01		c0.02	c0.17		0.00	0.11	
v/s Ratio Perm												0.07
v/c Ratio	0.78	0.77			0.44		0.19	0.30		0.17	0.24	0.14
Uniform Delay, d1	39.4	39.3			51.1		43.4	11.6		52.0	16.0	15.3
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.3	9.2			2.9		2.2	0.4		1.6	0.3	0.4
Delay (s)	48.6	48.6			54.0		45.6	12.0		53.6	16.4	15.6
Level of Service	D	D			D		D	B		D	B	B
Approach Delay (s)		48.6			54.0			13.7			16.3	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			25.5									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			106.0									Sum of lost time (s) 19.0
Intersection Capacity Utilization			53.3%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background With Project PM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	40	134	340	145	240	558	133	43	414	7
v/c Ratio	0.25	0.47	0.65	0.69	0.65	0.25	0.13	0.23	0.23	0.01
Control Delay	44.3	47.1	10.6	57.2	47.8	9.9	2.2	49.4	16.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	47.1	10.6	57.2	47.8	9.9	2.2	49.4	16.5	0.0
Queue Length 50th (ft)	25	86	0	89	153	83	0	28	78	0
Queue Length 95th (ft)	58	149	81	162	244	144	27	67	142	0
Internal Link Dist (ft)		790		717		557			933	
Turn Bay Length (ft)					135		145	210		145
Base Capacity (vph)	267	472	646	334	694	2268	1041	626	2132	950
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.28	0.53	0.43	0.35	0.25	0.13	0.07	0.19	0.01
Intersection Summary										

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	38	127	323	60	41	37	50	178	530	126	41	393
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1547		1745			1770	3539	1551	1770	3539
Flt Permitted	0.57	1.00	1.00		0.71			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1054	1863	1547		1264			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	40	134	340	63	43	39	53	187	558	133	43	414
RTOR Reduction (vph)	0	0	288	0	9	0	0	0	0	48	0	0
Lane Group Flow (vph)	40	134	52	0	136	0	0	240	558	85	43	414
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	16.3	16.3	16.3		16.8			22.0	67.7	67.7	9.0	54.7
Effective Green, g (s)	16.3	16.3	16.3		16.8			22.0	67.7	67.7	9.0	54.7
Actuated g/C Ratio	0.15	0.15	0.15		0.16			0.21	0.64	0.64	0.08	0.51
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	161	285	236		199			365	2249	985	149	1817
v/s Ratio Prot		0.07						c0.14	c0.16		0.02	0.12
v/s Ratio Perm	0.04		0.03		c0.11					0.05		
v/c Ratio	0.25	0.47	0.22		0.68			0.66	0.25	0.09	0.29	0.23
Uniform Delay, d1	39.7	41.2	39.5		42.3			38.8	8.4	7.5	45.7	14.3
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	3.4	1.3		9.3			6.7	0.3	0.2	3.0	0.3
Delay (s)	42.0	44.6	40.9		51.6			45.5	8.7	7.6	48.8	14.6
Level of Service	D	D	D		D			D	A	A	D	B
Approach Delay (s)		41.9			51.6				18.0			17.7
Approach LOS		D			D				B			B
Intersection Summary												
HCM 2000 Control Delay			26.3									
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			106.5									
Intersection Capacity Utilization			66.6%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Background With Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	7
RTOR Reduction (vph)	3
Lane Group Flow (vph)	4
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	54.7
Effective Green, g (s)	54.7
Actuated g/C Ratio	0.51
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	795
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.00
Uniform Delay, d1	12.6
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	12.6
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Background With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	73	14	824	32	5	832
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	15	896	35	5	904
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			758			1064
pX, platoon unblocked	0.90	0.88			0.88	
vC, conflicting volume	1376	465			930	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1028	122			650	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	61	98			99	
cM capacity (veh/h)	205	798			821	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	79	15	597	333	307	603
Volume Left	79	0	0	0	5	0
Volume Right	0	15	0	35	0	0
cSH	205	798	1700	1700	821	1700
Volume to Capacity	0.39	0.02	0.35	0.20	0.01	0.35
Queue Length 95th (ft)	43	1	0	0	0	0
Control Delay (s)	33.3	9.6	0.0	0.0	0.2	0.0
Lane LOS	D	A			A	
Approach Delay (s)	29.5		0.0		0.1	
Approach LOS	D					
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			37.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background With Project PM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	22	23	15	4	954	22	943
v/c Ratio	0.15	0.21	0.22	0.04	0.03	0.38	0.14	0.35
Control Delay	1.2	37.2	37.6	0.3	44.8	7.2	39.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.2	37.2	37.6	0.3	44.8	7.2	39.7	9.1
Queue Length 50th (ft)	0	12	13	0	2	116	12	100
Queue Length 95th (ft)	0	30	31	0	m5	124	35	293
Internal Link Dist (ft)	163		472			468		303
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	407	228	228	534	177	2523	177	2668
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.10	0.10	0.03	0.02	0.38	0.12	0.35

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	0	24	44	0	15	4	856	70	21	911	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.98		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1650		1677	1677	1561	1770	3493		1770	3537	
Flt Permitted		0.85		0.51	0.51	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1437		894	894	1561	1770	3493		1770	3537	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	18	0	25	45	0	15	4	882	72	22	939	4
RTOR Reduction (vph)	0	41	0	0	0	14	0	3	0	0	0	0
Lane Group Flow (vph)	0	2	0	22	23	1	4	951	0	22	943	0
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4		4						
Actuated Green, G (s)		4.2		7.9	7.9	7.9	1.4	56.5		4.4	59.5	
Effective Green, g (s)		4.2		7.9	7.9	7.9	1.4	56.5		4.4	59.5	
Actuated g/C Ratio		0.05		0.09	0.09	0.09	0.02	0.63		0.05	0.66	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		67		78	78	137	27	2192		86	2338	
v/s Ratio Prot							0.00	c0.27		0.01	c0.27	
v/s Ratio Perm		c0.00		0.02	c0.03	0.00						
v/c Ratio		0.03		0.28	0.29	0.01	0.15	0.43		0.26	0.40	
Uniform Delay, d1		41.0		38.4	38.4	37.5	43.7	8.6		41.2	7.0	
Progression Factor		1.00		1.00	1.00	1.00	1.15	0.62		1.00	1.00	
Incremental Delay, d2		0.1		0.7	0.8	0.0	0.9	0.6		0.6	0.5	
Delay (s)		41.0		39.1	39.2	37.5	51.3	6.0		41.8	7.6	
Level of Service		D		D	D	D	D	A		D	A	
Approach Delay (s)		41.0			38.7			6.1			8.3	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.9									
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			49.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background With Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	143	20	36	902	5	1020
v/c Ratio	0.55	0.10	0.25	0.34	0.04	0.42
Control Delay	23.3	23.6	43.0	6.0	33.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	23.6	43.0	6.0	33.6	10.2
Queue Length 50th (ft)	32	7	20	48	3	84
Queue Length 95th (ft)	73	22	48	218	m9	245
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	566	546	413	2648	413	2441
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.09	0.34	0.01	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	6	82	8	4	8	35	861	14	5	928	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1667			1717		1770	3530		1770	3501	
Flt Permitted		0.87			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1481			1571		1770	3530		1770	3501	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	52	6	85	8	4	8	36	888	14	5	957	63
RTOR Reduction (vph)	0	74	0	0	7	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	69	0	0	13	0	36	901	0	5	1018	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		11.3			11.3		4.6	64.3		1.4	61.1	
Effective Green, g (s)		11.3			11.3		4.6	64.3		1.4	61.1	
Actuated g/C Ratio		0.13			0.13		0.05	0.71		0.02	0.68	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		185			197		90	2521		27	2376	
v/s Ratio Prot							c0.02	c0.26		0.00	c0.29	
v/s Ratio Perm		c0.05			0.01							
v/c Ratio		0.37			0.07		0.40	0.36		0.19	0.43	
Uniform Delay, d1		36.1			34.7		41.4	4.9		43.7	6.5	
Progression Factor		1.00			1.00		1.00	1.00		0.86	1.21	
Incremental Delay, d2		0.5			0.1		1.1	0.4		1.2	0.5	
Delay (s)		36.6			34.7		42.4	5.3		38.7	8.4	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		36.6			34.7			6.7			8.6	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.9									
HCM 2000 Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			46.7%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Background With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	286	180	86	8	314	794	7	926	116
v/c Ratio	0.99	0.37	0.48	0.02	0.96	0.35	0.06	0.58	0.15
Control Delay	83.5	6.6	36.3	0.1	86.7	5.3	34.3	17.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.5	6.6	36.3	0.1	86.7	5.3	34.3	17.6	4.2
Queue Length 50th (ft)	135	0	36	0	164	54	3	165	4
Queue Length 95th (ft)	#285	47	81	0	#311	m106	15	222	30
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	289	493	178	431	326	2253	163	1583	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.37	0.48	0.02	0.96	0.35	0.04	0.58	0.15

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	36	175	70	14	8	305	666	104	7	898	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1785	1583		1788	1583	1770	3456		1770	3539	1561
Flt Permitted		0.69	1.00		0.43	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1292	1583		799	1583	1770	3456		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	249	37	180	72	14	8	314	687	107	7	926	116
RTOR Reduction (vph)	0	0	140	0	0	6	0	13	0	0	0	56
Lane Group Flow (vph)	0	286	40	0	86	2	314	781	0	7	926	60
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		17.0	17.0		17.0	17.0	14.0	46.9		1.1	34.0	34.0
Effective Green, g (s)		17.0	17.0		17.0	17.0	14.0	46.9		1.1	34.0	34.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.62		0.01	0.45	0.45
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		289	354		178	354	326	2132		25	1583	698
v/s Ratio Prot							c0.18	0.23		0.00	c0.26	
v/s Ratio Perm		c0.22	0.03		0.11	0.00						0.04
v/c Ratio		0.99	0.11		0.48	0.01	0.96	0.37		0.28	0.58	0.09
Uniform Delay, d1		29.4	23.5		25.7	22.9	30.7	7.2		37.1	15.7	12.1
Progression Factor		1.00	1.00		1.00	1.00	1.49	0.78		1.00	1.00	1.00
Incremental Delay, d2		49.4	0.1		0.8	0.0	38.1	0.4		2.2	1.6	0.2
Delay (s)		78.8	23.6		26.4	22.9	83.9	6.0		39.3	17.3	12.3
Level of Service		E	C		C	C	F	A		D	B	B
Approach Delay (s)		57.5			26.1			28.1			16.9	
Approach LOS		E			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			28.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			73.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Background With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	335	686	25	57	97	822	10	77	1111
v/c Ratio	1.05	1.10	0.07	0.13	0.49	0.41	0.01	0.52	0.59
Control Delay	97.5	85.5	24.0	2.5	39.4	10.6	0.0	44.8	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.5	85.5	24.0	2.5	39.4	10.6	0.0	44.8	7.6
Queue Length 50th (ft)	~176	~236	9	0	44	113	0	40	68
Queue Length 95th (ft)	#329	#440	29	10	84	154	0	m72	102
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	318	621	369	431	326	2008	902	163	1869
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.10	0.07	0.13	0.30	0.41	0.01	0.47	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	81	659	7	17	55	93	789	10	74	764	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1795	1583		1837	1583	1770	3539	1547	1770	3376	
Flt Permitted		0.76	1.00		0.89	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1423	1583		1650	1583	1770	3539	1547	1770	3376	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	251	84	686	7	18	57	97	822	10	77	796	315
RTOR Reduction (vph)	0	0	268	0	0	44	0	0	4	0	47	0
Lane Group Flow (vph)	0	335	418	0	25	13	97	822	6	77	1064	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	7.5	42.5	42.5	5.5	40.5	
Effective Green, g (s)		17.0	17.0		17.0	17.0	7.5	42.5	42.5	5.5	40.5	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.10	0.56	0.56	0.07	0.53	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		318	354		369	354	174	1979	865	128	1799	
v/s Ratio Prot							c0.05	0.23		0.04	c0.32	
v/s Ratio Perm		0.24	c0.26		0.02	0.01			0.00			
v/c Ratio		1.05	1.18		0.07	0.04	0.56	0.42	0.01	0.60	0.59	
Uniform Delay, d1		29.5	29.5		23.3	23.1	32.7	9.6	7.4	34.2	12.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.01	0.54	
Incremental Delay, d2		65.2	106.9		0.0	0.0	2.2	0.6	0.0	4.6	1.2	
Delay (s)		94.7	136.4		23.3	23.1	34.9	10.3	7.4	39.3	7.7	
Level of Service		F	F		C	C	C	B	A	D	A	
Approach Delay (s)		122.7			23.2			12.8			9.8	
Approach LOS		F			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			46.8									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			76.0								11.0	Sum of lost time (s)
Intersection Capacity Utilization			88.2%									ICU Level of Service E
Analysis Period (min)			15									
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background With Project PM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	174	94	1003	506	1088
v/c Ratio	0.46	0.44	0.47	1.79	0.43
Control Delay	24.3	15.7	11.0	396.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	15.7	11.0	396.4	6.5
Queue Length 50th (ft)	25	0	159	~486	125
Queue Length 95th (ft)	56	50	224	#685	182
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	900	437	2145	283	2545
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.22	0.47	1.79	0.43
Intersection Summary					
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					

HCM Signalized Intersection Capacity Analysis

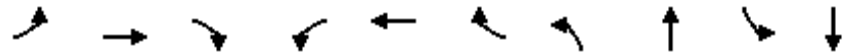
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	75	177	790	153	476	1023
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.92	0.85	0.98		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3193	1414	3446		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3193	1414	3446		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	80	188	840	163	506	1088
RTOR Reduction (vph)	85	85	11	0	0	0
Lane Group Flow (vph)	89	9	992	0	506	1088
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	61.9		16.0	71.9
Effective Green, g (s)	9.1	9.1	61.9		16.0	71.9
Actuated g/C Ratio	0.09	0.09	0.62		0.16	0.72
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	290	128	2133		283	2544
v/s Ratio Prot	c0.03		c0.29		c0.29	0.31
v/s Ratio Perm		0.01				
v/c Ratio	0.31	0.07	0.47		1.79	0.43
Uniform Delay, d1	42.5	41.6	10.2		42.0	5.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.3	0.7		368.5	0.5
Delay (s)	43.3	41.9	10.9		410.5	6.2
Level of Service	D	D	B		F	A
Approach Delay (s)	42.8		10.9			134.6
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			82.7		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			68.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background With Project PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	542	73	285	272	221	139	1419	371	1012
v/c Ratio	0.83	0.76	0.17	0.91	0.30	0.45	2.24	0.87	6.08	0.49
Control Delay	82.0	52.5	0.9	82.0	36.3	18.8	633.1	44.6	2331.3	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	52.5	0.9	82.0	36.3	18.8	633.1	44.6	2331.3	27.2
Queue Length 50th (ft)	134	209	0	217	90	60	~174	376	~548	208
Queue Length 95th (ft)	#240	262	0	#372	123	130	#306	#509	#714	266
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1639	61	2076
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.65	0.15	0.88	0.27	0.42	2.24	0.87	6.08	0.49

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		 			 				  			
Volume (vph)	168	515	69	271	258	210	48	84	1185	163	29	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.99			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			0.99
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1501	1770	3539	1537		1767	4931			1753
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1501	1770	3539	1537		930	4931			410
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	177	542	73	285	272	221	51	88	1247	172	31	340
RTOR Reduction (vph)	0	0	58	0	0	92	0	0	14	0	0	0
Lane Group Flow (vph)	177	542	15	285	272	129	0	139	1405	0	0	371
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	14.4	24.1	24.1	21.2	30.9	30.9		8.0	39.5			18.0
Effective Green, g (s)	14.4	24.1	24.1	21.2	30.9	30.9		8.0	39.5			18.0
Actuated g/C Ratio	0.12	0.20	0.20	0.18	0.26	0.26		0.07	0.33			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	212	710	301	312	911	395		62	1623			61
v/s Ratio Prot	0.10	c0.15		c0.16	0.08				c0.28			
v/s Ratio Perm			0.01			0.08		0.15				c0.90
v/c Ratio	0.83	0.76	0.05	0.91	0.30	0.33		2.24	0.87			6.08
Uniform Delay, d1	51.6	45.3	38.7	48.5	35.8	36.1		56.0	37.8			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	22.8	4.9	0.1	29.4	0.2	0.5		607.1	6.5			2321.7
Delay (s)	74.4	50.1	38.8	77.8	36.0	36.6		663.1	44.2			2372.7
Level of Service	E	D	D	E	D	D		F	D			F
Approach Delay (s)		54.5			51.5				99.4			
Approach LOS		D			D				F			
Intersection Summary												
HCM 2000 Control Delay			253.9				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.76									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			96.3%				ICU Level of Service		F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

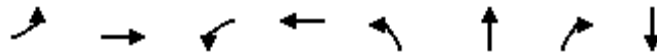
Background With Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	874	87
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5006	
Flt Permitted	1.00	
Satd. Flow (perm)	5006	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	920	92
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1003	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	49.5	
Effective Green, g (s)	49.5	
Actuated g/C Ratio	0.41	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	2064	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.49	
Uniform Delay, d1	25.9	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	26.7	
Level of Service	C	
Approach Delay (s)	656.0	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background With Project PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	3	1433	283	406	73	74	673	8
v/c Ratio	0.04	0.72	0.78	0.16	0.26	0.27	1.39	0.03
Control Delay	61.3	21.7	71.4	7.0	46.2	46.2	214.5	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	21.7	71.4	7.0	46.2	46.2	214.5	41.6
Queue Length 50th (ft)	3	434	120	51	54	55	~614	5
Queue Length 95th (ft)	13	512	167	88	103	104	#838	19
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	1998	396	2490	277	277	485	274
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.72	0.71	0.16	0.26	0.27	1.39	0.03

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	1024	251	252	361	0	131	0	599	7	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3410		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.75	0.75	1.00		0.71	
Satd. Flow (perm)	1770	3410		3433	3539		1332	1332	1563		1316	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	1151	282	283	406	0	147	0	673	8	0	0
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	160	0	0	0
Lane Group Flow (vph)	3	1417	0	283	406	0	73	74	513	0	8	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	1.1	75.6		13.8	88.3		27.1	27.1	27.1		27.1	
Effective Green, g (s)	1.1	75.6		13.8	88.3		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.01	0.58		0.11	0.68		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	14	1983		364	2403		277	277	325		274	
v/s Ratio Prot	0.00	c0.42		c0.08	0.11							
v/s Ratio Perm							0.05	0.06	c0.33		0.01	
v/c Ratio	0.21	0.71		0.78	0.17		0.26	0.27	1.58		0.03	
Uniform Delay, d1	64.0	19.5		56.6	7.6		43.1	43.1	51.5		41.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.8	2.2		9.2	0.2		0.2	0.2	274.8		0.0	
Delay (s)	66.8	21.7		65.8	7.7		43.3	43.3	326.2		41.0	
Level of Service	E	C		E	A		D	D	F		D	
Approach Delay (s)		21.8			31.6			275.5			41.0	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			94.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			92.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background With Project PM

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	687	1068	245	384	167	73	1328	259	180	792	244
v/c Ratio	1.81	0.91	0.82	0.37	0.29	1.38	0.69	0.40	0.69	0.41	0.33
Control Delay	407.7	63.6	76.5	39.4	5.8	298.5	40.3	19.5	77.5	33.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	407.7	63.6	76.5	39.4	5.8	298.5	40.3	19.5	77.5	33.9	5.2
Queue Length 50th (ft)	~484	343	218	145	0	~88	378	87	83	195	0
Queue Length 95th (ft)	#608	#404	297	175	50	#196	476	181	124	257	62
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1206	436	1327	685	53	1924	652	281	1928	740
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.81	0.89	0.56	0.29	0.24	1.38	0.69	0.40	0.64	0.41	0.33

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	666	959	77	238	372	162	27	44	1288	251	175	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	5011		1770	3539	1549		1766	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	5011		1770	3539	1549		708	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	687	989	79	245	384	167	28	45	1328	259	180	792
RTOR Reduction (vph)	0	7	0	0	0	118	0	0	0	78	0	0
Lane Group Flow (vph)	687	1061	0	245	384	49	0	73	1328	181	180	792
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	32.6		23.8	40.9	40.9		10.5	53.0	53.0	10.6	53.1
Effective Green, g (s)	15.5	32.6		23.8	40.9	40.9		10.5	53.0	53.0	10.6	53.1
Actuated g/C Ratio	0.11	0.23		0.17	0.29	0.29		0.08	0.38	0.38	0.08	0.38
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1166		300	1033	452		53	1925	575	259	1928
v/s Ratio Prot	c0.20	c0.21		c0.14	0.11				c0.26		0.05	0.16
v/s Ratio Perm						0.03		c0.10		0.12		
v/c Ratio	1.81	0.91		0.82	0.37	0.11		1.38	0.69	0.32	0.69	0.41
Uniform Delay, d1	62.2	52.3		56.0	39.3	36.2		64.8	36.6	30.7	63.1	31.9
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	373.9	10.4		14.9	0.1	0.0		253.0	2.0	1.4	6.4	0.6
Delay (s)	436.1	62.7		70.9	39.4	36.3		317.8	38.6	32.1	69.5	32.6
Level of Service	F	E		E	D	D		F	D	C	E	C
Approach Delay (s)		208.9			48.4				49.9			37.4
Approach LOS		F			D				D			D
Intersection Summary												
HCM 2000 Control Delay			98.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			89.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School

Background With Project PM

Movement	SBR
Left Lane Configurations	Left
Volume (vph)	237
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1554
Flt Permitted	1.00
Satd. Flow (perm)	1554
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	244
RTOR Reduction (vph)	151
Lane Group Flow (vph)	93
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	53.1
Effective Green, g (s)	53.1
Actuated g/C Ratio	0.38
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	589
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.16
Uniform Delay, d1	28.7
Progression Factor	1.00
Incremental Delay, d2	0.6
Delay (s)	29.2
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Background With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	838	0	0	837
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	911	0	0	910
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			1185			637
pX, platoon unblocked	0.94	0.91			0.91	
vC, conflicting volume	1366	455			911	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1005	208			707	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	223	728			808	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	455	455	455	455	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	728	1700	1700	1700	1700	
Volume to Capacity	0.02	0.27	0.27	0.27	0.27	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	10.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	10.1	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			33.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Background With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	856	32	4	901
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	930	35	4	979
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			383			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	1446	483			965	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1207	94			651	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	152	818			807	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	620	345	331	653		
Volume Left	0	0	4	0		
Volume Right	0	35	0	0		
cSH	1700	1700	807	1700		
Volume to Capacity	0.36	0.20	0.01	0.38		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.2	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.1			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			31.0%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Cumulative No Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	97	94	42	59	532	745	894
v/c Ratio	0.58	0.51	0.22	0.32	0.20	0.35	0.69
Control Delay	58.6	41.5	2.8	49.3	5.0	12.1	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	41.5	2.8	49.3	5.0	12.1	4.2
Queue Length 50th (ft)	67	46	0	38	55	136	0
Queue Length 95th (ft)	118	96	0	80	89	197	58
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	557	202	183	2635	2151	1292
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.21	0.32	0.20	0.35	0.69
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	20	30	20	0	20	55	480	20	0	700	840
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.93		1.00	0.99			1.00	0.85
Flt Protected	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1636			1695		1770	3515			3539	1551
Flt Permitted	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1636			1695		1770	3515			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	21	32	21	0	21	59	511	21	0	745	894
RTOR Reduction (vph)	0	23	0	0	41	0	0	1	0	0	0	368
Lane Group Flow (vph)	97	71	0	0	1	0	59	531	0	0	745	526
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Effective Green, g (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Actuated g/C Ratio	0.10	0.10			0.03		0.10	0.73			0.59	0.59
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	168	163			47		183	2566			2083	913
v/s Ratio Prot	c0.06	0.04			c0.00		c0.03	0.15			0.21	
v/s Ratio Perm												c0.34
v/c Ratio	0.58	0.43			0.03		0.32	0.21			0.36	0.58
Uniform Delay, d1	45.6	44.9			50.1		44.0	4.5			11.4	13.6
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.0	0.7			0.1		4.6	0.2			0.5	2.6
Delay (s)	48.5	45.5			50.2		48.7	4.7			11.8	16.2
Level of Service	D	D			D		D	A			B	B
Approach Delay (s)		47.1			50.2			9.1			14.2	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			72.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Cumulative No Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	21	160	415	564	521	96	21	617	106
v/c Ratio	0.08	0.05	0.33	1.10	0.91	0.23	0.09	0.14	0.57	0.19
Control Delay	38.3	36.2	7.8	116.8	56.6	10.1	2.5	51.5	36.4	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	36.2	7.8	116.8	56.6	10.1	2.5	51.5	36.4	7.6
Queue Length 50th (ft)	7	12	0	~341	397	67	0	15	204	4
Queue Length 95th (ft)	24	35	56	#558	#629	134	24	41	264	44
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	131	422	478	377	621	2267	1048	560	1908	899
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.33	1.10	0.91	0.23	0.09	0.04	0.32	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	20	150	110	150	130	80	450	490	90	20	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		0.99			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.99			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1562		1744			1770	3539	1583	1770	3539
Flt Permitted	0.31	1.00	1.00		0.90			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	581	1863	1562		1587			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	21	160	117	160	138	85	479	521	96	21	617
RTOR Reduction (vph)	0	0	124	0	12	0	0	0	0	36	0	0
Lane Group Flow (vph)	11	21	36	0	403	0	0	564	521	60	21	617
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Effective Green, g (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.34	0.63	0.63	0.04	0.32
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	129	413	346		359			608	2221	993	65	1136
v/s Ratio Prot		0.01						c0.32	0.15		0.01	c0.17
v/s Ratio Perm	0.02		0.02		c0.25					0.04		
v/c Ratio	0.09	0.05	0.10		1.12			0.93	0.23	0.06	0.32	0.54
Uniform Delay, d1	36.8	36.5	36.9		46.1			37.7	9.7	8.6	56.0	33.3
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.4		85.4			21.7	0.2	0.1	8.0	1.9
Delay (s)	37.6	36.7	37.3		131.5			59.4	9.9	8.7	64.0	35.2
Level of Service	D	D	D		F			E	A	A	E	D
Approach Delay (s)		37.2			131.5				33.5			35.0
Approach LOS		D			F				C			D
Intersection Summary												
HCM 2000 Control Delay			50.3			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			119.3			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			91.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Cumulative No Project AM

Movement	SBR
Lane Configurations	
Volume (vph)	100
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	106
RTOR Reduction (vph)	67
Lane Group Flow (vph)	39
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.3
Effective Green, g (s)	38.3
Actuated g/C Ratio	0.32
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	508
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.08
Uniform Delay, d1	28.2
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	28.5
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Cumulative No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	1080	0	0	880
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1174	0	0	957
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.81	0.74			0.74	
vC, conflicting volume	1652	587			1174	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	584	0			528	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	356	801			765	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	783	391	319	638
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	765	1700
Volume to Capacity	0.00	0.00	0.46	0.23	0.00	0.38
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			33.2%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School

Cumulative No Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	84	96	45	90	1169	34	910
v/c Ratio	0.02	1.08	1.30	0.08	0.56	0.62	0.21	0.51
Control Delay	0.1	162.1	236.6	0.3	56.2	13.3	40.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	162.1	236.6	0.3	56.2	13.3	40.8	17.5
Queue Length 50th (ft)	0	~55	~73	0	50	259	18	173
Queue Length 95th (ft)	0	#150	#174	0	84	#304	46	286
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	611	78	74	533	177	1876	177	1786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.08	1.30	0.08	0.51	0.62	0.19	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	10	150	10	40	80	1000	40	30	770	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1694	1559	1770	3515		1770	3509	
Flt Permitted		1.00		0.17	0.16	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		308	290	1559	1770	3515		1770	3509	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	11	169	11	45	90	1124	45	34	865	45
RTOR Reduction (vph)	0	11	0	0	0	34	0	2	0	0	3	0
Lane Group Flow (vph)	0	0	0	84	96	12	90	1167	0	34	907	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Effective Green, g (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Actuated g/C Ratio		0.02		0.26	0.26	0.26	0.08	0.48		0.06	0.46	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	74	398	135	1687		106	1625	
v/s Ratio Prot		c0.00					0.05	c0.33		0.02	c0.26	
v/s Ratio Perm				0.27	c0.33	0.01						
v/c Ratio		0.01		1.08	1.30	0.03	0.67	0.69		0.32	0.56	
Uniform Delay, d1		43.6		33.5	33.5	25.1	40.4	18.2		40.5	17.5	
Progression Factor		1.00		1.00	1.00	1.00	1.12	0.66		1.00	1.00	
Incremental Delay, d2		0.0		124.5	203.5	0.0	8.5	2.2		0.6	1.4	
Delay (s)		43.7		158.0	237.0	25.1	53.9	14.1		41.2	18.9	
Level of Service		D		F	F	C	D	B		D	B	
Approach Delay (s)		43.7			165.1			17.0			19.7	
Approach LOS		D			F			B			B	
Intersection Summary												
HCM 2000 Control Delay			31.8									
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			90.0									
Intersection Capacity Utilization			57.5%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative No Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	22	180	1146	22	1051
v/c Ratio	0.66	0.08	0.68	0.46	0.16	0.54
Control Delay	39.1	0.6	48.7	9.0	36.5	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	0.6	48.7	9.0	36.5	15.2
Queue Length 50th (ft)	69	0	98	94	0	107
Queue Length 95th (ft)	113	0	154	301	m23	m275
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	520	570	413	2468	413	1941
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.04	0.44	0.46	0.05	0.54

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	10	55	10	0	10	160	1000	20	20	855	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1719			1684		1770	3528		1770	3487	
Flt Permitted		0.82			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1441			1519		1770	3528		1770	3487	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	90	11	62	11	0	11	180	1124	22	22	961	90
RTOR Reduction (vph)	0	31	0	0	19	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	132	0	0	3	0	180	1145	0	22	1046	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		13.5			13.5		13.5	60.6		2.9	50.0	
Effective Green, g (s)		13.5			13.5		13.5	60.6		2.9	50.0	
Actuated g/C Ratio		0.15			0.15		0.15	0.67		0.03	0.56	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		216			227		265	2375		57	1937	
v/s Ratio Prot							c0.10	0.32		0.01	c0.30	
v/s Ratio Perm		c0.09			0.00							
v/c Ratio		0.61			0.01		0.68	0.48		0.39	0.54	
Uniform Delay, d1		35.8			32.6		36.2	7.1		42.7	12.7	
Progression Factor		1.00			1.00		1.00	1.00		0.89	0.95	
Incremental Delay, d2		3.3			0.0		5.4	0.7		1.3	0.9	
Delay (s)		39.1			32.6		41.6	7.8		39.1	13.0	
Level of Service		D			C		D	A		D	B	
Approach Delay (s)		39.1			32.6			12.4			13.5	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			56.7%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Cumulative No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	233	78	334	44	789	1322	11	744	300
v/c Ratio	2.08	0.18	1.80	0.10	1.32	0.60	0.08	0.76	0.47
Control Delay	536.5	3.3	401.7	0.5	173.4	6.2	28.8	27.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	536.5	3.3	401.7	0.5	173.4	6.2	28.8	27.6	5.6
Queue Length 50th (ft)	~150	0	~204	0	~381	46	4	141	2
Queue Length 95th (ft)	#273	16	#347	0	m#533	125	18	200	54
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	112	432	186	427	599	2186	190	980	644
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.08	0.18	1.80	0.10	1.32	0.60	0.06	0.76	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	10	70	240	60	40	710	940	250	10	670	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1778	1583		1791	1559	1770	3408		1770	3539	1563
Flt Permitted		0.28	1.00		0.46	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		520	1583		863	1559	1770	3408		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	222	11	78	267	67	44	789	1044	278	11	744	300
RTOR Reduction (vph)	0	0	61	0	0	35	0	30	0	0	0	212
Lane Group Flow (vph)	0	233	17	0	334	9	789	1292	0	11	744	88
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		14.0	14.0		14.0	14.0	22.0	38.8		1.2	18.0	18.0
Effective Green, g (s)		14.0	14.0		14.0	14.0	22.0	38.8		1.2	18.0	18.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.34	0.60		0.02	0.28	0.28
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		112	340		185	335	599	2034		32	980	432
v/s Ratio Prot							c0.45	0.38		0.01	c0.21	
v/s Ratio Perm		c0.45	0.01		0.39	0.01						0.06
v/c Ratio		2.08	0.05		1.81	0.03	1.32	0.64		0.34	0.76	0.20
Uniform Delay, d1		25.5	20.2		25.5	20.1	21.5	8.5		31.5	21.5	18.0
Progression Factor		1.00	1.00		1.00	1.00	0.93	0.72		1.00	1.00	1.00
Incremental Delay, d2		515.4	0.0		383.1	0.0	150.9	1.1		2.3	5.5	1.1
Delay (s)		540.9	20.2		408.6	20.1	171.0	7.1		33.8	27.0	19.1
Level of Service		F	C		F	C	F	A		C	C	B
Approach Delay (s)		410.3			363.4			68.4			24.8	
Approach LOS		F			F			E			C	
Intersection Summary												
HCM 2000 Control Delay		113.0										
HCM 2000 Volume to Capacity ratio		1.33										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		91.0%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Cumulative No Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	187	560	88	198	198	1681	11	44	1044
v/c Ratio	0.79	0.74	0.30	0.43	0.62	0.79	0.01	0.28	0.65
Control Delay	49.2	9.4	24.6	7.2	32.8	16.5	0.0	21.8	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	9.4	24.6	7.2	32.8	16.5	0.0	21.8	24.2
Queue Length 50th (ft)	69	0	29	0	73	292	0	15	234
Queue Length 95th (ft)	#156	79	65	46	121	#475	0	m16	m255
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	270	780	337	491	599	2117	973	190	1604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.72	0.26	0.40	0.33	0.79	0.01	0.23	0.65

Intersection Summary

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

Queue shown is maximum after two cycles.

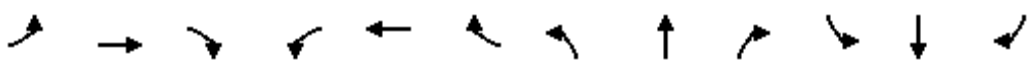
m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↱	↰	↰	↱	↰	↰
Volume (vph)	160	10	510	30	50	180	180	1530	10	40	730	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected		0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1779	1583		1828	1561	1770	3539	1583	1770	3406	
Flt Permitted		0.68	1.00		0.84	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1258	1583		1566	1561	1770	3539	1583	1770	3406	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	11	560	33	55	198	198	1681	11	44	802	242
RTOR Reduction (vph)	0	0	454	0	0	161	0	0	5	0	32	0
Lane Group Flow (vph)	0	187	106	0	88	37	198	1681	6	44	1012	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		12.3	12.3		12.3	12.3	11.7	37.7	37.7	4.0	30.0	
Effective Green, g (s)		12.3	12.3		12.3	12.3	11.7	37.7	37.7	4.0	30.0	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.18	0.58	0.58	0.06	0.46	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		238	299		296	295	318	2052	918	108	1572	
v/s Ratio Prot							c0.11	c0.47		0.02	0.30	
v/s Ratio Perm		c0.15	0.07		0.06	0.02			0.00			
v/c Ratio		0.79	0.35		0.30	0.13	0.62	0.82	0.01	0.41	0.64	
Uniform Delay, d1		25.1	22.9		22.6	21.9	24.6	10.9	5.8	29.4	13.4	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.75	1.63	
Incremental Delay, d2		14.5	0.3		0.2	0.1	2.7	3.8	0.0	0.3	0.6	
Delay (s)		39.6	23.2		22.8	22.0	27.3	14.7	5.8	22.3	22.5	
Level of Service		D	C		C	C	C	B	A	C	C	
Approach Delay (s)		27.3			22.2			16.0			22.5	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			20.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			65.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			75.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative No Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	865	398	1221	147	1137
v/c Ratio	0.95	0.66	0.71	0.68	0.58
Control Delay	52.9	13.8	23.5	57.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	13.8	23.5	57.4	16.5
Queue Length 50th (ft)	257	47	310	91	238
Queue Length 95th (ft)	#380	163	418	150	301
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	915	599	1712	283	1946
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.66	0.71	0.52	0.58

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

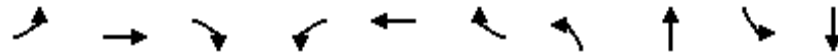
Hayward Crosspoint School
Cumulative No Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	560	640	1080	80	140	1080
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3297	1416	3500		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3297	1416	3500		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	589	674	1137	84	147	1137
RTOR Reduction (vph)	58	232	5	0	0	0
Lane Group Flow (vph)	807	166	1216	0	147	1137
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0	48.8		12.2	55.0
Effective Green, g (s)	26.0	26.0	48.8		12.2	55.0
Actuated g/C Ratio	0.26	0.26	0.49		0.12	0.55
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	857	368	1708		215	1946
v/s Ratio Prot	c0.24		c0.35		c0.08	0.32
v/s Ratio Perm		0.12				
v/c Ratio	0.94	0.45	0.71		0.68	0.58
Uniform Delay, d1	36.3	31.0	20.1		42.1	14.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.2	1.2	2.6		7.0	1.3
Delay (s)	54.5	32.2	22.6		49.0	16.2
Level of Service	D	C	C		D	B
Approach Delay (s)	47.5		22.6			20.0
Approach LOS	D		C			B
Intersection Summary						
HCM 2000 Control Delay			30.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			73.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Cumulative No Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	242	66	473	824	319	148	1506	363	2297
v/c Ratio	0.83	0.29	0.16	1.58	0.82	0.59	2.60	0.90	1.57	1.25
Control Delay	85.1	40.8	5.8	312.8	51.3	25.5	789.4	49.7	313.8	153.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.1	40.8	5.8	312.8	51.3	25.5	789.4	49.7	313.8	153.8
Queue Length 50th (ft)	145	85	0	~566	334	121	~209	457	~433	~932
Queue Length 95th (ft)	#244	121	26	#780	410	220	#349	#586	#629	#1043
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	566	57	1681	231	1834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.25	0.14	1.58	0.77	0.56	2.60	0.90	1.57	1.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	160	220	60	430	750	290	25	110	1270	100	330	1880
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1769	5010		1770	4997
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		573	5010		1770	4997
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	242	66	473	824	319	27	121	1396	110	363	2066
RTOR Reduction (vph)	0	0	51	0	0	105	0	0	7	0	0	10
Lane Group Flow (vph)	176	242	15	473	824	214	0	148	1499	0	363	2287
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	15.6	30.3	30.3	22.0	36.7	36.7		13.0	43.5		17.0	47.5
Effective Green, g (s)	15.6	30.3	30.3	22.0	36.7	36.7		13.0	43.5		17.0	47.5
Actuated g/C Ratio	0.12	0.23	0.23	0.17	0.28	0.28		0.10	0.33		0.13	0.37
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	212	824	356	299	999	433		57	1676		231	1825
v/s Ratio Prot	0.10	0.07		c0.27	c0.23				0.30		0.21	c0.46
v/s Ratio Perm			0.01			0.14		c0.26				
v/c Ratio	0.83	0.29	0.04	1.58	0.82	0.49		2.60	0.89		1.57	1.25
Uniform Delay, d1	55.9	41.0	38.6	54.0	43.6	38.9		58.5	41.1		56.5	41.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	22.3	0.2	0.1	277.3	5.6	0.9		766.6	7.8		277.0	118.6
Delay (s)	78.2	41.2	38.7	331.3	49.3	39.8		825.1	48.9		333.5	159.8
Level of Service	E	D	D	F	D	D		F	D		F	F
Approach Delay (s)		54.3			130.0				118.3			183.5
Approach LOS		D			F				F			F
Intersection Summary												
HCM 2000 Control Delay			143.5			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.37									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			100.8%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative No Project AM



Movement	SBR
*** Lane Configurations	
Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	231
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative No Project AM

							
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	463	1284	1274	126	127	316	11
v/c Ratio	0.33	1.14	0.47	0.65	0.66	0.63	0.07
Control Delay	21.7	110.4	6.2	57.9	59.3	10.2	36.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	110.4	6.2	57.9	59.3	10.2	36.8
Queue Length 50th (ft)	98	~548	134	90	91	0	7
Queue Length 95th (ft)	167	#681	273	140	141	70	21
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1391	1123	2709	326	321	622	258
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	1.14	0.47	0.39	0.40	0.51	0.04

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	310	130	1220	1200	10	230	10	300	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.96	1.00		0.95	
Satd. Flow (prot)		3367		3433	3534		1681	1692	1555		1770	
Flt Permitted		1.00		0.95	1.00		0.75	0.74	1.00		0.56	
Satd. Flow (perm)		3367		3433	3534		1328	1304	1555		1048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	326	137	1284	1263	11	242	11	316	11	0	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	269	0	0	0
Lane Group Flow (vph)	0	427	0	1284	1274	0	126	127	47	0	11	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Effective Green, g (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Actuated g/C Ratio		0.40		0.33	0.77		0.15	0.15	0.15		0.15	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1355		1123	2708		195	192	229		154	
v/s Ratio Prot		0.13		c0.37	c0.36							
v/s Ratio Perm							0.09	c0.10	0.03		0.01	
v/c Ratio		0.32		1.14	0.47		0.65	0.66	0.20		0.07	
Uniform Delay, d1		22.5		37.0	4.7		44.2	44.3	41.2		40.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.6		75.4	0.6		5.4	6.5	0.2		0.1	
Delay (s)		23.1		112.4	5.3		49.6	50.8	41.4		40.5	
Level of Service		C		F	A		D	D	D		D	
Approach Delay (s)		23.1			59.1			45.3			40.5	
Approach LOS		C			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.2			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			73.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative No Project AM

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	323	414	323	1010	141	71	1313	212	152	2606	1273
v/c Ratio	1.61	0.35	2.52	1.13	0.30	0.90	0.53	0.27	0.71	1.01	1.44
Control Delay	335.6	41.1	733.0	122.8	15.4	143.2	26.6	12.7	84.5	56.0	231.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	335.6	41.1	733.0	122.8	15.4	143.2	26.6	12.7	84.5	56.0	231.1
Queue Length 50th (ft)	~224	104	~507	~582	27	68	308	61	73	~911	~1536
Queue Length 95th (ft)	#325	139	#703	#719	86	#169	353	116	#114	#1028	#1806
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1192	128	890	464	79	2485	798	224	2577	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.61	0.35	2.52	1.13	0.30	0.90	0.53	0.27	0.68	1.01	1.44

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative No Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	 		 	  		  	 	
Volume (vph)	320	300	110	320	1000	140	70	1300	210	150	2580	1260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4850		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4850		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	323	303	111	323	1010	141	71	1313	212	152	2606	1273
RTOR Reduction (vph)	0	38	0	0	0	78	0	0	48	0	0	102
Lane Group Flow (vph)	323	376	0	323	1010	63	71	1313	164	152	2606	1171
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.51	0.51
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1153		128	890	386	79	2486	750	215	2577	781
v/s Ratio Prot	0.09	0.08		c0.18	c0.29		0.04	0.26		c0.04	0.51	
v/s Ratio Perm						0.04			0.11			c0.76
v/c Ratio	1.61	0.33		2.52	1.13	0.16	0.90	0.53	0.22	0.71	1.01	1.50
Uniform Delay, d1	68.2	45.6		67.2	54.2	42.3	68.9	25.5	21.2	66.6	35.8	35.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	295.1	0.1		708.1	74.5	0.1	66.2	0.8	0.7	8.4	20.5	231.4
Delay (s)	363.3	45.7		775.3	128.8	42.4	135.1	26.3	21.9	75.0	56.3	267.1
Level of Service	F	D		F	F	D	F	C	C	E	E	F
Approach Delay (s)		184.9			262.2			30.6			123.6	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay	136.5			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.47											
Actuated Cycle Length (s)	145.0			Sum of lost time (s)			20.0					
Intersection Capacity Utilization	124.5%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative No Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	309	305	51	62	781	10	469	260
v/c Ratio	0.79	0.78	0.50	0.34	0.39	0.11	0.29	0.31
Control Delay	52.6	50.6	58.4	49.8	15.8	50.4	21.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	50.6	58.4	49.8	15.8	50.4	21.2	4.0
Queue Length 50th (ft)	208	201	28	40	145	7	108	0
Queue Length 95th (ft)	281	273	68	82	276	24	170	54
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	107	183	2023	183	1591	838
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.55	0.48	0.34	0.39	0.05	0.29	0.31
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	10	30	30	10	10	60	750	0	10	450	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1668			1754		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1668			1754		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	573	10	31	31	10	10	62	781	0	10	469	260
RTOR Reduction (vph)	0	5	0	0	9	0	0	0	0	0	0	145
Lane Group Flow (vph)	309	300	0	0	42	0	62	781	0	10	469	115
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Effective Green, g (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Actuated g/C Ratio	0.23	0.23			0.04		0.10	0.53		0.01	0.44	0.44
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	390	387			77		183	1883		21	1559	681
v/s Ratio Prot	c0.18	0.18			c0.02		c0.04	c0.22		0.01	0.13	
v/s Ratio Perm												0.07
v/c Ratio	0.79	0.78			0.55		0.34	0.41		0.48	0.30	0.17
Uniform Delay, d1	38.3	38.1			49.6		44.1	14.9		52.0	19.1	17.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.9	8.6			4.8		5.0	0.7		6.1	0.5	0.5
Delay (s)	48.2	46.7			54.4		49.1	15.6		58.1	19.6	18.4
Level of Service	D	D			D		D	B		E	B	B
Approach Delay (s)		47.5			54.4			18.0			19.7	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			27.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			59.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative No Project PM

										
Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	63	158	379	210	247	663	137	74	484	11
v/c Ratio	0.28	0.38	0.59	0.69	0.69	0.33	0.15	0.37	0.30	0.02
Control Delay	44.1	43.1	8.2	53.4	54.1	14.6	3.3	54.9	21.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	43.1	8.2	53.4	54.1	14.6	3.3	54.9	21.3	0.0
Queue Length 50th (ft)	41	105	0	142	179	140	4	54	119	0
Queue Length 95th (ft)	87	177	86	#259	261	193	35	103	175	0
Internal Link Dist (ft)		790		717		983			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	223	421	644	304	620	2027	941	559	1906	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.38	0.59	0.69	0.40	0.33	0.15	0.13	0.25	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	60	150	360	80	60	60	45	190	630	130	70	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1552		1740			1770	3539	1551	1770	3539
Flt Permitted	0.53	1.00	1.00		0.72			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	985	1863	1552		1278			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	158	379	84	63	63	47	200	663	137	74	484
RTOR Reduction (vph)	0	0	294	0	10	0	0	0	0	54	0	0
Lane Group Flow (vph)	63	158	85	0	200	0	0	247	663	83	74	484
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.6	26.6	26.6		27.1			23.8	67.3	67.3	11.0	54.5
Effective Green, g (s)	26.6	26.6	26.6		27.1			23.8	67.3	67.3	11.0	54.5
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.20	0.57	0.57	0.09	0.46
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	221	418	348		292			355	2011	881	164	1629
v/s Ratio Prot		0.08						c0.14	c0.19		0.04	0.14
v/s Ratio Perm	0.06		0.05		c0.16					0.05		
v/c Ratio	0.29	0.38	0.24		0.68			0.70	0.33	0.09	0.45	0.30
Uniform Delay, d1	38.0	38.9	37.7		41.7			43.9	13.6	11.7	50.8	20.0
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.6	1.0		6.5			8.6	0.4	0.2	5.5	0.5
Delay (s)	40.0	40.5	38.7		48.3			52.5	14.0	11.9	56.3	20.4
Level of Service	D	D	D		D			D	B	B	E	C
Approach Delay (s)		39.3			48.3				22.8			25.0
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			29.6									
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			118.4									
Intersection Capacity Utilization			74.5%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Cumulative No Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	11
RTOR Reduction (vph)	6
Lane Group Flow (vph)	5
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	54.5
Effective Green, g (s)	54.5
Actuated g/C Ratio	0.46
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	713
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	17.3
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	17.3
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Cumulative No Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	950	0	0	950
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1033	0	0	1033
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.88	0.85			0.85	
vC, conflicting volume	1549	516			1033	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1007	67			677	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	209	832			771	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	688	344	344	688	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	1700	1700	771	1700	
Volume to Capacity	0.00	0.40	0.20	0.00	0.40	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			29.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative No Project PM

								
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	31	31	21	10	979	31	969
v/c Ratio	0.26	0.31	0.31	0.06	0.07	0.45	0.19	0.40
Control Delay	2.2	41.3	41.3	0.3	44.0	10.0	40.4	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	41.3	41.3	0.3	44.0	10.0	40.4	10.5
Queue Length 50th (ft)	0	17	17	0	5	182	16	107
Queue Length 95th (ft)	0	40	40	0	m14	318	44	304
Internal Link Dist (ft)	163		472			468		677
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	405	208	208	534	177	2187	177	2438
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.15	0.15	0.04	0.06	0.45	0.18	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	0	40	60	0	20	10	850	100	30	930	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92		1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1657		1677	1677	1561	1770	3475		1770	3533	
Flt Permitted		0.85		0.46	0.46	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1431		813	813	1561	1770	3475		1770	3533	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	0	41	62	0	21	10	876	103	31	959	10
RTOR Reduction (vph)	0	68	0	0	0	19	0	6	0	0	0	0
Lane Group Flow (vph)	0	4	0	31	31	2	10	973	0	31	969	0
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3			4		4						
Actuated Green, G (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3	
Effective Green, g (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3	
Actuated g/C Ratio		0.06		0.11	0.11	0.11	0.02	0.56		0.08	0.63	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		89		87	87	168	27	1957		137	2210	
v/s Ratio Prot							0.01	c0.28		0.02	c0.27	
v/s Ratio Perm		c0.00		c0.04	0.04	0.00						
v/c Ratio		0.05		0.36	0.36	0.01	0.37	0.50		0.23	0.44	
Uniform Delay, d1		39.7		37.3	37.3	35.9	43.9	11.9		39.0	8.7	
Progression Factor		1.00		1.00	1.00	1.00	1.11	0.69		1.00	1.00	
Incremental Delay, d2		0.1		0.9	0.9	0.0	3.0	0.9		0.3	0.6	
Delay (s)		39.8		38.2	38.2	35.9	51.5	9.1		39.3	9.3	
Level of Service		D		D	D	D	D	A		D	A	
Approach Delay (s)		39.8			37.6			9.6			10.3	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			17.0		
Intersection Capacity Utilization			50.1%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative No Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	175	30	46	908	10	1113
v/c Ratio	0.65	0.13	0.31	0.35	0.07	0.47
Control Delay	32.2	23.4	43.8	6.5	35.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	23.4	43.8	6.5	35.6	11.2
Queue Length 50th (ft)	58	10	25	63	6	114
Queue Length 95th (ft)	107	30	58	221	m15	272
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	549	552	413	2584	413	2364
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.05	0.11	0.35	0.02	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	10	90	10	10	10	45	860	20	10	1000	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1680			1741		1770	3525		1770	3493	
Flt Permitted		0.85			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1462			1586		1770	3525		1770	3493	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	10	93	10	10	10	46	887	21	10	1031	82
RTOR Reduction (vph)	0	59	0	0	9	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	116	0	0	21	0	46	907	0	10	1110	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Effective Green, g (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Actuated g/C Ratio		0.14			0.14		0.05	0.70		0.02	0.66	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		209			227		96	2455		27	2297	
v/s Ratio Prot							c0.03	c0.26		0.01	c0.32	
v/s Ratio Perm		c0.08			0.01							
v/c Ratio		0.55			0.09		0.48	0.37		0.37	0.48	
Uniform Delay, d1		35.9			33.5		41.3	5.6		43.9	7.7	
Progression Factor		1.00			1.00		1.00	1.00		0.89	1.12	
Incremental Delay, d2		1.8			0.1		1.4	0.4		3.0	0.7	
Delay (s)		37.7			33.5		42.7	6.0		42.0	9.4	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		37.7			33.5			7.8			9.7	
Approach LOS		D			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			59.1%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative No Project PM

	→	↘	←	↖	↙	↑	↗	↓	↘
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	278	381	114	10	474	1000	10	918	175
v/c Ratio	0.95	0.64	0.71	0.02	1.45	0.45	0.09	0.58	0.22
Control Delay	73.8	11.0	54.5	0.1	252.6	5.2	34.5	17.4	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.8	11.0	54.5	0.1	252.6	5.2	34.5	17.4	3.9
Queue Length 50th (ft)	130	23	50	0	~326	65	5	163	5
Queue Length 95th (ft)	#272	104	#132	0	#506	m116	19	220	38
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	295	602	161	431	326	2234	163	1589	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.63	0.71	0.02	1.45	0.45	0.06	0.58	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	70	370	90	20	10	460	750	220	10	890	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1796	1583		1790	1583	1770	3400		1770	3539	1561
Flt Permitted		0.71	1.00		0.39	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1322	1583		720	1583	1770	3400		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	206	72	381	93	21	10	474	773	227	10	918	175
RTOR Reduction (vph)	0	0	249	0	0	8	0	30	0	0	0	85
Lane Group Flow (vph)	0	278	132	0	114	2	474	970	0	10	918	90
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		16.9	16.9		16.9	16.9	14.0	46.9		1.2	34.1	34.1
Effective Green, g (s)		16.9	16.9		16.9	16.9	14.0	46.9		1.2	34.1	34.1
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.62		0.02	0.45	0.45
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		293	352		160	352	326	2098		27	1587	700
v/s Ratio Prot							c0.27	0.29		0.01	c0.26	
v/s Ratio Perm		c0.21	0.08		0.16	0.00						0.06
v/c Ratio		0.95	0.38		0.71	0.01	1.45	0.46		0.37	0.58	0.13
Uniform Delay, d1		29.1	25.1		27.3	23.0	31.0	7.8		37.0	15.6	12.3
Progression Factor		1.00	1.00		1.00	1.00	1.46	0.72		1.00	1.00	1.00
Incremental Delay, d2		38.2	0.2		11.8	0.0	218.3	0.5		3.1	1.5	0.4
Delay (s)		67.3	25.3		39.1	23.0	263.6	6.1		40.1	17.1	12.6
Level of Service		E	C		D	C	F	A		D	B	B
Approach Delay (s)		43.0			37.8			88.9			16.6	
Approach LOS		D			D			F			B	
Intersection Summary												
HCM 2000 Control Delay			54.3				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			81.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Cumulative No Project PM

	→	↘	←	↖	↙	↑	↗	↘	↓
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	406	1021	41	70	177	1146	31	104	1282
v/c Ratio	1.29	1.70	0.15	0.16	0.67	0.57	0.03	0.67	0.76
Control Delay	182.5	342.2	25.4	3.7	43.0	12.6	1.2	51.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.5	342.2	25.4	3.7	43.0	12.6	1.2	51.0	13.0
Queue Length 50th (ft)	~249	~603	16	0	79	180	0	53	121
Queue Length 95th (ft)	#414	#833	41	19	138	238	6	m#99	168
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	314	600	277	431	326	2002	899	163	1678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.70	0.15	0.16	0.54	0.57	0.03	0.64	0.76

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	100	980	10	30	67	170	1100	30	100	900	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1796	1583		1840	1583	1770	3539	1547	1770	3385	
Flt Permitted		0.75	1.00		0.67	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1406	1583		1240	1583	1770	3539	1547	1770	3385	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	302	104	1021	10	31	70	177	1146	31	104	938	344
RTOR Reduction (vph)	0	0	246	0	0	54	0	0	14	0	46	0
Lane Group Flow (vph)	0	406	775	0	41	16	177	1146	17	104	1236	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Effective Green, g (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.15	0.56	0.56	0.07	0.48	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		314	354		277	354	263	1974	863	130	1634	
v/s Ratio Prot							c0.10	0.32		c0.06	c0.37	
v/s Ratio Perm		0.29	c0.49		0.03	0.01			0.01			
v/c Ratio		1.29	2.19		0.15	0.04	0.67	0.58	0.02	0.80	0.76	
Uniform Delay, d1		29.5	29.5		23.7	23.1	30.6	11.0	7.5	34.6	16.0	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.96	0.64	
Incremental Delay, d2		153.6	544.3		0.1	0.0	5.2	1.3	0.0	22.4	2.7	
Delay (s)		183.1	573.8		23.8	23.1	35.9	12.2	7.6	55.8	12.8	
Level of Service		F	F		C	C	D	B	A	E	B	
Approach Delay (s)		462.6			23.4			15.2			16.1	
Approach LOS		F			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		164.9										
HCM 2000 Volume to Capacity ratio		1.12										
Actuated Cycle Length (s)		76.0										
Intersection Capacity Utilization		112.8%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative No Project PM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	224	138	1458	628	1394
v/c Ratio	0.52	0.53	0.68	2.22	0.55
Control Delay	21.1	14.9	15.2	583.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	14.9	15.2	583.3	8.2
Queue Length 50th (ft)	26	0	291	~649	187
Queue Length 95th (ft)	59	59	423	#862	285
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	923	469	2134	283	2524
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.29	0.68	2.22	0.55

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative No Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	80	260	1200	170	590	1310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.91	0.85	0.98		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3155	1414	3468		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3155	1414	3468		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	85	277	1277	181	628	1394
RTOR Reduction (vph)	126	125	8	0	0	0
Lane Group Flow (vph)	98	13	1450	0	628	1394
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.7	9.7	61.3		16.0	71.3
Effective Green, g (s)	9.7	9.7	61.3		16.0	71.3
Actuated g/C Ratio	0.10	0.10	0.61		0.16	0.71
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	306	137	2125		283	2523
v/s Ratio Prot	c0.03		c0.42		c0.35	0.39
v/s Ratio Perm		0.01				
v/c Ratio	0.32	0.10	0.68		2.22	0.55
Uniform Delay, d1	42.1	41.2	12.9		42.0	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.4	1.8		559.9	0.9
Delay (s)	42.9	41.6	14.7		601.9	7.7
Level of Service	D	D	B		F	A
Approach Delay (s)	42.4		14.7			192.2
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			110.7		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.92			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			87.9%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative No Project PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	200	684	84	389	316	284	127	2084	621	1273
v/c Ratio	0.89	0.86	0.18	1.20	0.32	0.54	2.05	1.41	10.18	0.66
Control Delay	88.7	56.2	0.9	158.5	34.9	24.3	551.3	222.4	4169.4	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	56.2	0.9	158.5	34.9	24.3	551.3	222.4	4169.4	32.7
Queue Length 50th (ft)	153	265	0	~365	101	102	~155	~809	~926	298
Queue Length 95th (ft)	#284	338	0	#561	141	192	#282	#907	#1156	352
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1476	61	1920
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.82	0.18	1.20	0.31	0.54	2.05	1.41	10.18	0.66

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		 			 				  			
Volume (vph)	190	650	80	370	300	270	70	50	1660	320	40	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.98			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1502	1770	3539	1537		1767	4879			1763
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1502	1770	3539	1537		930	4879			412
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	684	84	389	316	284	74	53	1747	337	42	579
RTOR Reduction (vph)	0	0	65	0	0	89	0	0	23	0	0	0
Lane Group Flow (vph)	200	684	19	389	316	195	0	127	2061	0	0	621
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Effective Green, g (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Actuated g/C Ratio	0.13	0.23	0.23	0.18	0.28	0.28		0.07	0.30			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	225	799	339	324	996	432		62	1451			61
v/s Ratio Prot	0.11	c0.19		c0.22	0.09				c0.42			
v/s Ratio Perm			0.01			0.13		0.14				c1.51
v/c Ratio	0.89	0.86	0.06	1.20	0.32	0.45		2.05	1.42			10.18
Uniform Delay, d1	51.5	44.6	36.4	49.0	34.0	35.5		56.0	42.1			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	31.0	8.9	0.1	116.1	0.2	0.8		522.9	193.2			4163.6
Delay (s)	82.5	53.5	36.5	165.1	34.2	36.2		578.9	235.4			4214.6
Level of Service	F	D	D	F	C	D		F	F			F
Approach Delay (s)		58.0			86.3				255.1			
Approach LOS		E			F				F			
Intersection Summary												
HCM 2000 Control Delay			555.0				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			2.73									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			129.0%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Cumulative No Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	1110	100
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5014	
Flt Permitted	1.00	
Satd. Flow (perm)	5014	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	1168	105
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1264	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	45.7	
Effective Green, g (s)	45.7	
Actuated g/C Ratio	0.38	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	1909	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	0.66	
Uniform Delay, d1	30.8	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	32.6	
Level of Service	C	
Approach Delay (s)	1403.8	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative No Project PM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	45	1651	404	449	135	135	955	34
v/c Ratio	0.58	0.84	1.02	0.19	0.50	0.50	2.05	0.15
Control Delay	88.3	27.3	106.6	9.3	52.8	52.8	502.2	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.3	27.3	106.6	9.3	52.8	52.8	502.2	44.3
Queue Length 50th (ft)	38	565	~186	76	106	106	~1150	24
Queue Length 95th (ft)	#90	661	#285	98	177	177	#1386	54
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	1970	396	2324	271	271	466	221
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.84	1.02	0.19	0.50	0.50	2.05	0.15
Intersection Summary								
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1200	270	360	400	0	240	0	850	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3419		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	0.73	1.00		0.57	
Satd. Flow (perm)	1770	3419		3433	3539		1301	1301	1563		1062	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	45	1348	303	404	449	0	270	0	955	34	0	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	141	0	0	0
Lane Group Flow (vph)	45	1636	0	404	449	0	135	135	814	0	34	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.8	74.4		15.0	84.6		27.1	27.1	27.1		27.1	
Effective Green, g (s)	4.8	74.4		15.0	84.6		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.04	0.57		0.12	0.65		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	65	1956		396	2303		271	271	325		221	
v/s Ratio Prot	0.03	c0.48		c0.12	0.13							
v/s Ratio Perm							0.10	0.10	c0.52		0.03	
v/c Ratio	0.69	0.84		1.02	0.19		0.50	0.50	2.50		0.15	
Uniform Delay, d1	61.9	22.8		57.5	9.1		45.4	45.4	51.5		42.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	22.6	4.4		50.5	0.2		0.5	0.5	686.3		0.1	
Delay (s)	84.5	27.2		108.0	9.3		46.0	46.0	737.8		42.2	
Level of Service	F	C		F	A		D	D	F		D	
Approach Delay (s)		28.8			56.0			585.3			42.2	
Approach LOS		C			E			F			D	
Intersection Summary												
HCM 2000 Control Delay		214.0					HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio		1.25										
Actuated Cycle Length (s)		130.0					Sum of lost time (s)		13.5			
Intersection Capacity Utilization		113.3%					ICU Level of Service		H			
Analysis Period (min)		15										
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative No Project PM

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	701	1134	320	381	258	123	2144	485	278	1309	320
v/c Ratio	1.84	0.95	0.88	0.32	0.41	2.32	1.27	0.83	0.99	0.76	0.43
Control Delay	423.4	67.8	78.4	35.0	13.0	675.7	166.6	45.8	114.4	45.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	423.4	67.8	78.4	35.0	13.0	675.7	166.6	45.8	114.4	45.6	5.7
Queue Length 50th (ft)	~497	371	283	134	55	~182	~914	318	132	393	0
Queue Length 95th (ft)	#623	#463	383	169	124	#316	#1067	#554	#227	477	72
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1203	436	1327	688	53	1684	586	281	1720	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	0.94	0.73	0.29	0.38	2.32	1.27	0.83	0.99	0.76	0.43

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative No Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations	 	  			 				  		 	  
Volume (vph)	680	1000	100	310	370	250	40	80	2080	470	270	1270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	4994		1770	3539	1550		1768	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	4994		1770	3539	1550		709	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	701	1031	103	320	381	258	41	82	2144	485	278	1309
RTOR Reduction (vph)	0	8	0	0	0	115	0	0	0	84	0	0
Lane Group Flow (vph)	701	1126	0	320	381	143	0	123	2144	401	278	1309
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Effective Green, g (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Actuated g/C Ratio	0.11	0.24		0.21	0.33	0.33		0.08	0.33	0.33	0.08	0.34
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1191		364	1180	517		53	1681	502	281	1718
v/s Ratio Prot	c0.20	c0.23		c0.18	0.11				c0.42		0.08	0.26
v/s Ratio Perm						0.09		c0.17		0.26		
v/c Ratio	1.84	0.95		0.88	0.32	0.28		2.32	1.28	0.80	0.99	0.76
Uniform Delay, d1	62.2	52.4		53.9	34.8	34.3		64.8	46.9	42.6	64.2	41.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	390.2	14.6		20.1	0.1	0.1		649.0	128.7	12.6	50.1	3.3
Delay (s)	452.5	67.0		74.0	34.9	34.4		713.7	175.6	55.2	114.3	44.6
Level of Service	F	E		E	C	C		F	F	E	F	D
Approach Delay (s)		214.2			47.8				178.4			52.9
Approach LOS		F			D				F			D
Intersection Summary												
HCM 2000 Control Delay		138.3										
HCM 2000 Volume to Capacity ratio		1.28										
Actuated Cycle Length (s)		140.0							20.0			
Intersection Capacity Utilization		106.9%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative No Project PM

Movement	SBR
Left Lane Configurations	Left
Volume (vph)	310
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	320
RTOR Reduction (vph)	212
Lane Group Flow (vph)	108
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.3
Effective Green, g (s)	47.3
Actuated g/C Ratio	0.34
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	524
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.21
Uniform Delay, d1	33.0
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	33.9
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues

Hayward Crosspoint School

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Cumulative Plus Project AM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	97	94	42	59	542	765	894
v/c Ratio	0.58	0.51	0.22	0.32	0.21	0.36	0.69
Control Delay	58.6	41.5	2.8	49.3	5.0	12.2	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	41.5	2.8	49.3	5.0	12.2	4.2
Queue Length 50th (ft)	67	46	0	38	56	141	0
Queue Length 95th (ft)	118	96	0	80	91	203	58
Internal Link Dist (ft)		477	512		933	1964	
Turn Bay Length (ft)				225			250
Base Capacity (vph)	555	557	202	183	2635	2151	1292
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.21	0.32	0.21	0.36	0.69
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	20	30	20	0	20	55	490	20	0	719	840
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.93		1.00	0.99			1.00	0.85
Flt Protected	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1636			1695		1770	3516			3539	1551
Flt Permitted	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1636			1695		1770	3516			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	21	32	21	0	21	59	521	21	0	765	894
RTOR Reduction (vph)	0	23	0	0	41	0	0	1	0	0	0	368
Lane Group Flow (vph)	97	71	0	0	1	0	59	541	0	0	765	526
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Effective Green, g (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Actuated g/C Ratio	0.10	0.10			0.03		0.10	0.73			0.59	0.59
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	168	163			47		183	2567			2083	913
v/s Ratio Prot	c0.06	0.04			c0.00		c0.03	0.15			0.22	
v/s Ratio Perm												c0.34
v/c Ratio	0.58	0.43			0.03		0.32	0.21			0.37	0.58
Uniform Delay, d1	45.6	44.9			50.1		44.0	4.6			11.4	13.6
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.0	0.7			0.1		4.6	0.2			0.5	2.6
Delay (s)	48.5	45.5			50.2		48.7	4.7			11.9	16.2
Level of Service	D	D			D		D	A			B	B
Approach Delay (s)		47.1			50.2			9.1			14.2	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			72.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School

Cumulative Plus Project AM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	11	21	160	415	582	532	96	21	637	106
v/c Ratio	0.08	0.05	0.33	1.10	0.94	0.23	0.09	0.14	0.59	0.19
Control Delay	38.3	36.2	7.8	116.8	61.2	10.1	2.5	51.5	36.8	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	36.2	7.8	116.8	61.2	10.1	2.5	51.5	36.8	8.1
Queue Length 50th (ft)	7	12	0	~341	416	68	0	15	213	5
Queue Length 95th (ft)	24	35	56	#558	#661	136	24	41	273	46
Internal Link Dist (ft)		790		717		564			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	131	422	478	377	621	2267	1048	560	1908	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.33	1.10	0.94	0.23	0.09	0.04	0.33	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	20	150	110	150	130	97	450	500	90	20	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		0.99			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.99			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1562		1744			1770	3539	1583	1770	3539
Flt Permitted	0.31	1.00	1.00		0.90			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	581	1863	1562		1587			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	21	160	117	160	138	103	479	532	96	21	637
RTOR Reduction (vph)	0	0	124	0	12	0	0	0	0	36	0	0
Lane Group Flow (vph)	11	21	36	0	403	0	0	582	532	60	21	637
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Effective Green, g (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.34	0.63	0.63	0.04	0.32
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	129	413	346		359			608	2221	993	65	1136
v/s Ratio Prot		0.01						c0.33	0.15		0.01	c0.18
v/s Ratio Perm	0.02		0.02		c0.25					0.04		
v/c Ratio	0.09	0.05	0.10		1.12			0.96	0.24	0.06	0.32	0.56
Uniform Delay, d1	36.8	36.5	36.9		46.1			38.3	9.7	8.6	56.0	33.5
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.4		85.4			26.8	0.3	0.1	8.0	2.0
Delay (s)	37.6	36.7	37.3		131.5			65.1	10.0	8.7	64.0	35.5
Level of Service	D	D	D		F			E	A	A	E	D
Approach Delay (s)		37.2			131.5				36.4			35.3
Approach LOS		D			F				D			D
Intersection Summary												
HCM 2000 Control Delay			51.4			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			119.3			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			92.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative Plus Project AM



Movement	SBR
Lane Configurations	
Volume (vph)	100
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	106
RTOR Reduction (vph)	65
Lane Group Flow (vph)	41
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.3
Effective Green, g (s)	38.3
Actuated g/C Ratio	0.32
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	508
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.08
Uniform Delay, d1	28.2
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	28.5
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Cumulative Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	69	13	1080	65	10	906
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	14	1174	71	11	985
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.76	0.69			0.69	
vC, conflicting volume	1723	622			1245	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	501	0			464	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	98			99	
cM capacity (veh/h)	375	751			757	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	75	14	783	462	339	657
Volume Left	75	0	0	0	11	0
Volume Right	0	14	0	71	0	0
cSH	375	751	1700	1700	757	1700
Volume to Capacity	0.20	0.02	0.46	0.27	0.01	0.39
Queue Length 95th (ft)	18	1	0	0	1	0
Control Delay (s)	17.0	9.9	0.0	0.0	0.5	0.0
Lane LOS	C	A			A	
Approach Delay (s)	15.9		0.0		0.2	
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative Plus Project AM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	84	96	45	90	1314	34	1007
v/c Ratio	0.02	1.08	1.30	0.08	0.56	0.70	0.21	0.56
Control Delay	0.1	162.1	236.6	0.3	56.6	15.1	40.8	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	162.1	236.6	0.3	56.6	15.1	40.8	18.4
Queue Length 50th (ft)	0	~55	~73	0	48	308	18	199
Queue Length 95th (ft)	0	#150	#174	0	85	#506	46	327
Internal Link Dist (ft)	163		472			468		302
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	608	78	74	533	177	1878	177	1786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.08	1.30	0.08	0.51	0.70	0.19	0.56

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	10	150	10	40	80	1129	40	30	856	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1694	1559	1770	3518		1770	3512	
Flt Permitted		1.00		0.17	0.16	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		308	290	1559	1770	3518		1770	3512	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	11	169	11	45	90	1269	45	34	962	45
RTOR Reduction (vph)	0	11	0	0	0	34	0	2	0	0	3	0
Lane Group Flow (vph)	0	0	0	84	96	12	90	1312	0	34	1004	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Effective Green, g (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Actuated g/C Ratio		0.02		0.26	0.26	0.26	0.08	0.48		0.06	0.46	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	74	398	135	1688		106	1627	
v/s Ratio Prot		c0.00					0.05	c0.37		0.02	c0.29	
v/s Ratio Perm				0.27	c0.33	0.01						
v/c Ratio		0.01		1.08	1.30	0.03	0.67	0.78		0.32	0.62	
Uniform Delay, d1		43.6		33.5	33.5	25.1	40.4	19.4		40.5	18.2	
Progression Factor		1.00		1.00	1.00	1.00	1.14	0.66		1.00	1.00	
Incremental Delay, d2		0.0		124.5	203.5	0.0	8.2	3.2		0.6	1.8	
Delay (s)		43.7		158.0	237.0	25.1	54.4	15.9		41.2	19.9	
Level of Service		D		F	F	C	D	B		D	B	
Approach Delay (s)		43.7			165.1			18.4			20.6	
Approach LOS		D			F			B			C	
Intersection Summary												
HCM 2000 Control Delay			31.7		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					17.0		
Intersection Capacity Utilization			61.0%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative Plus Project AM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	22	180	1291	22	1147
v/c Ratio	0.66	0.08	0.68	0.52	0.16	0.59
Control Delay	39.1	0.6	48.7	9.7	35.2	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	0.6	48.7	9.7	35.2	16.2
Queue Length 50th (ft)	69	0	98	113	0	118
Queue Length 95th (ft)	113	0	154	359	m20	m307
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	520	570	413	2468	413	1943
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.04	0.44	0.52	0.05	0.59

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	10	55	10	0	10	160	1129	20	20	941	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1719			1684		1770	3529		1770	3492	
Flt Permitted		0.82			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1441			1519		1770	3529		1770	3492	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	90	11	62	11	0	11	180	1269	22	22	1057	90
RTOR Reduction (vph)	0	31	0	0	19	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	132	0	0	3	0	180	1290	0	22	1143	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		13.5			13.5		13.5	60.6		2.9	50.0	
Effective Green, g (s)		13.5			13.5		13.5	60.6		2.9	50.0	
Actuated g/C Ratio		0.15			0.15		0.15	0.67		0.03	0.56	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		216			227		265	2376		57	1940	
v/s Ratio Prot							c0.10	0.37		0.01	c0.33	
v/s Ratio Perm		c0.09			0.00							
v/c Ratio		0.61			0.01		0.68	0.54		0.39	0.59	
Uniform Delay, d1		35.8			32.6		36.2	7.6		42.7	13.2	
Progression Factor		1.00			1.00		1.00	1.00		0.85	0.95	
Incremental Delay, d2		3.3			0.0		5.4	0.9		1.2	1.0	
Delay (s)		39.1			32.6		41.6	8.5		37.7	13.5	
Level of Service		D			C		D	A		D	B	
Approach Delay (s)		39.1			32.6			12.5			14.0	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		14.8			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		59.3%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

Cumulative Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	369	78	334	44	789	1330	11	840	300
v/c Ratio	3.29	0.18	3.24	0.10	1.32	0.61	0.08	0.86	0.48
Control Delay	1070.2	3.3	1049.1	0.5	173.3	6.2	28.8	33.2	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1070.2	3.3	1049.1	0.5	173.3	6.2	28.8	33.2	7.2
Queue Length 50th (ft)	~265	0	~239	0	~381	46	4	165	12
Queue Length 95th (ft)	#389	16	#359	0	m#531	127	18	#261	66
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	112	432	103	427	599	2188	190	980	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.29	0.18	3.24	0.10	1.32	0.61	0.06	0.86	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	322	10	70	240	60	40	710	947	250	10	756	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.98	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1791	1559	1770	3408		1770	3539	1563
Flt Permitted		0.28	1.00		0.26	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		524	1583		479	1559	1770	3408		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	358	11	78	267	67	44	789	1052	278	11	840	300
RTOR Reduction (vph)	0	0	61	0	0	35	0	30	0	0	0	188
Lane Group Flow (vph)	0	369	17	0	334	9	789	1300	0	11	840	112
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		14.0	14.0		14.0	14.0	22.0	38.8		1.2	18.0	18.0
Effective Green, g (s)		14.0	14.0		14.0	14.0	22.0	38.8		1.2	18.0	18.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.34	0.60		0.02	0.28	0.28
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		112	340		103	335	599	2034		32	980	432
v/s Ratio Prot							c0.45	0.38		0.01	c0.24	
v/s Ratio Perm		c0.70	0.01		0.70	0.01						0.07
v/c Ratio		3.29	0.05		3.24	0.03	1.32	0.64		0.34	0.86	0.26
Uniform Delay, d1		25.5	20.2		25.5	20.1	21.5	8.5		31.5	22.3	18.3
Progression Factor		1.00	1.00		1.00	1.00	0.94	0.71		1.00	1.00	1.00
Incremental Delay, d2		1055.2	0.0		1033.9	0.0	150.9	1.1		2.3	9.6	1.5
Delay (s)		1080.7	20.2		1059.4	20.1	171.0	7.1		33.8	31.9	19.8
Level of Service		F	C		F	C	F	A		C	C	B
Approach Delay (s)		895.6			938.4			68.1			28.7	
Approach LOS		F			F			E			C	
Intersection Summary												
HCM 2000 Control Delay		227.7										
HCM 2000 Volume to Capacity ratio		1.67										
Actuated Cycle Length (s)		65.0								11.0		
Intersection Capacity Utilization		95.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School

Cumulative Plus Project AM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	187	560	88	198	198	1689	11	44	1139
v/c Ratio	0.79	0.74	0.30	0.43	0.62	0.80	0.01	0.28	0.71
Control Delay	49.2	9.4	24.6	7.2	32.8	16.6	0.0	19.6	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	9.4	24.6	7.2	32.8	16.6	0.0	19.6	24.5
Queue Length 50th (ft)	69	0	29	0	73	295	0	14	253
Queue Length 95th (ft)	#156	79	65	46	121	#479	0	m14	m226
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	270	780	337	491	599	2117	973	190	1607
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.72	0.26	0.40	0.33	0.80	0.01	0.23	0.71

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	160	10	510	30	50	180	180	1537	10	40	735	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1779	1583		1828	1561	1770	3539	1583	1770	3372	
Flt Permitted		0.68	1.00		0.84	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1258	1583		1566	1561	1770	3539	1583	1770	3372	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	11	560	33	55	198	198	1689	11	44	808	331
RTOR Reduction (vph)	0	0	454	0	0	161	0	0	5	0	51	0
Lane Group Flow (vph)	0	187	106	0	88	37	198	1689	6	44	1088	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		12.3	12.3		12.3	12.3	11.7	37.7	37.7	4.0	30.0	
Effective Green, g (s)		12.3	12.3		12.3	12.3	11.7	37.7	37.7	4.0	30.0	
Actuated g/C Ratio		0.19	0.19		0.19	0.19	0.18	0.58	0.58	0.06	0.46	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		238	299		296	295	318	2052	918	108	1556	
v/s Ratio Prot							c0.11	c0.48		0.02	0.32	
v/s Ratio Perm		c0.15	0.07		0.06	0.02			0.00			
v/c Ratio		0.79	0.35		0.30	0.13	0.62	0.82	0.01	0.41	0.70	
Uniform Delay, d1		25.1	22.9		22.6	21.9	24.6	11.0	5.8	29.4	13.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.70	1.66	
Incremental Delay, d2		14.5	0.3		0.2	0.1	2.7	3.9	0.0	0.1	0.2	
Delay (s)		39.6	23.2		22.8	22.0	27.3	14.9	5.8	20.7	23.4	
Level of Service		D	C		C	C	C	B	A	C	C	
Approach Delay (s)		27.3			22.2			16.1			23.3	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay		20.6										
HCM 2000 Volume to Capacity ratio		0.81										
Actuated Cycle Length (s)		65.0										
Intersection Capacity Utilization		78.2%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative Plus Project AM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	866	398	1227	148	1141
v/c Ratio	0.95	0.66	0.72	0.68	0.59
Control Delay	52.9	13.9	23.6	57.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	13.9	23.6	57.4	16.5
Queue Length 50th (ft)	257	47	312	91	240
Queue Length 95th (ft)	#380	164	422	151	302
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	916	599	1710	283	1946
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.66	0.72	0.52	0.59

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

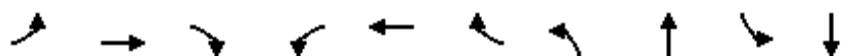
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	560	641	1086	80	141	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3297	1416	3500		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3297	1416	3500		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	589	675	1143	84	148	1141
RTOR Reduction (vph)	59	231	5	0	0	0
Lane Group Flow (vph)	807	167	1222	0	148	1141
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0	48.7		12.3	55.0
Effective Green, g (s)	26.0	26.0	48.7		12.3	55.0
Actuated g/C Ratio	0.26	0.26	0.49		0.12	0.55
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	857	368	1704		217	1946
v/s Ratio Prot	c0.24		c0.35		c0.08	0.32
v/s Ratio Perm		0.12				
v/c Ratio	0.94	0.45	0.72		0.68	0.59
Uniform Delay, d1	36.3	31.0	20.2		42.0	14.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	18.3	1.2	2.6		6.9	1.3
Delay (s)	54.5	32.3	22.8		48.8	16.2
Level of Service	D	C	C		D	B
Approach Delay (s)	47.5		22.8			20.0
Approach LOS	D		C			B
Intersection Summary						
HCM 2000 Control Delay			30.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			74.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative Plus Project AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	176	243	66	473	825	319	148	1506	363	2297
v/c Ratio	0.83	0.29	0.16	1.58	0.83	0.59	2.60	0.90	1.57	1.25
Control Delay	85.1	40.8	5.8	312.8	51.3	25.5	789.4	49.7	313.8	154.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.1	40.8	5.8	312.8	51.3	25.5	789.4	49.7	313.8	154.0
Queue Length 50th (ft)	145	85	0	~566	334	121	~209	457	~433	~932
Queue Length 95th (ft)	#244	122	26	#780	411	220	#349	#586	#629	#1043
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	245	963	475	299	1072	566	57	1680	231	1833
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.25	0.14	1.58	0.77	0.56	2.60	0.90	1.57	1.25

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	160	221	60	430	751	290	25	110	1270	100	330	1880
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1769	5010		1770	4997
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		573	5010		1770	4997
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	243	66	473	825	319	27	121	1396	110	363	2066
RTOR Reduction (vph)	0	0	51	0	0	105	0	0	7	0	0	10
Lane Group Flow (vph)	176	243	15	473	825	214	0	148	1499	0	363	2287
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	15.6	30.4	30.4	22.0	36.8	36.8		13.0	43.4		17.0	47.4
Effective Green, g (s)	15.6	30.4	30.4	22.0	36.8	36.8		13.0	43.4		17.0	47.4
Actuated g/C Ratio	0.12	0.23	0.23	0.17	0.28	0.28		0.10	0.33		0.13	0.36
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	212	827	357	299	1001	434		57	1672		231	1821
v/s Ratio Prot	0.10	0.07		c0.27	c0.23				0.30		0.21	c0.46
v/s Ratio Perm			0.01			0.14		c0.26				
v/c Ratio	0.83	0.29	0.04	1.58	0.82	0.49		2.60	0.90		1.57	1.26
Uniform Delay, d1	55.9	41.0	38.5	54.0	43.6	38.8		58.5	41.2		56.5	41.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	22.3	0.2	0.1	277.3	5.6	0.9		766.6	8.0		277.0	119.8
Delay (s)	78.2	41.2	38.6	331.3	49.2	39.7		825.1	49.1		333.5	161.1
Level of Service	E	D	D	F	D	D		F	D		F	F
Approach Delay (s)		54.3			129.8				118.6			184.6
Approach LOS		D			F				F			F
Intersection Summary												
HCM 2000 Control Delay			143.9				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.37									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			100.8%				ICU Level of Service		G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Cumulative Plus Project AM



Movement	SBR
*** Lane Configurations	
Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	231
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM

							
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	463	1304	1274	126	127	326	11
v/c Ratio	0.33	1.16	0.47	0.65	0.66	0.64	0.07
Control Delay	21.7	117.3	6.2	57.9	59.3	10.3	36.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	117.3	6.2	57.9	59.3	10.3	36.8
Queue Length 50th (ft)	98	~563	134	90	91	0	7
Queue Length 95th (ft)	167	#697	273	140	141	71	21
Internal Link Dist (ft)	992		1957		1923		345
Turn Bay Length (ft)		205		90			
Base Capacity (vph)	1391	1123	2709	326	321	629	258
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	1.16	0.47	0.39	0.40	0.52	0.04

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	310	130	1239	1200	10	230	10	310	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.96	1.00		0.95	
Satd. Flow (prot)		3367		3433	3534		1681	1692	1555		1770	
Flt Permitted		1.00		0.95	1.00		0.75	0.74	1.00		0.56	
Satd. Flow (perm)		3367		3433	3534		1328	1304	1555		1048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	326	137	1304	1263	11	242	11	326	11	0	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	278	0	0	0
Lane Group Flow (vph)	0	427	0	1304	1274	0	126	127	48	0	11	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Effective Green, g (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Actuated g/C Ratio		0.40		0.33	0.77		0.15	0.15	0.15		0.15	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1355		1123	2708		195	192	229		154	
v/s Ratio Prot		0.13		c0.38	c0.36							
v/s Ratio Perm							0.09	c0.10	0.03		0.01	
v/c Ratio		0.32		1.16	0.47		0.65	0.66	0.21		0.07	
Uniform Delay, d1		22.5		37.0	4.7		44.2	44.3	41.3		40.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.6		82.7	0.6		5.4	6.5	0.2		0.1	
Delay (s)		23.1		119.7	5.3		49.6	50.8	41.4		40.5	
Level of Service		C		F	A		D	D	D		D	
Approach Delay (s)		23.1			63.1			45.3			40.5	
Approach LOS		C			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			55.1			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			73.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School

Cumulative Plus Project AM

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	329	418	323	1020	141	71	1313	212	152	2606	1282
v/c Ratio	1.64	0.35	2.52	1.15	0.30	0.90	0.53	0.27	0.71	1.01	1.45
Control Delay	347.7	41.2	733.0	126.8	15.4	143.2	26.6	12.7	84.5	56.0	235.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	347.7	41.2	733.0	126.8	15.4	143.2	26.6	12.7	84.5	56.0	235.5
Queue Length 50th (ft)	~230	106	~507	~592	27	68	308	61	73	~911	~1554
Queue Length 95th (ft)	#332	141	#703	#730	86	#169	353	116	#114	#1028	#1824
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	201	1192	128	890	464	79	2485	798	224	2577	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.64	0.35	2.52	1.15	0.30	0.90	0.53	0.27	0.68	1.01	1.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			 		 	  		 	  	
Volume (vph)	326	304	110	320	1010	140	70	1300	210	150	2580	1269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4853		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4853		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	329	307	111	323	1020	141	71	1313	212	152	2606	1282
RTOR Reduction (vph)	0	38	0	0	0	78	0	0	48	0	0	102
Lane Group Flow (vph)	329	380	0	323	1020	63	71	1313	164	152	2606	1180
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.51	0.51
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1154		128	890	386	79	2486	750	215	2577	781
v/s Ratio Prot	0.10	0.08		c0.18	c0.29		0.04	0.26		c0.04	0.51	
v/s Ratio Perm						0.04			0.11			c0.77
v/c Ratio	1.64	0.33		2.52	1.15	0.16	0.90	0.53	0.22	0.71	1.01	1.51
Uniform Delay, d1	68.2	45.7		67.2	54.2	42.3	68.9	25.5	21.2	66.6	35.8	35.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	308.0	0.1		708.1	78.9	0.1	66.2	0.8	0.7	8.4	20.5	236.5
Delay (s)	376.2	45.7		775.3	133.2	42.4	135.1	26.3	21.9	75.0	56.3	272.2
Level of Service	F	D		F	F	D	F	C	C	E	E	F
Approach Delay (s)		191.3			264.3			30.6			125.5	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay	138.7			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.48											
Actuated Cycle Length (s)	145.0			Sum of lost time (s)			20.0					
Intersection Capacity Utilization	125.3%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Cumulative Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	1093	0	0	916
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	1188	0	0	996
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1176			644
pX, platoon unblocked	0.78	0.71			0.71	
vC, conflicting volume	1686	594			1188	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	496	0			456	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	394	772			784	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	594	594	498	498	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	772	1700	1700	1700	1700	
Volume to Capacity	0.02	0.35	0.35	0.29	0.29	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.8	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			40.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Cumulative Plus Project AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	1145	64	9	966
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1245	70	10	1050
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			382			
pX, platoon unblocked	0.69	0.69			0.69	
vC, conflicting volume	1824	657			1314	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1284	0			540	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	106	743			702	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	830	484	360	700		
Volume Left	0	0	10	0		
Volume Right	0	70	0	0		
cSH	1700	1700	702	1700		
Volume to Capacity	0.49	0.28	0.01	0.41		
Queue Length 95th (ft)	0	0	1	0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			37.0%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	309	305	51	62	792	10	478	260
v/c Ratio	0.79	0.78	0.50	0.34	0.39	0.11	0.30	0.31
Control Delay	52.6	50.6	58.4	49.8	15.8	50.4	21.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	50.6	58.4	49.8	15.8	50.4	21.3	4.0
Queue Length 50th (ft)	208	201	28	40	148	7	111	0
Queue Length 95th (ft)	281	273	68	82	281	24	173	54
Internal Link Dist (ft)		477	512		933		1964	
Turn Bay Length (ft)				225		100		250
Base Capacity (vph)	555	555	107	183	2023	183	1591	838
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.55	0.48	0.34	0.39	0.05	0.30	0.31
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	10	30	30	10	10	60	760	0	10	459	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1668			1754		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1668			1754		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	573	10	31	31	10	10	62	792	0	10	478	260
RTOR Reduction (vph)	0	5	0	0	9	0	0	0	0	0	0	145
Lane Group Flow (vph)	309	300	0	0	42	0	62	792	0	10	478	115
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Effective Green, g (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Actuated g/C Ratio	0.23	0.23			0.04		0.10	0.53		0.01	0.44	0.44
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	390	387			77		183	1883		21	1559	681
v/s Ratio Prot	c0.18	0.18			c0.02		c0.04	c0.22		0.01	0.14	
v/s Ratio Perm												0.07
v/c Ratio	0.79	0.78			0.55		0.34	0.42		0.48	0.31	0.17
Uniform Delay, d1	38.3	38.1			49.6		44.1	15.0		52.0	19.2	17.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.9	8.6			4.8		5.0	0.7		6.1	0.5	0.5
Delay (s)	48.2	46.7			54.4		49.1	15.6		58.1	19.7	18.4
Level of Service	D	D			D		D	B		E	B	B
Approach Delay (s)		47.5			54.4			18.1			19.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			27.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			59.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	63	158	379	210	266	674	137	74	494	11
v/c Ratio	0.28	0.38	0.59	0.69	0.71	0.33	0.15	0.37	0.31	0.02
Control Delay	44.1	43.1	8.2	53.4	54.0	14.7	3.4	54.9	22.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	43.1	8.2	53.4	54.0	14.7	3.4	54.9	22.2	0.0
Queue Length 50th (ft)	41	105	0	142	193	143	5	54	124	0
Queue Length 95th (ft)	87	177	86	#259	278	197	36	103	183	0
Internal Link Dist (ft)		790		717		557			933	
Turn Bay Length (ft)	205				135		145	210		145
Base Capacity (vph)	223	421	644	304	620	2027	940	559	1906	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.38	0.59	0.69	0.43	0.33	0.15	0.13	0.26	0.01

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	60	150	360	80	60	60	63	190	640	130	70	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1552		1740			1770	3539	1551	1770	3539
Flt Permitted	0.53	1.00	1.00		0.72			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	985	1863	1552		1278			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	158	379	84	63	63	66	200	674	137	74	494
RTOR Reduction (vph)	0	0	294	0	10	0	0	0	0	53	0	0
Lane Group Flow (vph)	63	158	85	0	200	0	0	266	674	84	74	494
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.6	26.6	26.6		27.1			24.9	67.3	67.3	11.0	53.4
Effective Green, g (s)	26.6	26.6	26.6		27.1			24.9	67.3	67.3	11.0	53.4
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.21	0.57	0.57	0.09	0.45
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	221	418	348		292			372	2011	881	164	1596
v/s Ratio Prot		0.08						c0.15	c0.19		0.04	0.14
v/s Ratio Perm	0.06		0.05		c0.16					0.05		
v/c Ratio	0.29	0.38	0.24		0.68			0.72	0.34	0.10	0.45	0.31
Uniform Delay, d1	38.0	38.9	37.7		41.7			43.5	13.6	11.7	50.8	20.7
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.6	1.0		6.5			9.1	0.5	0.2	5.5	0.5
Delay (s)	40.0	40.5	38.7		48.3			52.5	14.1	11.9	56.3	21.2
Level of Service	D	D	D		D			D	B	B	E	C
Approach Delay (s)		39.3			48.3				23.3			25.7
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			29.9		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			118.4		Sum of lost time (s)				13.5			
Intersection Capacity Utilization			75.8%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	11
RTOR Reduction (vph)	6
Lane Group Flow (vph)	5
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	53.4
Effective Green, g (s)	53.4
Actuated g/C Ratio	0.45
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	698
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	17.9
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	17.9
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
2035 With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	73	14	950	32	5	972
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	15	1033	35	5	1057
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			758			1064
pX, platoon unblocked	0.87	0.83			0.83	
vC, conflicting volume	1589	534			1067	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1004	40			681	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	61	98			99	
cM capacity (veh/h)	206	852			756	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	79	15	688	379	358	704
Volume Left	79	0	0	0	5	0
Volume Right	0	15	0	35	0	0
cSH	206	852	1700	1700	756	1700
Volume to Capacity	0.39	0.02	0.40	0.22	0.01	0.41
Queue Length 95th (ft)	42	1	0	0	1	0
Control Delay (s)	33.1	9.3	0.0	0.0	0.2	0.0
Lane LOS	D	A			A	
Approach Delay (s)	29.2		0.0		0.1	
Approach LOS	D					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			41.1%		ICU Level of Service	A
Analysis Period (min)			15			

Queues

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	72	31	31	21	10	1045	31	1063
v/c Ratio	0.26	0.31	0.31	0.06	0.07	0.48	0.19	0.44
Control Delay	2.2	41.3	41.3	0.3	45.2	10.1	40.4	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	41.3	41.3	0.3	45.2	10.1	40.4	10.9
Queue Length 50th (ft)	0	17	17	0	5	197	16	122
Queue Length 95th (ft)	0	40	40	0	m13	331	44	344
Internal Link Dist (ft)	163		472			468		303
Turn Bay Length (ft)		75		75	165		100	
Base Capacity (vph)	405	208	208	534	177	2189	177	2441
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.15	0.15	0.04	0.06	0.48	0.18	0.44

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School

2035 With Project PM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	30	0	40	60	0	20	10	914	100	30	1021	10	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0		
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95		
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00		1.00	1.00		
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00		
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1657		1677	1677	1561	1770	3479		1770	3533		
Flt Permitted		0.85		0.46	0.46	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1431		813	813	1561	1770	3479		1770	3533		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	31	0	41	62	0	21	10	942	103	31	1053	10	
RTOR Reduction (vph)	0	68	0	0	0	19	0	6	0	0	0	0	
Lane Group Flow (vph)	0	4	0	31	31	2	10	1039	0	31	1063	0	
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4	
Confl. Bikes (#/hr)									1			4	
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA		
Protected Phases		3			4		5	2		1	6		
Permitted Phases	3			4		4							
Actuated Green, G (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3		
Effective Green, g (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3		
Actuated g/C Ratio		0.06		0.11	0.11	0.11	0.02	0.56		0.08	0.63		
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0		
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0		
Lane Grp Cap (vph)		89		87	87	168	27	1959		137	2210		
v/s Ratio Prot							0.01	c0.30		0.02	c0.30		
v/s Ratio Perm		c0.00		c0.04	0.04	0.00							
v/c Ratio		0.05		0.36	0.36	0.01	0.37	0.53		0.23	0.48		
Uniform Delay, d1		39.7		37.3	37.3	35.9	43.9	12.2		39.0	9.0		
Progression Factor		1.00		1.00	1.00	1.00	1.14	0.68		1.00	1.00		
Incremental Delay, d2		0.1		0.9	0.9	0.0	2.9	1.0		0.3	0.8		
Delay (s)		39.8		38.2	38.2	35.9	52.8	9.3		39.3	9.8		
Level of Service		D		D	D	D	D	A		D	A		
Approach Delay (s)		39.8			37.6			9.7			10.6		
Approach LOS		D			D			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.48										
Actuated Cycle Length (s)			90.0							17.0			
Intersection Capacity Utilization			51.8%							A			
Analysis Period (min)			15										
c Critical Lane Group													

Queues
5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	175	30	46	974	10	1207
v/c Ratio	0.65	0.13	0.31	0.38	0.07	0.51
Control Delay	32.2	23.4	43.8	6.8	35.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	23.4	43.8	6.8	35.2	11.8
Queue Length 50th (ft)	58	10	25	68	6	122
Queue Length 95th (ft)	107	30	58	242	m15	305
Internal Link Dist (ft)	1102	370		501		468
Turn Bay Length (ft)			100		90	
Base Capacity (vph)	549	552	413	2584	413	2367
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.05	0.11	0.38	0.02	0.51

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	10	90	10	10	10	45	924	20	10	1091	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1680			1741		1770	3526		1770	3497	
Flt Permitted		0.85			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1462			1586		1770	3526		1770	3497	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	10	93	10	10	10	46	953	21	10	1125	82
RTOR Reduction (vph)	0	59	0	0	9	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	116	0	0	21	0	46	973	0	10	1204	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Effective Green, g (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Actuated g/C Ratio		0.14			0.14		0.05	0.70		0.02	0.66	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		209			227		96	2456		27	2300	
v/s Ratio Prot							c0.03	c0.28		0.01	c0.34	
v/s Ratio Perm		c0.08			0.01							
v/c Ratio		0.55			0.09		0.48	0.40		0.37	0.52	
Uniform Delay, d1		35.9			33.5		41.3	5.7		43.9	8.0	
Progression Factor		1.00			1.00		1.00	1.00		0.88	1.12	
Incremental Delay, d2		1.8			0.1		1.4	0.5		2.9	0.8	
Delay (s)		37.7			33.5		42.7	6.2		41.6	9.8	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		37.7			33.5			7.8			10.1	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			59.1%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	340	381	114	10	474	1004	10	1011	175
v/c Ratio	1.17	0.64	1.01	0.02	1.45	0.45	0.09	0.64	0.23
Control Delay	138.6	11.9	122.9	0.1	252.5	5.2	34.5	18.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.6	11.9	122.9	0.1	252.5	5.2	34.5	18.5	4.5
Queue Length 50th (ft)	~195	29	~54	0	~326	66	5	186	9
Queue Length 95th (ft)	#349	112	#155	0	#506	m116	19	248	42
Internal Link Dist (ft)	668		273			492		501	
Turn Bay Length (ft)					290		125		100
Base Capacity (vph)	290	592	113	431	326	2228	163	1583	776
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.64	1.01	0.02	1.45	0.45	0.06	0.64	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	70	370	90	20	10	460	754	220	10	981	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1792	1583		1790	1583	1770	3400		1770	3539	1561
Flt Permitted		0.70	1.00		0.27	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1298	1583		508	1583	1770	3400		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	268	72	381	93	21	10	474	777	227	10	1011	175
RTOR Reduction (vph)	0	0	238	0	0	8	0	30	0	0	0	78
Lane Group Flow (vph)	0	340	143	0	114	2	474	974	0	10	1011	97
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		17.0	17.0		17.0	17.0	14.0	46.8		1.2	34.0	34.0
Effective Green, g (s)		17.0	17.0		17.0	17.0	14.0	46.8		1.2	34.0	34.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.62		0.02	0.45	0.45
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		290	354		113	354	326	2093		27	1583	698
v/s Ratio Prot							c0.27	0.29		0.01	c0.29	
v/s Ratio Perm		c0.26	0.09		0.22	0.00						0.06
v/c Ratio		1.17	0.40		1.01	0.01	1.45	0.47		0.37	0.64	0.14
Uniform Delay, d1		29.5	25.2		29.5	22.9	31.0	7.9		37.0	16.2	12.4
Progression Factor		1.00	1.00		1.00	1.00	1.45	0.72		1.00	1.00	1.00
Incremental Delay, d2		107.9	0.3		87.1	0.0	218.3	0.5		3.1	2.0	0.4
Delay (s)		137.4	25.4		116.6	22.9	263.2	6.1		40.1	18.2	12.8
Level of Service		F	C		F	C	F	A		D	B	B
Approach Delay (s)		78.3			109.0			88.6			17.6	
Approach LOS		E			F			F			B	
Intersection Summary												
HCM 2000 Control Delay			63.1				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			76.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			87.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	406	1021	41	70	177	1150	31	104	1376
v/c Ratio	1.29	1.70	0.15	0.16	0.67	0.57	0.03	0.67	0.82
Control Delay	182.5	343.5	25.4	3.7	43.0	12.6	1.2	49.1	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.5	343.5	25.4	3.7	43.0	12.6	1.2	49.1	14.2
Queue Length 50th (ft)	~249	~604	16	0	79	181	0	52	126
Queue Length 95th (ft)	#414	#834	41	19	138	240	6	m78	m#191
Internal Link Dist (ft)	347		412			2148			492
Turn Bay Length (ft)					50		80	205	
Base Capacity (vph)	314	599	277	431	326	2002	899	163	1686
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	1.70	0.15	0.16	0.54	0.57	0.03	0.64	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	100	980	10	30	67	170	1104	30	100	905	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1796	1583		1840	1583	1770	3539	1547	1770	3358	
Flt Permitted		0.75	1.00		0.67	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1406	1583		1240	1583	1770	3539	1547	1770	3358	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	302	104	1021	10	31	70	177	1150	31	104	943	433
RTOR Reduction (vph)	0	0	245	0	0	54	0	0	14	0	66	0
Lane Group Flow (vph)	0	406	776	0	41	16	177	1150	17	104	1310	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Effective Green, g (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.15	0.56	0.56	0.07	0.48	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		314	354		277	354	263	1974	863	130	1621	
v/s Ratio Prot							c0.10	0.32		c0.06	c0.39	
v/s Ratio Perm		0.29	c0.49		0.03	0.01			0.01			
v/c Ratio		1.29	2.19		0.15	0.04	0.67	0.58	0.02	0.80	0.81	
Uniform Delay, d1		29.5	29.5		23.7	23.1	30.6	11.0	7.5	34.6	16.7	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.94	0.63	
Incremental Delay, d2		153.6	545.2		0.1	0.0	5.2	1.3	0.0	21.2	3.4	
Delay (s)		183.1	574.7		23.8	23.1	35.9	12.3	7.6	53.7	13.8	
Level of Service		F	F		C	C	D	B	A	D	B	
Approach Delay (s)		463.3			23.4			15.2			16.6	
Approach LOS		F			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		162.0										
HCM 2000 Volume to Capacity ratio		1.15										
Actuated Cycle Length (s)		76.0										
Intersection Capacity Utilization		115.7%										
Analysis Period (min)		15										
c Critical Lane Group												

Queues
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
2035 With Project PM

					
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	224	139	1461	629	1398
v/c Ratio	0.52	0.53	0.68	2.22	0.55
Control Delay	21.0	14.9	15.3	584.8	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	14.9	15.3	584.8	8.2
Queue Length 50th (ft)	26	0	292	~650	187
Queue Length 95th (ft)	59	59	425	#864	287
Internal Link Dist (ft)	706		499		2148
Turn Bay Length (ft)		110		240	
Base Capacity (vph)	923	470	2133	283	2524
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.30	0.68	2.22	0.55

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

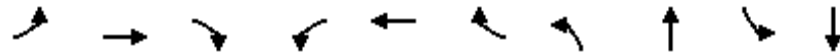
8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
2035 With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	80	261	1203	170	591	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.91	0.85	0.98		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3155	1414	3468		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3155	1414	3468		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	85	278	1280	181	629	1398
RTOR Reduction (vph)	126	126	8	0	0	0
Lane Group Flow (vph)	98	13	1453	0	629	1398
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.7	9.7	61.3		16.0	71.3
Effective Green, g (s)	9.7	9.7	61.3		16.0	71.3
Actuated g/C Ratio	0.10	0.10	0.61		0.16	0.71
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	306	137	2125		283	2523
v/s Ratio Prot	c0.03		c0.42		c0.36	0.40
v/s Ratio Perm		0.01				
v/c Ratio	0.32	0.10	0.68		2.22	0.55
Uniform Delay, d1	42.1	41.2	12.9		42.0	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.4	1.8		561.5	0.9
Delay (s)	42.9	41.6	14.7		603.5	7.7
Level of Service	D	D	B		F	A
Approach Delay (s)	42.4		14.7			192.6
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			110.9		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			88.1%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Queues
9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	200	685	84	389	317	284	127	2084	621	1273
v/c Ratio	0.89	0.86	0.18	1.20	0.32	0.54	2.05	1.41	10.18	0.66
Control Delay	88.7	56.3	0.9	158.5	35.0	24.3	551.3	222.4	4169.4	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	56.3	0.9	158.5	35.0	24.3	551.3	222.4	4169.4	32.7
Queue Length 50th (ft)	153	265	0	~365	101	102	~155	~809	~926	298
Queue Length 95th (ft)	#284	338	0	#561	142	192	#282	#907	#1156	352
Internal Link Dist (ft)		341			583			1120		972
Turn Bay Length (ft)	135		100	325		100	215		290	
Base Capacity (vph)	236	837	477	324	1014	529	62	1476	61	1920
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.82	0.18	1.20	0.31	0.54	2.05	1.41	10.18	0.66

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		 			 				  			
Volume (vph)	190	651	80	370	301	270	70	50	1660	320	40	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.98			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1502	1770	3539	1537		1767	4879			1763
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1502	1770	3539	1537		930	4879			412
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	685	84	389	317	284	74	53	1747	337	42	579
RTOR Reduction (vph)	0	0	65	0	0	89	0	0	23	0	0	0
Lane Group Flow (vph)	200	685	19	389	317	195	0	127	2061	0	0	621
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Effective Green, g (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Actuated g/C Ratio	0.13	0.23	0.23	0.18	0.28	0.28		0.07	0.30			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	225	799	339	324	996	432		62	1451			61
v/s Ratio Prot	0.11	c0.19		c0.22	0.09				c0.42			
v/s Ratio Perm			0.01			0.13		0.14				c1.51
v/c Ratio	0.89	0.86	0.06	1.20	0.32	0.45		2.05	1.42			10.18
Uniform Delay, d1	51.5	44.6	36.4	49.0	34.0	35.5		56.0	42.1			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	31.0	9.0	0.1	116.1	0.2	0.8		522.9	193.2			4163.6
Delay (s)	82.5	53.6	36.5	165.1	34.2	36.2		578.9	235.4			4214.6
Level of Service	F	D	D	F	C	D		F	F			F
Approach Delay (s)		58.1			86.2				255.1			
Approach LOS		E			F				F			
Intersection Summary												
HCM 2000 Control Delay			554.8				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			2.74									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			129.0%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

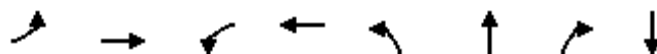
Hayward Crosspoint School
2035 With Project PM



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	1110	100
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5014	
Flt Permitted	1.00	
Satd. Flow (perm)	5014	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	1168	105
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1264	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	45.7	
Effective Green, g (s)	45.7	
Actuated g/C Ratio	0.38	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	1909	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	0.66	
Uniform Delay, d1	30.8	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	32.6	
Level of Service	C	
Approach Delay (s)	1403.8	
Approach LOS	F	
Intersection Summary		

Queues
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	45	1651	415	449	135	135	966	34
v/c Ratio	0.58	0.84	1.05	0.19	0.50	0.50	2.07	0.15
Control Delay	88.3	27.3	113.1	9.3	52.8	52.8	512.6	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.3	27.3	113.1	9.3	52.8	52.8	512.6	44.3
Queue Length 50th (ft)	38	565	~195	76	106	106	~1169	24
Queue Length 95th (ft)	#90	661	#295	98	177	177	#1406	54
Internal Link Dist (ft)		992		1957		1923		345
Turn Bay Length (ft)			205		90			
Base Capacity (vph)	81	1970	396	2324	271	271	466	221
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.84	1.05	0.19	0.50	0.50	2.07	0.15

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1200	270	369	400	0	240	0	860	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3419		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	0.73	1.00		0.57	
Satd. Flow (perm)	1770	3419		3433	3539		1301	1301	1563		1062	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	45	1348	303	415	449	0	270	0	966	34	0	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	141	0	0	0
Lane Group Flow (vph)	45	1636	0	415	449	0	135	135	825	0	34	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.8	74.4		15.0	84.6		27.1	27.1	27.1		27.1	
Effective Green, g (s)	4.8	74.4		15.0	84.6		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.04	0.57		0.12	0.65		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	65	1956		396	2303		271	271	325		221	
v/s Ratio Prot	0.03	c0.48		c0.12	0.13							
v/s Ratio Perm							0.10	0.10	c0.53		0.03	
v/c Ratio	0.69	0.84		1.05	0.19		0.50	0.50	2.54		0.15	
Uniform Delay, d1	61.9	22.8		57.5	9.1		45.4	45.4	51.5		42.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	22.6	4.4		58.3	0.2		0.5	0.5	701.5		0.1	
Delay (s)	84.5	27.2		115.8	9.3		46.0	46.0	752.9		42.2	
Level of Service	F	C		F	A		D	D	F		D	
Approach Delay (s)		28.8			60.5			598.5			42.2	
Approach LOS		C			E			F			D	
Intersection Summary												
HCM 2000 Control Delay			219.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			113.9%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
2035 With Project PM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	707	1138	320	387	258	123	2144	485	278	1309	324
v/c Ratio	1.86	0.95	0.88	0.33	0.41	2.32	1.27	0.83	0.99	0.76	0.44
Control Delay	430.1	68.1	78.4	35.0	13.0	675.7	167.0	45.8	114.4	45.6	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	430.1	68.1	78.4	35.0	13.0	675.7	167.0	45.8	114.4	45.6	5.7
Queue Length 50th (ft)	~503	372	283	137	55	~182	~914	318	132	393	0
Queue Length 95th (ft)	#629	#465	383	171	124	#316	#1067	#554	#227	477	73
Internal Link Dist (ft)		680		1437			2313			1103	
Turn Bay Length (ft)	295		175		295	285		85	250		310
Base Capacity (vph)	380	1203	436	1327	688	53	1682	585	281	1718	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.86	0.95	0.73	0.29	0.38	2.32	1.27	0.83	0.99	0.76	0.44

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
2035 With Project PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	686	1004	100	310	375	250	40	80	2080	470	270	1270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	4995		1770	3539	1550		1768	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	4995		1770	3539	1550		709	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	707	1035	103	320	387	258	41	82	2144	485	278	1309
RTOR Reduction (vph)	0	8	0	0	0	115	0	0	0	84	0	0
Lane Group Flow (vph)	707	1130	0	320	387	143	0	123	2144	401	278	1309
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Effective Green, g (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Actuated g/C Ratio	0.11	0.24		0.21	0.33	0.33		0.08	0.33	0.33	0.08	0.34
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1191		364	1180	517		53	1681	502	281	1718
v/s Ratio Prot	c0.21	c0.23		c0.18	0.11				c0.42		0.08	0.26
v/s Ratio Perm						0.09		c0.17		0.26		
v/c Ratio	1.86	0.95		0.88	0.33	0.28		2.32	1.28	0.80	0.99	0.76
Uniform Delay, d1	62.2	52.5		53.9	34.9	34.3		64.8	46.9	42.6	64.2	41.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	397.2	15.0		20.1	0.1	0.1		649.0	128.7	12.6	50.1	3.3
Delay (s)	459.5	67.5		74.0	35.0	34.4		713.7	175.6	55.2	114.3	44.6
Level of Service	F	E		E	C	C		F	F	E	F	D
Approach Delay (s)		217.7			47.8				178.4			52.9
Approach LOS		F			D				F			D
Intersection Summary												
HCM 2000 Control Delay		139.1					HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio		1.28										
Actuated Cycle Length (s)		140.0					Sum of lost time (s)		20.0			
Intersection Capacity Utilization		106.9%					ICU Level of Service		G			
Analysis Period (min)		15										
c Critical Lane Group												

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School

2035 With Project PM

Movement	SBR
Lane Configurations	
Volume (vph)	314
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	324
RTOR Reduction (vph)	215
Lane Group Flow (vph)	109
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.3
Effective Green, g (s)	47.3
Actuated g/C Ratio	0.34
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	524
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.21
Uniform Delay, d1	33.0
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	33.9
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
2035 With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Volume (veh/h)	0	14	964	0	0	977
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	1048	0	0	1062
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1185			637
pX, platoon unblocked	0.90	0.86			0.86	
vC, conflicting volume	1579	524			1048	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1007	117			727	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	214	784			749	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	524	524	531	531	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	784	1700	1700	1700	1700	
Volume to Capacity	0.02	0.31	0.31	0.31	0.31	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.7	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			36.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
2035 With Project PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	982	32	4	1041
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1067	35	4	1132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			383			
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	1659	551			1102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1365	14			686	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	113	871			741	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	712	391	382	754		
Volume Left	0	0	4	0		
Volume Right	0	35	0	0		
cSH	1700	1700	741	1700		
Volume to Capacity	0.42	0.23	0.01	0.44		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.2	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.1			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			34.9%		ICU Level of Service	A
Analysis Period (min)			15			

Timings 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background Plus Project AM MIT



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR	ø1
Lane Configurations								
Volume (vph)	122	6	0	32	390	544	805	
Turn Type	Split	NA	NA	Prot	NA	NA	Perm	
Protected Phases	4	4	3	5	2	6		1
Permitted Phases							6	
Detector Phase	4	4	3	5	2	6	6	
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	5.0
Minimum Split (s)	30.0	30.0	10.0	9.0	26.0	26.0	26.0	9.0
Total Split (s)	40.0	40.0	11.0	15.0	40.0	40.0	40.0	15.0
Total Split (%)	37.7%	37.7%	10.4%	14.2%	37.7%	37.7%	37.7%	14%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max	None

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 106
Offset: 70 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

ø1	ø2 (R)	ø3	ø4
15 s	40 s	11 s	40 s
ø5	ø6 (R)		
15 s	40 s		

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	6	16	7	0	6	32	390	9	0	544	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97			0.94		1.00	1.00			1.00	0.85
Flt Protected	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1647			1701		1770	3525			3539	1551
Flt Permitted	0.95	0.97			0.97		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1647			1701		1770	3525			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	130	6	17	7	0	6	34	415	10	0	579	856
RTOR Reduction (vph)	0	14	0	0	13	0	0	0	0	0	0	317
Lane Group Flow (vph)	78	61	0	0	0	0	34	425	0	0	579	539
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Effective Green, g (s)	8.3	8.3			1.0		11.0	81.7			66.7	66.7
Actuated g/C Ratio	0.08	0.08			0.01		0.10	0.77			0.63	0.63
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	131	128			16		183	2716			2226	975
v/s Ratio Prot	c0.05	0.04			c0.00		c0.02	0.12			0.16	
v/s Ratio Perm												c0.35
v/c Ratio	0.60	0.48			0.01		0.19	0.16			0.26	0.55
Uniform Delay, d1	47.2	46.8			52.0		43.4	3.2			8.7	11.2
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.8	1.0			0.1		2.2	0.1			0.3	2.3
Delay (s)	52.0	47.8			52.1		45.6	3.3			9.0	13.4
Level of Service	D	D			D		D	A			A	B
Approach Delay (s)		49.9			52.1			6.4			11.6	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			69.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings 2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	9	17	119	98	137	370	409	76	9	488	60
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	8.5	8.5	8.5	22.0	22.0	8.0	13.0	13.0	8.0	26.0	26.0
Total Split (s)	15.0	15.0	15.0	31.0	31.0	45.0	72.0	72.0	41.0	40.0	40.0
Total Split (%)	10.4%	10.4%	10.4%	21.5%	21.5%	31.3%	50.0%	50.0%	28.5%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max

Intersection Summary

Cycle Length: 144

Actuated Cycle Length: 114.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Industrial Blvd & Depot Rd



HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	9	17	119	98	137	50	82	370	409	76	9	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.98			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1562		1782			1770	3539	1583	1770	3539
Flt Permitted	0.43	1.00	1.00		0.88			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	796	1863	1562		1595			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	18	127	104	146	53	87	394	435	81	10	519
RTOR Reduction (vph)	0	0	98	0	5	0	0	0	0	29	0	0
Lane Group Flow (vph)	10	18	29	0	298	0	0	481	435	52	10	519
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.5	26.5	26.5		27.0			39.3	75.7	75.7	2.0	38.4
Effective Green, g (s)	26.5	26.5	26.5		27.0			39.3	75.7	75.7	2.0	38.4
Actuated g/C Ratio	0.23	0.23	0.23		0.23			0.33	0.64	0.64	0.02	0.33
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	179	419	351		365			591	2276	1018	30	1154
v/s Ratio Prot		0.01						c0.27	0.12		0.01	c0.15
v/s Ratio Perm	0.01		0.02		c0.19					0.03		
v/c Ratio	0.06	0.04	0.08		0.82			0.81	0.19	0.05	0.33	0.45
Uniform Delay, d1	35.8	35.7	36.0		43.0			35.9	8.5	7.7	57.2	31.3
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.3		13.1			9.9	0.2	0.1	17.6	1.3
Delay (s)	36.2	35.8	36.3		56.1			45.8	8.7	7.8	74.8	32.6
Level of Service	D	D	D		E			D	A	A	E	C
Approach Delay (s)		36.2			56.1				26.5			32.7
Approach LOS		D			E				C			C
Intersection Summary												
HCM 2000 Control Delay			33.4			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			117.7			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			76.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Background Plus Project AM MIT

Movement	SBR
Lane Configurations	
Volume (vph)	60
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	64
RTOR Reduction (vph)	43
Lane Group Flow (vph)	21
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.4
Effective Green, g (s)	38.4
Actuated g/C Ratio	0.33
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	516
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.04
Uniform Delay, d1	27.1
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	27.2
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Background Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	69	13	900	65	10	746
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	14	978	71	11	811
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.83	0.78			0.78	
vC, conflicting volume	1441	524			1049	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	0			491	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	98			99	
cM capacity (veh/h)	371	843			831	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	75	14	652	397	281	541
Volume Left	75	0	0	0	11	0
Volume Right	0	14	0	71	0	0
cSH	371	843	1700	1700	831	1700
Volume to Capacity	0.20	0.02	0.38	0.23	0.01	0.32
Queue Length 95th (ft)	19	1	0	0	1	0
Control Delay (s)	17.1	9.3	0.0	0.0	0.5	0.0
Lane LOS	C	A			A	
Approach Delay (s)	15.9		0.0		0.2	
Approach LOS	C					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			38.2%		ICU Level of Service	A
Analysis Period (min)			15			

Timings 4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background Plus Project AM MIT



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	0	109	3	27	58	1012	16	766
Turn Type	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases	3		4		5	2	1	6
Permitted Phases		4		4				
Detector Phase	3	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	27.0	27.0	27.0	11.0	29.0	11.0	29.0
Total Split (s)	20.0	27.0	27.0	27.0	13.0	30.0	13.0	30.0
Total Split (%)	22.2%	30.0%	30.0%	30.0%	14.4%	33.3%	14.4%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0
Lead/Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90

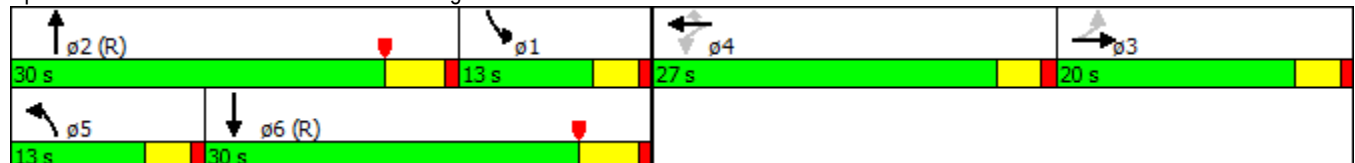
Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 4: Industrial Blvd & Bridge Entrance



HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	7	109	3	27	58	1012	29	16	766	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected		1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1688	1559	1770	3522		1770	3517	
Flt Permitted		1.00		0.19	0.19	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		337	329	1559	1770	3522		1770	3517	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	8	122	3	30	65	1137	33	18	861	33
RTOR Reduction (vph)	0	8	0	0	0	23	0	1	0	0	2	0
Lane Group Flow (vph)	0	0	0	61	64	7	65	1169	0	18	892	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Effective Green, g (s)		1.4		21.0	21.0	21.0	6.5	47.0		3.6	44.1	
Actuated g/C Ratio		0.02		0.23	0.23	0.23	0.07	0.52		0.04	0.49	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	76	363	127	1839		70	1723	
v/s Ratio Prot		c0.00					0.04	c0.33		0.01	c0.25	
v/s Ratio Perm				0.18	c0.19	0.00						
v/c Ratio		0.01		0.78	0.84	0.02	0.51	0.64		0.26	0.52	
Uniform Delay, d1		43.6		32.4	32.9	26.6	40.2	15.4		41.9	15.7	
Progression Factor		1.00		1.00	1.00	1.00	1.06	0.69		1.00	1.00	
Incremental Delay, d2		0.0		36.3	52.0	0.0	1.3	1.6		0.7	1.1	
Delay (s)		43.6		68.6	84.9	26.6	44.0	12.2		42.6	16.8	
Level of Service		D		E	F	C	D	B		D	B	
Approach Delay (s)		43.6			67.2			13.8			17.3	
Approach LOS		D			E			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.9		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					17.0		
Intersection Capacity Utilization			56.2%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

Timings 5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background Plus Project AM MIT

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	59	3	4	0	146	1051	10	841
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4					
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	11.0	28.0	28.0	11.0	15.0	11.0	29.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	30.0	25.0	30.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	27.8%	33.3%	27.8%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	5.0	4.0	5.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 5: Industrial Blvd & Hayward Apartments

 ø1	 ø2 (R)	 ø4
25 s	30 s	35 s
 ø5	 ø6 (R)	 ø8
25 s	30 s	35 s

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	3	37	4	0	3	146	1051	12	10	841	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.94		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1715			1697		1770	3533		1770	3501	
Flt Permitted		0.81			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1437			1597		1770	3533		1770	3501	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	66	3	42	4	0	3	164	1181	13	11	945	63
RTOR Reduction (vph)	0	33	0	0	6	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	78	0	0	1	0	164	1194	0	11	1005	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Effective Green, g (s)		10.2			10.2		12.7	65.4		1.4	54.1	
Actuated g/C Ratio		0.11			0.11		0.14	0.73		0.02	0.60	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		162			180		249	2567		27	2104	
v/s Ratio Prot							c0.09	c0.34		0.01	0.29	
v/s Ratio Perm		c0.05			0.00							
v/c Ratio		0.48			0.00		0.66	0.47		0.41	0.48	
Uniform Delay, d1		37.4			35.4		36.6	5.1		43.9	10.0	
Progression Factor		1.00			1.00		1.00	1.00		0.83	1.03	
Incremental Delay, d2		0.8			0.0		4.7	0.6		3.2	0.7	
Delay (s)		38.3			35.4		41.3	5.7		39.5	11.1	
Level of Service		D			D		D	A		D	B	
Approach Delay (s)		38.3			35.4			10.0			11.4	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay		11.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		53.1%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Timings 6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	270	7	46	175	39	26	533	947	7	682	199
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		8			4		1	6	5	2	
Permitted Phases	8		8	4		4					2
Detector Phase	8	8	8	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	22.0	7.0	14.0	14.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	35.0	52.0	10.0	27.0	27.0
Total Split (%)	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%	35.0%	52.0%	10.0%	27.0%	27.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	3.0	4.0	4.0
Lead/Lag							Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 15 (15%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Industrial Blvd & SR 92 WB Ramps/Cryer St

		
35 s	27 s	38 s
		
10 s	52 s	38 s

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	7	46	175	39	26	533	947	149	7	682	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1776	1583		1790	1561	1770	3452		1770	3539	1563
Flt Permitted		0.47	1.00		0.41	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		879	1583		770	1561	1770	3452		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	300	8	51	194	43	29	592	1052	166	8	758	221
RTOR Reduction (vph)	0	0	34	0	0	19	0	11	0	0	0	99
Lane Group Flow (vph)	0	308	17	0	237	10	592	1207	0	8	758	122
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		34.0	34.0		34.0	34.0	32.0	53.8		1.2	23.0	23.0
Effective Green, g (s)		34.0	34.0		34.0	34.0	32.0	53.8		1.2	23.0	23.0
Actuated g/C Ratio		0.34	0.34		0.34	0.34	0.32	0.54		0.01	0.23	0.23
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		298	538		261	530	566	1857		21	813	359
v/s Ratio Prot							c0.33	0.35		0.00	c0.21	
v/s Ratio Perm		c0.35	0.01		0.31	0.01						0.08
v/c Ratio		1.03	0.03		0.91	0.02	1.05	0.65		0.38	0.93	0.34
Uniform Delay, d1		33.0	22.0		31.5	21.9	34.0	16.4		49.0	37.7	32.2
Progression Factor		1.00	1.00		1.00	1.00	0.69	0.93		1.00	1.00	1.00
Incremental Delay, d2		61.1	0.0		31.6	0.0	47.6	1.6		4.2	18.8	2.5
Delay (s)		94.1	22.0		63.2	21.9	70.9	16.8		53.2	56.6	34.7
Level of Service		F	C		E	C	E	B		D	E	C
Approach Delay (s)		83.9			58.7			34.5			51.7	
Approach LOS		F			E			C			D	
Intersection Summary												
HCM 2000 Control Delay		46.5										
HCM 2000 Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		100.0								11.0		
Intersection Capacity Utilization		80.4%										
Analysis Period (min)		15										
c Critical Lane Group												

Timings 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Background Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	141	7	353	21	41	157	120	1316	5	37	582
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases		8			4		1	6		5	2
Permitted Phases	8		8	4		4			6		
Detector Phase	8	8	8	4	4	4	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0	7.0	22.0	22.0	7.0	14.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	33.0	48.0	48.0	10.0	25.0
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	33.0%	48.0%	48.0%	10.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Min	Min	Min	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 50
Control Type: Actuated-Coordinated

Splits and Phases: 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

		
33 s	25 s	42 s
		
10 s	48 s	42 s

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	7	353	21	41	157	120	1316	5	37	582	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected		0.95	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1832	1560	1770	3539	1583	1770	3350	
Flt Permitted		0.69	1.00		0.88	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1280	1583		1631	1560	1770	3539	1583	1770	3350	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	8	388	23	45	173	132	1446	5	41	640	314
RTOR Reduction (vph)	0	0	319	0	0	139	0	0	2	0	31	0
Lane Group Flow (vph)	0	163	69	0	68	34	132	1446	3	41	923	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.7	17.7		17.7	17.7	11.9	67.2	67.2	4.1	59.4	
Effective Green, g (s)		17.7	17.7		17.7	17.7	11.9	67.2	67.2	4.1	59.4	
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.12	0.67	0.67	0.04	0.59	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		226	280		288	276	210	2378	1063	72	1989	
v/s Ratio Prot							c0.07	c0.41		0.02	0.28	
v/s Ratio Perm		c0.13	0.04		0.04	0.02			0.00			
v/c Ratio		0.72	0.25		0.24	0.12	0.63	0.61	0.00	0.57	0.46	
Uniform Delay, d1		38.8	35.4		35.3	34.6	41.9	9.1	5.4	47.1	11.4	
Progression Factor		1.00	1.00		1.00	1.00	1.31	0.71	1.00	0.64	2.74	
Incremental Delay, d2		9.2	0.2		0.2	0.1	3.4	1.0	0.0	2.9	0.4	
Delay (s)		48.0	35.6		35.5	34.7	58.5	7.4	5.4	33.0	31.5	
Level of Service		D	D		D	C	E	A	A	C	C	
Approach Delay (s)		39.3			34.9			11.7			31.6	
Approach LOS		D			C			B			C	
Intersection Summary												
HCM 2000 Control Delay		23.7										
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		100.0										
Intersection Capacity Utilization		64.6%										
Analysis Period (min)		15										
c Critical Lane Group												

Timings 8: Industrial Blvd & Tennyson Rd

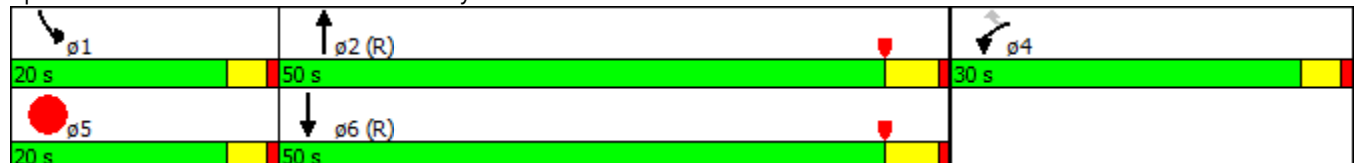
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Background Plus Project AM MIT

						
Lane Group	WBL	WBR	NBT	SBL	SBT	ø5
Lane Configurations						
Volume (vph)	464	551	920	110	804	
Turn Type	Prot	Perm	NA	Prot	NA	
Protected Phases	4		2	1	6	5
Permitted Phases		4				
Detector Phase	4	4	2	1	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	8.0	4.0	8.0	6.0
Minimum Split (s)	18.0	18.0	26.0	8.0	13.0	10.0
Total Split (s)	30.0	30.0	50.0	20.0	50.0	20.0
Total Split (%)	30.0%	30.0%	50.0%	20.0%	50.0%	20%
Yellow Time (s)	3.0	3.0	4.0	3.0	4.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0	
Lead/Lag			Lag	Lead	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	None	C-Max	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 53 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 8: Industrial Blvd & Tennyson Rd



HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Background Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	464	551	920	50	110	804
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3291	1416	3509		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3291	1416	3509		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	488	580	968	53	116	846
RTOR Reduction (vph)	67	250	3	0	0	0
Lane Group Flow (vph)	665	86	1018	0	116	846
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	24.7	24.7	51.4		10.9	56.3
Effective Green, g (s)	24.7	24.7	51.4		10.9	56.3
Actuated g/C Ratio	0.25	0.25	0.51		0.11	0.56
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	812	349	1803		192	1992
v/s Ratio Prot	c0.20		c0.29		c0.07	0.24
v/s Ratio Perm		0.06				
v/c Ratio	0.82	0.25	0.56		0.60	0.42
Uniform Delay, d1	35.5	30.2	16.6		42.5	12.5
Progression Factor	1.00	1.00	1.00		1.06	0.84
Incremental Delay, d2	6.8	0.5	1.3		3.3	0.6
Delay (s)	42.3	30.7	17.9		48.4	11.2
Level of Service	D	C	B		D	B
Approach Delay (s)	38.7		17.9			15.7
Approach LOS	D		B			B
Intersection Summary						
HCM 2000 Control Delay			24.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			63.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Timings 9: Hesperian Blvd & Tennyson Rd/Tennyson

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations											
Volume (vph)	141	187	44	264	721	248	18	98	1102	195	1061
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA	Prot	NA
Protected Phases	3	8		7	4			1	6	5	2
Permitted Phases			8			4	1				
Detector Phase	3	8	8	7	4	4	1	1	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	9.0	9.0	4.0	9.0	9.0	4.0	4.0	9.0	4.0	11.0
Minimum Split (s)	8.0	32.6	32.6	8.0	37.6	37.6	8.0	8.0	37.6	8.0	35.6
Total Split (s)	22.0	40.0	40.0	26.0	44.0	44.0	17.0	17.0	43.0	21.0	47.0
Total Split (%)	16.9%	30.8%	30.8%	20.0%	33.8%	33.8%	13.1%	13.1%	33.1%	16.2%	36.2%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.6	3.0	3.0	3.6	3.0	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6	4.0	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 28 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated

Splits and Phases: 9: Hesperian Blvd & Tennyson Rd/Tennyson

			
17 s	47 s	22 s	44 s
			
21 s	43 s	26 s	40 s

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	141	187	44	264	721	248	18	98	1102	61	195	1061
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1767	5031		1770	4957
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		572	5031		1770	4957
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	155	205	48	290	792	273	20	108	1211	67	214	1166
RTOR Reduction (vph)	0	0	38	0	0	94	0	0	5	0	0	17
Lane Group Flow (vph)	155	205	10	290	792	179	0	128	1273	0	214	1347
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Effective Green, g (s)	14.6	28.4	28.4	22.0	35.8	35.8		13.0	45.7		16.7	49.4
Actuated g/C Ratio	0.11	0.22	0.22	0.17	0.28	0.28		0.10	0.35		0.13	0.38
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	198	773	334	299	974	422		57	1768		227	1883
v/s Ratio Prot	0.09	0.06		c0.16	c0.22				0.25		0.12	c0.27
v/s Ratio Perm			0.01			0.12		c0.22				
v/c Ratio	0.78	0.27	0.03	0.97	0.81	0.42		2.25	0.72		0.94	0.72
Uniform Delay, d1	56.2	42.1	40.0	53.7	44.0	38.6		58.5	36.6		56.2	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	16.8	0.2	0.0	43.2	5.3	0.7		612.6	2.6		43.4	2.4
Delay (s)	72.9	42.3	40.0	96.8	49.2	39.3		671.1	39.2		99.6	36.7
Level of Service	E	D	D	F	D	D		F	D		F	D
Approach Delay (s)		53.7			57.4				96.7			45.2
Approach LOS		D			E				F			D
Intersection Summary												
HCM 2000 Control Delay			64.7				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			83.2%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
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Movement	SBR
Left Lane Configurations	
Volume (vph)	180
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	198
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings 10: Clawiter Rd & Winton Ave

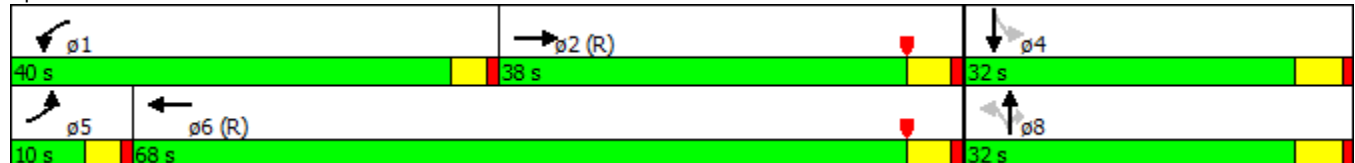
Hayward Crosspoint School
Background Plus Project AM MIT

	→	↖	←	↙	↑	↗	↘	↓	
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	ø5
Lane Configurations	↑↑	↖↖	↑↑	↖	↑	↗		↕	
Volume (vph)	283	1008	1126	193	3	226	3	0	
Turn Type	NA	Prot	NA	Perm	NA	Perm	Perm	NA	
Protected Phases	2	1	6		8			4	5
Permitted Phases				8		8	4		
Detector Phase	2	1	6	8	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	5.0	8.0	8.0	8.0	8.0	8.0	8.0	5.0
Minimum Split (s)	28.6	9.0	28.6	30.9	30.9	30.9	31.9	31.9	9.0
Total Split (s)	38.0	40.0	68.0	32.0	32.0	32.0	32.0	32.0	10.0
Total Split (%)	34.5%	36.4%	61.8%	29.1%	29.1%	29.1%	29.1%	29.1%	9%
Yellow Time (s)	3.6	3.0	3.6	3.9	3.9	3.9	3.9	3.9	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.6	4.0	4.6	4.9	4.9	4.9		4.9	
Lead/Lag	Lag	Lead	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes						Yes
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 10: Clawiter Rd & Winton Ave



HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	100	1008	1126	5	193	3	226	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)		3387		3433	3537		1681	1688	1554		1770	
Flt Permitted		1.00		0.95	1.00		0.76	0.73	1.00		0.63	
Satd. Flow (perm)		3387		3433	3537		1338	1293	1554		1182	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	298	105	1061	1185	5	203	3	238	3	0	0
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	206	0	0	0
Lane Group Flow (vph)	0	376	0	1061	1190	0	104	102	32	0	3	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		46.3		35.4	85.7		14.8	14.8	14.8		14.8	
Effective Green, g (s)		46.3		35.4	85.7		14.8	14.8	14.8		14.8	
Actuated g/C Ratio		0.42		0.32	0.78		0.13	0.13	0.13		0.13	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1425		1104	2755		180	173	209		159	
v/s Ratio Prot		0.11		c0.31	c0.34							
v/s Ratio Perm							0.08	c0.08	0.02		0.00	
v/c Ratio		0.26		0.96	0.43		0.58	0.59	0.15		0.02	
Uniform Delay, d1		20.8		36.6	4.0		44.7	44.7	42.1		41.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.5		18.3	0.5		2.8	3.3	0.1		0.0	
Delay (s)		21.2		54.9	4.5		47.4	48.0	42.2		41.3	
Level of Service		C		D	A		D	D	D		D	
Approach Delay (s)		21.2			28.3			44.8			41.3	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			29.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			66.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Timings 11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM MIT

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	248	288	218	942	101	49	710	136	114	1536	1105
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	7	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	8	7	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	11.0	6.0	9.0	9.0	6.0	11.0	11.0	7.0	11.0	11.0
Minimum Split (s)	10.5	38.5	10.5	36.5	36.5	10.5	40.5	40.5	11.5	38.5	38.5
Total Split (s)	13.0	40.0	15.0	42.0	42.0	11.0	76.0	76.0	14.0	79.0	79.0
Total Split (%)	9.0%	27.6%	10.3%	29.0%	29.0%	7.6%	52.4%	52.4%	9.7%	54.5%	54.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 145
Actuated Cycle Length: 145
Offset: 14 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 11: Hesperian Blvd & Winton Ave



HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Background Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	248	288	73	218	942	101	49	710	136	114	1536	1105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4907		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4907		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	251	291	74	220	952	102	49	717	137	115	1552	1116
RTOR Reduction (vph)	0	30	0	0	0	65	0	0	56	0	0	109
Lane Group Flow (vph)	251	335	0	220	952	37	49	717	81	115	1552	1007
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	5.2	71.3	71.3	8.7	74.8	74.8
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.52	0.52
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1167		128	890	386	63	2500	754	205	2623	795
v/s Ratio Prot	0.07	0.07		c0.12	c0.27		0.03	0.14		c0.03	0.31	
v/s Ratio Perm						0.02			0.05			c0.65
v/c Ratio	1.25	0.29		1.72	1.07	0.10	0.78	0.29	0.11	0.56	0.59	1.27
Uniform Delay, d1	68.2	45.2		67.2	54.2	41.6	69.3	21.8	19.8	66.3	24.5	35.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	146.3	0.0		354.1	50.6	0.0	41.1	0.3	0.3	2.1	1.0	130.0
Delay (s)	214.6	45.2		421.4	104.8	41.6	110.4	22.1	20.1	68.4	25.4	165.1
Level of Service	F	D		F	F	D	F	C	C	E	C	F
Approach Delay (s)		114.2			154.4			26.6			83.2	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			93.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			113.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Background Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	913	0	0	756
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	992	0	0	822
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			1176			644
pX, platoon unblocked	0.86	0.81			0.81	
vC, conflicting volume	1403	496			992	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	579	0			517	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	385	877			845	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	496	496	411	411	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	877	1700	1700	1700	1700	
Volume to Capacity	0.02	0.29	0.29	0.24	0.24	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.2	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			35.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Background Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	965	64	9	806
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1049	70	10	876
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			382			
pX, platoon unblocked	0.76	0.76			0.76	
vC, conflicting volume	1541	559			1118	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1091	0			537	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	158	828			785	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	699	419	302	584		
Volume Left	0	0	10	0		
Volume Right	0	70	0	0		
cSH	1700	1700	785	1700		
Volume to Capacity	0.41	0.25	0.01	0.34		
Queue Length 95th (ft)	0	0	1	0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			32.0%		ICU Level of Service	A
Analysis Period (min)			15			

Timings 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT



Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR	ø1
Lane Configurations								
Volume (vph)	130	20	0	55	490	719	840	
Turn Type	Split	NA	NA	Prot	NA	NA	Perm	
Protected Phases	4	4	3	5	2	6		1
Permitted Phases							6	
Detector Phase	4	4	3	5	2	6	6	
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	5.0
Minimum Split (s)	30.0	30.0	10.0	9.0	26.0	26.0	26.0	9.0
Total Split (s)	40.0	40.0	11.0	15.0	40.0	40.0	40.0	15.0
Total Split (%)	37.7%	37.7%	10.4%	14.2%	37.7%	37.7%	37.7%	14%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	5.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	C-Max	C-Max	None

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 106
Offset: 70 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

ø1	ø2 (R)	ø3	ø4
15 s	40 s	11 s	40 s
ø5	ø6 (R)		
15 s	40 s		

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	20	30	20	0	20	55	490	20	0	719	840
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.95			0.93		1.00	0.99			1.00	0.85
Flt Protected	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1681	1636			1695		1770	3516			3539	1551
Flt Permitted	0.95	0.98			0.98		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1681	1636			1695		1770	3516			3539	1551
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	138	21	32	21	0	21	59	521	21	0	765	894
RTOR Reduction (vph)	0	23	0	0	41	0	0	1	0	0	0	368
Lane Group Flow (vph)	97	71	0	0	1	0	59	541	0	0	765	526
Confl. Peds. (#/hr)			1	1					1	1		
Confl. Bikes (#/hr)												1
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Effective Green, g (s)	10.6	10.6			3.0		11.0	77.4			62.4	62.4
Actuated g/C Ratio	0.10	0.10			0.03		0.10	0.73			0.59	0.59
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0			5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	168	163			47		183	2567			2083	913
v/s Ratio Prot	c0.06	0.04			c0.00		c0.03	0.15			0.22	
v/s Ratio Perm												c0.34
v/c Ratio	0.58	0.43			0.03		0.32	0.21			0.37	0.58
Uniform Delay, d1	45.6	44.9			50.1		44.0	4.6			11.4	13.6
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.0	0.7			0.1		4.6	0.2			0.5	2.6
Delay (s)	48.5	45.5			50.2		48.7	4.7			11.9	16.2
Level of Service	D	D			D		D	A			B	B
Approach Delay (s)		47.1			50.2			9.1			14.2	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			72.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings 2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	10	20	150	110	150	450	500	90	20	599	100
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	8.5	8.5	8.5	22.0	22.0	8.0	13.0	13.0	8.0	26.0	26.0
Total Split (s)	15.0	15.0	15.0	31.0	31.0	45.0	72.0	72.0	41.0	40.0	40.0
Total Split (%)	10.4%	10.4%	10.4%	21.5%	21.5%	31.3%	50.0%	50.0%	28.5%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max

Intersection Summary

Cycle Length: 144
 Actuated Cycle Length: 116.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Industrial Blvd & Depot Rd



HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	10	20	150	110	150	130	97	450	500	90	20	599
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		0.99			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.99			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1562		1744			1770	3539	1583	1770	3539
Flt Permitted	0.31	1.00	1.00		0.90			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	581	1863	1562		1587			1770	3539	1583	1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	21	160	117	160	138	103	479	532	96	21	637
RTOR Reduction (vph)	0	0	124	0	12	0	0	0	0	36	0	0
Lane Group Flow (vph)	11	21	36	0	403	0	0	582	532	60	21	637
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)						2						
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8						2		
Actuated Green, G (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Effective Green, g (s)	26.5	26.5	26.5		27.0			41.0	74.9	74.9	4.4	38.3
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.34	0.63	0.63	0.04	0.32
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	129	413	346		359			608	2221	993	65	1136
v/s Ratio Prot		0.01						c0.33	0.15		0.01	c0.18
v/s Ratio Perm	0.02		0.02		c0.25					0.04		
v/c Ratio	0.09	0.05	0.10		1.12			0.96	0.24	0.06	0.32	0.56
Uniform Delay, d1	36.8	36.5	36.9		46.1			38.3	9.7	8.6	56.0	33.5
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.4		85.4			26.8	0.3	0.1	8.0	2.0
Delay (s)	37.6	36.7	37.3		131.5			65.1	10.0	8.7	64.0	35.5
Level of Service	D	D	D		F			E	A	A	E	D
Approach Delay (s)		37.2			131.5				36.4			35.3
Approach LOS		D			F				D			D
Intersection Summary												
HCM 2000 Control Delay			51.4			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			119.3			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			92.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT



Movement	SBR
Lane Configurations	
Volume (vph)	100
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.94
Adj. Flow (vph)	106
RTOR Reduction (vph)	65
Lane Group Flow (vph)	41
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	38.3
Effective Green, g (s)	38.3
Actuated g/C Ratio	0.32
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	508
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.08
Uniform Delay, d1	28.2
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	28.5
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
Cumulative Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	69	13	1080	65	10	906
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	75	14	1174	71	11	985
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			757			1063
pX, platoon unblocked	0.76	0.69			0.69	
vC, conflicting volume	1723	622			1245	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	501	0			464	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	98			99	
cM capacity (veh/h)	375	751			757	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	75	14	783	462	339	657
Volume Left	75	0	0	0	11	0
Volume Right	0	14	0	71	0	0
cSH	375	751	1700	1700	757	1700
Volume to Capacity	0.20	0.02	0.46	0.27	0.01	0.39
Queue Length 95th (ft)	18	1	0	0	1	0
Control Delay (s)	17.0	9.9	0.0	0.0	0.5	0.0
Lane LOS	C	A			A	
Approach Delay (s)	15.9		0.0		0.2	
Approach LOS	C					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

Timings 4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative Plus Project AM MIT

	→	↖	←	↗	↖	↑	↘	↓
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↕	↖	↗	↗	↖	↕	↖	↕
Volume (vph)	0	150	10	40	80	1129	30	856
Turn Type	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases	3		4		5	2	1	6
Permitted Phases		4		4				
Detector Phase	3	4	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	27.0	27.0	27.0	11.0	29.0	11.0	29.0
Total Split (s)	20.0	27.0	27.0	27.0	13.0	30.0	13.0	30.0
Total Split (%)	22.2%	30.0%	30.0%	30.0%	14.4%	33.3%	14.4%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0
Lead/Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90

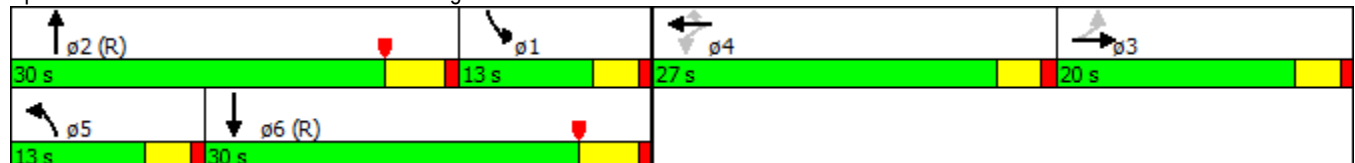
Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 4: Industrial Blvd & Bridge Entrance



HCM Signalized Intersection Capacity Analysis

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	10	150	10	40	80	1129	40	30	856	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.97		1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1561		1680	1694	1559	1770	3518		1770	3512	
Flt Permitted		1.00		0.17	0.16	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1561		308	290	1559	1770	3518		1770	3512	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	0	0	11	169	11	45	90	1269	45	34	962	45
RTOR Reduction (vph)	0	11	0	0	0	34	0	2	0	0	3	0
Lane Group Flow (vph)	0	0	0	84	96	12	90	1312	0	34	1004	0
Confl. Peds. (#/hr)	3		1	1		3	1		4	4		1
Confl. Bikes (#/hr)												1
Turn Type		NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		3			4		5	2		1		6
Permitted Phases	3			4		4						
Actuated Green, G (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Effective Green, g (s)		1.4		23.0	23.0	23.0	6.9	43.2		5.4	41.7	
Actuated g/C Ratio		0.02		0.26	0.26	0.26	0.08	0.48		0.06	0.46	
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		24		78	74	398	135	1688		106	1627	
v/s Ratio Prot		c0.00					0.05	c0.37		0.02	c0.29	
v/s Ratio Perm				0.27	c0.33	0.01						
v/c Ratio		0.01		1.08	1.30	0.03	0.67	0.78		0.32	0.62	
Uniform Delay, d1		43.6		33.5	33.5	25.1	40.4	19.4		40.5	18.2	
Progression Factor		1.00		1.00	1.00	1.00	1.14	0.66		1.00	1.00	
Incremental Delay, d2		0.0		124.5	203.5	0.0	8.2	3.2		0.6	1.8	
Delay (s)		43.7		158.0	237.0	25.1	54.5	15.9		41.2	19.9	
Level of Service		D		F	F	C	D	B		D	B	
Approach Delay (s)		43.7			165.1			18.4			20.6	
Approach LOS		D			F			B			C	
Intersection Summary												
HCM 2000 Control Delay			31.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 17.0
Intersection Capacity Utilization			61.0%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

Timings 5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative Plus Project AM MIT

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	80	10	10	0	160	1129	20	941
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4					
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	11.0	28.0	28.0	11.0	15.0	11.0	29.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	30.0	25.0	30.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	27.8%	33.3%	27.8%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	5.0	4.0	5.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Industrial Blvd & Hayward Apartments

 ø1	 ø2 (R)	 ø4
25 s	30 s	35 s
 ø5	 ø6 (R)	 ø8
25 s	30 s	35 s

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	10	55	10	0	10	160	1129	20	20	941	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.93		1.00	1.00		1.00	0.99	
Flt Protected		0.97			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1719			1684		1770	3529		1770	3492	
Flt Permitted		0.82			0.88		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1441			1521		1770	3529		1770	3492	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	90	11	62	11	0	11	180	1269	22	22	1057	90
RTOR Reduction (vph)	0	31	0	0	19	0	0	1	0	0	4	0
Lane Group Flow (vph)	0	132	0	0	3	0	180	1290	0	22	1143	0
Confl. Peds. (#/hr)	1					1	1		2	2		1
Confl. Bikes (#/hr)									1			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		13.6			13.6		13.5	60.5		2.9	49.9	
Effective Green, g (s)		13.6			13.6		13.5	60.5		2.9	49.9	
Actuated g/C Ratio		0.15			0.15		0.15	0.67		0.03	0.55	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		217			229		265	2372		57	1936	
v/s Ratio Prot							c0.10	0.37		0.01	c0.33	
v/s Ratio Perm		c0.09			0.00							
v/c Ratio		0.61			0.01		0.68	0.54		0.39	0.59	
Uniform Delay, d1		35.7			32.5		36.2	7.6		42.7	13.3	
Progression Factor		1.00			1.00		1.00	1.00		0.85	0.95	
Incremental Delay, d2		3.3			0.0		5.4	0.9		1.2	1.0	
Delay (s)		39.0			32.5		41.6	8.5		37.7	13.6	
Level of Service		D			C		D	A		D	B	
Approach Delay (s)		39.0			32.5			12.6			14.0	
Approach LOS		D			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		14.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			13.0				
Intersection Capacity Utilization		59.3%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Timings 6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	322	10	70	240	60	40	710	947	10	756	270
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		8			4		1	6	5	2	
Permitted Phases	8		8	4		4					2
Detector Phase	8	8	8	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	22.0	7.0	14.0	14.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	42.0	33.0	48.0	10.0	25.0	25.0
Total Split (%)	42.0%	42.0%	42.0%	42.0%	42.0%	42.0%	33.0%	48.0%	10.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	3.0	4.0	4.0
Lead/Lag							Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 15 (15%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 6: Industrial Blvd & SR 92 WB Ramps/Cryer St

		
ø1	ø2 (R)	ø4
33 s	25 s	42 s
		
ø5	ø6 (R)	ø8
10 s	48 s	42 s

HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	322	10	70	240	60	40	710	947	250	10	756	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		1791	1562	1770	3406		1770	3539	1563
Flt Permitted		0.38	1.00		0.38	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		712	1583		703	1562	1770	3406		1770	3539	1563
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	358	11	78	267	67	44	789	1052	278	11	840	300
RTOR Reduction (vph)	0	0	48	0	0	27	0	21	0	0	0	122
Lane Group Flow (vph)	0	369	30	0	334	17	789	1309	0	11	840	178
Confl. Peds. (#/hr)									4	4		
Confl. Bikes (#/hr)						3			1			1
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		38.0	38.0		38.0	38.0	30.0	49.7		1.3	21.0	21.0
Effective Green, g (s)		38.0	38.0		38.0	38.0	30.0	49.7		1.3	21.0	21.0
Actuated g/C Ratio		0.38	0.38		0.38	0.38	0.30	0.50		0.01	0.21	0.21
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		270	601		267	593	531	1692		23	743	328
v/s Ratio Prot							c0.45	0.38		0.01	c0.24	
v/s Ratio Perm		c0.52	0.02		0.48	0.01						0.11
v/c Ratio		1.37	0.05		1.25	0.03	1.49	0.77		0.48	1.13	0.54
Uniform Delay, d1		31.0	19.6		31.0	19.4	35.0	20.6		49.0	39.5	35.2
Progression Factor		1.00	1.00		1.00	1.00	0.78	0.81		1.00	1.00	1.00
Incremental Delay, d2		186.9	0.0		140.0	0.0	226.0	2.7		5.6	75.1	6.3
Delay (s)		217.9	19.6		171.0	19.4	253.2	19.2		54.6	114.6	41.5
Level of Service		F	B		F	B	F	B		D	F	D
Approach Delay (s)		183.3			153.4			106.3			95.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay		115.9										
HCM 2000 Volume to Capacity ratio		1.35										
Actuated Cycle Length (s)		100.0								11.0		
Intersection Capacity Utilization		95.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Timings 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Cumulative Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	160	10	510	30	50	180	180	1537	10	40	735
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases		8			4		1	6		5	2
Permitted Phases	8		8	4		4			6		
Detector Phase	8	8	8	4	4	4	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0	7.0	22.0	22.0	7.0	14.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0	18.0	58.0	58.0	10.0	50.0
Total Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	18.0%	58.0%	58.0%	10.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Min	Min	Min	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

 ϕ1	 ϕ2 (R)	 ϕ4
18 s	50 s	32 s
 ϕ5	 ϕ6 (R)	 ϕ8
10 s	58 s	32 s

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	160	10	510	30	50	180	180	1537	10	40	735	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected		0.96	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1779	1583		1828	1561	1770	3539	1583	1770	3372	
Flt Permitted		0.68	1.00		0.85	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1258	1583		1586	1561	1770	3539	1583	1770	3372	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	11	560	33	55	198	198	1689	11	44	808	331
RTOR Reduction (vph)	0	0	240	0	0	112	0	0	4	0	39	0
Lane Group Flow (vph)	0	187	320	0	88	86	198	1689	7	44	1100	0
Confl. Bikes (#/hr)						2						2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		22.6	22.6		22.6	22.6	13.7	62.2	62.2	4.2	52.7	
Effective Green, g (s)		22.6	22.6		22.6	22.6	13.7	62.2	62.2	4.2	52.7	
Actuated g/C Ratio		0.23	0.23		0.23	0.23	0.14	0.62	0.62	0.04	0.53	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		284	357		358	352	242	2201	984	74	1777	
v/s Ratio Prot							c0.11	c0.48		0.02	0.33	
v/s Ratio Perm		0.15	c0.20		0.06	0.05			0.00			
v/c Ratio		0.66	0.90		0.25	0.24	0.82	0.77	0.01	0.59	0.62	
Uniform Delay, d1		35.2	37.6		31.7	31.7	41.9	13.7	7.2	47.1	16.6	
Progression Factor		1.00	1.00		1.00	1.00	1.33	0.78	1.00	0.70	2.24	
Incremental Delay, d2		4.2	23.3		0.1	0.1	13.1	1.8	0.0	0.8	0.1	
Delay (s)		39.4	60.9		31.8	31.8	69.0	12.4	7.2	33.5	37.4	
Level of Service		D	E		C	C	E	B	A	C	D	
Approach Delay (s)		55.5			31.8			18.3			37.2	
Approach LOS		E			C			B			D	
Intersection Summary												
HCM 2000 Control Delay		31.4										
HCM 2000 Volume to Capacity ratio		0.83										
Actuated Cycle Length (s)		100.0										
Intersection Capacity Utilization		78.2%										
Analysis Period (min)		15										
c Critical Lane Group												

Timings 8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT

						
Lane Group	WBL	WBR	NBT	SBL	SBT	ø5
Lane Configurations						
Volume (vph)	560	641	1086	141	1084	
Turn Type	Prot	Perm	NA	Prot	NA	
Protected Phases	4		2	1	6	5
Permitted Phases		4				
Detector Phase	4	4	2	1	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	8.0	4.0	8.0	6.0
Minimum Split (s)	18.0	18.0	26.0	8.0	13.0	10.0
Total Split (s)	30.0	30.0	50.0	20.0	50.0	20.0
Total Split (%)	30.0%	30.0%	50.0%	20.0%	50.0%	20%
Yellow Time (s)	3.0	3.0	4.0	3.0	4.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0	
Lead/Lag			Lag	Lead	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	None	C-Max	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 53 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 8: Industrial Blvd & Tennyson Rd



HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
Cumulative Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	560	641	1086	80	141	1084
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.99	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.95	0.85	0.99		1.00	1.00
Flt Protected	0.97	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3297	1416	3500		1770	3539
Flt Permitted	0.97	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3297	1416	3500		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	589	675	1143	84	148	1141
RTOR Reduction (vph)	59	231	5	0	0	0
Lane Group Flow (vph)	807	167	1222	0	148	1141
Confl. Peds. (#/hr)		2				
Confl. Bikes (#/hr)		1		1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0	48.7		12.3	55.0
Effective Green, g (s)	26.0	26.0	48.7		12.3	55.0
Actuated g/C Ratio	0.26	0.26	0.49		0.12	0.55
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	857	368	1704		217	1946
v/s Ratio Prot	c0.24		c0.35		c0.08	0.32
v/s Ratio Perm		0.12				
v/c Ratio	0.94	0.45	0.72		0.68	0.59
Uniform Delay, d1	36.3	31.0	20.2		42.0	14.9
Progression Factor	1.00	1.00	1.00		1.19	0.85
Incremental Delay, d2	18.3	1.2	2.6		4.9	0.9
Delay (s)	54.5	32.3	22.8		54.7	13.6
Level of Service	D	C	C		D	B
Approach Delay (s)	47.5		22.8			18.4
Approach LOS	D		C			B
Intersection Summary						
HCM 2000 Control Delay			29.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			74.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Timings

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School

Cumulative Plus Project AM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBL	SBT
Lane Configurations											
Volume (vph)	160	221	60	430	751	290	25	110	1270	330	1880
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA	Prot	NA
Protected Phases	3	8		7	4			1	6	5	2
Permitted Phases			8			4	1				
Detector Phase	3	8	8	7	4	4	1	1	6	5	2
Switch Phase											
Minimum Initial (s)	4.0	9.0	9.0	4.0	9.0	9.0	4.0	4.0	9.0	4.0	11.0
Minimum Split (s)	8.0	32.6	32.6	8.0	37.6	37.6	8.0	8.0	37.6	8.0	35.6
Total Split (s)	22.0	40.0	40.0	26.0	44.0	44.0	17.0	17.0	43.0	21.0	47.0
Total Split (%)	16.9%	30.8%	30.8%	20.0%	33.8%	33.8%	13.1%	13.1%	33.1%	16.2%	36.2%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.6	3.0	3.0	3.6	3.0	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6	4.0	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 130

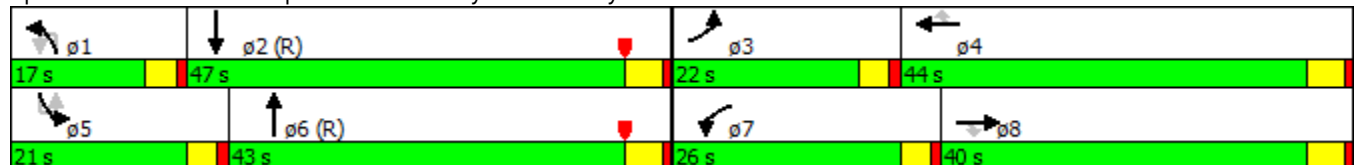
Actuated Cycle Length: 130

Offset: 28 (22%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 9: Hesperian Blvd & Tennyson Rd/Tennyson



HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	160	221	60	430	751	290	25	110	1270	100	330	1880
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91		1.00	0.91
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.99		1.00	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1530	1770	3539	1534		1769	5010		1770	4997
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.31	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1530	1770	3539	1534		573	5010		1770	4997
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	176	243	66	473	825	319	27	121	1396	110	363	2066
RTOR Reduction (vph)	0	0	51	0	0	105	0	0	7	0	0	10
Lane Group Flow (vph)	176	243	15	473	825	214	0	148	1499	0	363	2287
Confl. Peds. (#/hr)	14		16	16		14		9		35	35	
Confl. Bikes (#/hr)						4				3		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1					
Actuated Green, G (s)	15.6	30.4	30.4	22.0	36.8	36.8		13.0	43.4		17.0	47.4
Effective Green, g (s)	15.6	30.4	30.4	22.0	36.8	36.8		13.0	43.4		17.0	47.4
Actuated g/C Ratio	0.12	0.23	0.23	0.17	0.28	0.28		0.10	0.33		0.13	0.36
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0		1.5	4.0
Lane Grp Cap (vph)	212	827	357	299	1001	434		57	1672		231	1821
v/s Ratio Prot	0.10	0.07		c0.27	c0.23				0.30		0.21	c0.46
v/s Ratio Perm			0.01			0.14		c0.26				
v/c Ratio	0.83	0.29	0.04	1.58	0.82	0.49		2.60	0.90		1.57	1.26
Uniform Delay, d1	55.9	41.0	38.5	54.0	43.6	38.8		58.5	41.2		56.5	41.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	22.3	0.2	0.1	277.3	5.6	0.9		766.6	8.0		277.0	119.8
Delay (s)	78.2	41.2	38.6	331.3	49.2	39.7		825.1	49.1		333.5	161.1
Level of Service	E	D	D	F	D	D		F	D		F	F
Approach Delay (s)		54.3			129.8				118.6			184.6
Approach LOS		D			F				F			F
Intersection Summary												
HCM 2000 Control Delay	143.9			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.37											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			17.2					
Intersection Capacity Utilization	100.8%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
Cumulative Plus Project AM MIT



Movement	SBR
*** Lane Configurations	
Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.91
Adj. Flow (vph)	231
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings 10: Clawiter Rd & Winton Ave

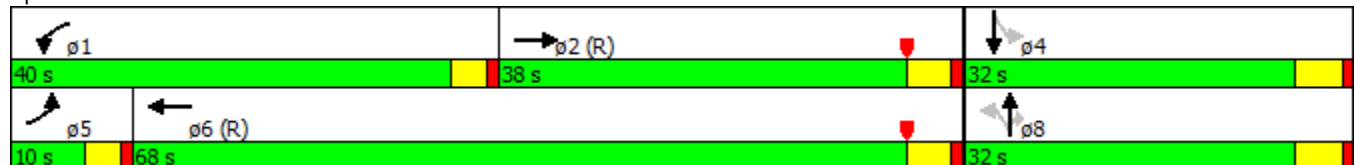
Hayward Crosspoint School
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	→	↖	←	↙	↑	↗	↘	↓	
Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	ø5
Lane Configurations	↑↑	↖↖	↑↑	↖	↖	↗		↕	
Volume (vph)	310	1239	1200	230	10	310	10	0	
Turn Type	NA	Prot	NA	Perm	NA	Perm	Perm	NA	
Protected Phases	2	1	6		8			4	5
Permitted Phases				8		8	4		
Detector Phase	2	1	6	8	8	8	4	4	
Switch Phase									
Minimum Initial (s)	8.0	5.0	8.0	8.0	8.0	8.0	8.0	8.0	5.0
Minimum Split (s)	28.6	9.0	28.6	30.9	30.9	30.9	31.9	31.9	9.0
Total Split (s)	38.0	40.0	68.0	32.0	32.0	32.0	32.0	32.0	10.0
Total Split (%)	34.5%	36.4%	61.8%	29.1%	29.1%	29.1%	29.1%	29.1%	9%
Yellow Time (s)	3.6	3.0	3.6	3.9	3.9	3.9	3.9	3.9	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.6	4.0	4.6	4.9	4.9	4.9		4.9	
Lead/Lag	Lag	Lead	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes						Yes
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 10: Clawiter Rd & Winton Ave



HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	310	130	1239	1200	10	230	10	310	10	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor		0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt		0.96		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00		0.95	0.96	1.00		0.95	
Satd. Flow (prot)		3367		3433	3534		1681	1692	1555		1770	
Flt Permitted		1.00		0.95	1.00		0.75	0.74	1.00		0.56	
Satd. Flow (perm)		3367		3433	3534		1328	1304	1555		1048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	326	137	1304	1263	11	242	11	326	11	0	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	278	0	0	0
Lane Group Flow (vph)	0	427	0	1304	1274	0	126	127	48	0	11	0
Confl. Peds. (#/hr)	1		1	1		1						
Confl. Bikes (#/hr)			4			8			4			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Effective Green, g (s)		44.3		36.0	84.3		16.2	16.2	16.2		16.2	
Actuated g/C Ratio		0.40		0.33	0.77		0.15	0.15	0.15		0.15	
Clearance Time (s)		4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)		4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)		1355		1123	2708		195	192	229		154	
v/s Ratio Prot		0.13		c0.38	c0.36							
v/s Ratio Perm							0.09	c0.10	0.03		0.01	
v/c Ratio		0.32		1.16	0.47		0.65	0.66	0.21		0.07	
Uniform Delay, d1		22.5		37.0	4.7		44.2	44.3	41.3		40.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2		0.6		82.7	0.6		5.4	6.5	0.2		0.1	
Delay (s)		23.1		119.7	5.3		49.6	50.8	41.4		40.5	
Level of Service		C		F	A		D	D	D		D	
Approach Delay (s)		23.1			63.1			45.3			40.5	
Approach LOS		C			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			55.1			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			73.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Timings 11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM MIT

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	326	304	320	1010	140	70	1300	210	150	2580	1269
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	7	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	8	7	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	11.0	6.0	9.0	9.0	6.0	11.0	11.0	7.0	11.0	11.0
Minimum Split (s)	10.5	38.5	10.5	36.5	36.5	10.5	40.5	40.5	11.5	38.5	38.5
Total Split (s)	13.0	40.0	15.0	42.0	42.0	11.0	76.0	76.0	14.0	79.0	79.0
Total Split (%)	9.0%	27.6%	10.3%	29.0%	29.0%	7.6%	52.4%	52.4%	9.7%	54.5%	54.5%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 145
Actuated Cycle Length: 145
Offset: 14 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 11: Hesperian Blvd & Winton Ave



HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
Cumulative Plus Project AM MIT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↱	↱↱		↰↱	↱↱	↰↱	↰↱	↱↱	↰↱	↰↱	↱↱	↰↱
Volume (vph)	326	304	110	320	1010	140	70	1300	210	150	2580	1269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	4853		1770	3539	1535	1770	5085	1535	3433	5085	1542
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	4853		1770	3539	1535	1770	5085	1535	3433	5085	1542
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	329	307	111	323	1020	141	71	1313	212	152	2606	1282
RTOR Reduction (vph)	0	38	0	0	0	78	0	0	48	0	0	102
Lane Group Flow (vph)	329	380	0	323	1020	63	71	1313	164	152	2606	1180
Confl. Peds. (#/hr)	8		8	8		8	9		14	14		9
Confl. Bikes (#/hr)			1			9			3			6
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Actuated Green, G (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Effective Green, g (s)	8.5	34.5		10.5	36.5	36.5	6.5	70.9	70.9	9.1	73.5	73.5
Actuated g/C Ratio	0.06	0.24		0.07	0.25	0.25	0.04	0.49	0.49	0.06	0.51	0.51
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	201	1154		128	890	386	79	2486	750	215	2577	781
v/s Ratio Prot	0.10	0.08		c0.18	c0.29		0.04	0.26		c0.04	0.51	
v/s Ratio Perm						0.04			0.11			c0.77
v/c Ratio	1.64	0.33		2.52	1.15	0.16	0.90	0.53	0.22	0.71	1.01	1.51
Uniform Delay, d1	68.2	45.7		67.2	54.2	42.3	68.9	25.5	21.2	66.6	35.8	35.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	308.0	0.1		708.1	78.9	0.1	66.2	0.8	0.7	8.4	20.5	236.5
Delay (s)	376.2	45.7		775.3	133.2	42.4	135.1	26.3	21.9	75.0	56.3	272.2
Level of Service	F	D		F	F	D	F	C	C	E	E	F
Approach Delay (s)		191.3			264.3			30.6			125.5	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay		138.7										
HCM 2000 Volume to Capacity ratio		1.48										
Actuated Cycle Length (s)		145.0							20.0			
Intersection Capacity Utilization		125.3%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
Cumulative Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	1093	0	0	916
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	1188	0	0	996
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1176			644
pX, platoon unblocked	0.78	0.71			0.71	
vC, conflicting volume	1686	594			1188	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	496	0			456	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	394	772			784	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	594	594	498	498	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	772	1700	1700	1700	1700	
Volume to Capacity	0.02	0.35	0.35	0.29	0.29	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.8	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.8	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			40.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
Cumulative Plus Project AM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	1145	64	9	966
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1245	70	10	1050
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			382			
pX, platoon unblocked	0.69	0.69			0.69	
vC, conflicting volume	1824	657			1314	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1284	0			540	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	106	743			702	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	830	484	360	700		
Volume Left	0	0	10	0		
Volume Right	0	70	0	0		
cSH	1700	1700	702	1700		
Volume to Capacity	0.49	0.28	0.01	0.41		
Queue Length 95th (ft)	0	0	1	0		
Control Delay (s)	0.0	0.0	0.5	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.2			
Approach LOS						
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			37.0%		ICU Level of Service	A
Analysis Period (min)			15			

Timings 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
2035 With Project PM MIT



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations								
Volume (vph)	550	10	10	60	760	10	459	250
Turn Type	Split	NA	NA	Prot	NA	Prot	NA	Perm
Protected Phases	4	4	3	5	2	1	6	
Permitted Phases								6
Detector Phase	4	4	3	5	2	1	6	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	5.0	7.0	7.0
Minimum Split (s)	30.0	30.0	10.0	9.0	26.0	9.0	26.0	26.0
Total Split (s)	40.0	40.0	11.0	15.0	40.0	15.0	40.0	40.0
Total Split (%)	37.7%	37.7%	10.4%	14.2%	37.7%	14.2%	37.7%	37.7%
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 106
Offset: 20 (19%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated

Splits and Phases: 1: Industrial Blvd/Clawtier Rd & Clawiter Rd

ø1	ø2 (R)	ø3	ø4
15 s	40 s	11 s	40 s
ø5	ø6 (R)		
15 s	40 s		

HCM Signalized Intersection Capacity Analysis

1: Industrial Blvd/Clawtier Rd & Clawiter Rd

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	10	30	30	10	10	60	760	0	10	459	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Lane Util. Factor	0.95	0.95			1.00		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98			0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1668			1754		1770	3539		1770	3539	1548
Flt Permitted	0.95	0.96			0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1668			1754		1770	3539		1770	3539	1548
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	573	10	31	31	10	10	62	792	0	10	478	260
RTOR Reduction (vph)	0	5	0	0	9	0	0	0	0	0	0	145
Lane Group Flow (vph)	309	300	0	0	42	0	62	792	0	10	478	115
Confl. Bikes (#/hr)			1			1						3
Turn Type	Split	NA		Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Effective Green, g (s)	24.6	24.6			4.7		11.0	56.4		1.3	46.7	46.7
Actuated g/C Ratio	0.23	0.23			0.04		0.10	0.53		0.01	0.44	0.44
Clearance Time (s)	5.0	5.0			5.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0			2.0		2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	390	387			77		183	1883		21	1559	681
v/s Ratio Prot	c0.18	0.18			c0.02		c0.04	c0.22		0.01	0.14	
v/s Ratio Perm												0.07
v/c Ratio	0.79	0.78			0.55		0.34	0.42		0.48	0.31	0.17
Uniform Delay, d1	38.3	38.1			49.6		44.1	15.0		52.0	19.2	17.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	9.9	8.6			4.8		5.0	0.7		6.1	0.5	0.5
Delay (s)	48.2	46.7			54.4		49.1	15.6		58.1	19.7	18.4
Level of Service	D	D			D		D	B		E	B	B
Approach Delay (s)		47.5			54.4			18.1			19.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			27.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			19.0		
Intersection Capacity Utilization			59.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Timings 2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	60	150	360	80	60	190	640	130	70	469	10
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	8.0	8.0	4.0	8.0	8.0
Minimum Split (s)	8.5	8.5	8.5	22.0	22.0	8.0	13.0	13.0	8.0	26.0	26.0
Total Split (s)	15.0	15.0	15.0	31.0	31.0	45.0	72.0	72.0	41.0	40.0	40.0
Total Split (%)	10.4%	10.4%	10.4%	21.5%	21.5%	31.3%	50.0%	50.0%	28.5%	27.8%	27.8%
Yellow Time (s)	3.5	3.5	3.5	3.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max

Intersection Summary

Cycle Length: 144

Actuated Cycle Length: 117.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Industrial Blvd & Depot Rd



HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	60	150	360	80	60	60	63	190	640	130	70	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00		1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00			1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		0.96			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.98			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1768	1863	1552		1740			1770	3539	1551	1770	3539
Flt Permitted	0.53	1.00	1.00		0.72			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	985	1863	1552		1278			1770	3539	1551	1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	158	379	84	63	63	66	200	674	137	74	494
RTOR Reduction (vph)	0	0	294	0	10	0	0	0	0	53	0	0
Lane Group Flow (vph)	63	158	85	0	200	0	0	266	674	84	74	494
Confl. Peds. (#/hr)	1		5	5		1						
Confl. Bikes (#/hr)			1							1		
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Prot	NA	Perm	Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	26.6	26.6	26.6		27.1			24.9	67.3	67.3	11.0	53.4
Effective Green, g (s)	26.6	26.6	26.6		27.1			24.9	67.3	67.3	11.0	53.4
Actuated g/C Ratio	0.22	0.22	0.22		0.23			0.21	0.57	0.57	0.09	0.45
Clearance Time (s)	4.5	4.5	4.5		4.0			4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	6.0	6.0	6.0		3.0			6.0	8.0	8.0	6.0	8.0
Lane Grp Cap (vph)	221	418	348		292			372	2011	881	164	1596
v/s Ratio Prot		0.08						c0.15	c0.19		0.04	0.14
v/s Ratio Perm	0.06		0.05		c0.16					0.05		
v/c Ratio	0.29	0.38	0.24		0.68			0.72	0.34	0.10	0.45	0.31
Uniform Delay, d1	38.0	38.9	37.7		41.7			43.5	13.6	11.7	50.8	20.7
Progression Factor	1.00	1.00	1.00		1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	1.6	1.0		6.5			9.1	0.5	0.2	5.5	0.5
Delay (s)	40.0	40.5	38.7		48.3			52.5	14.1	11.9	56.3	21.2
Level of Service	D	D	D		D			D	B	B	E	C
Approach Delay (s)		39.3			48.3				23.3			25.7
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			29.9		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			118.4		Sum of lost time (s)				13.5			
Intersection Capacity Utilization			75.8%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Industrial Blvd & Depot Rd

Hayward Crosspoint School
2035 With Project PM MIT



Movement	SBR
Lane Configurations	
Volume (vph)	10
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1549
Flt Permitted	1.00
Satd. Flow (perm)	1549
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	11
RTOR Reduction (vph)	6
Lane Group Flow (vph)	5
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	2
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	53.4
Effective Green, g (s)	53.4
Actuated g/C Ratio	0.45
Clearance Time (s)	5.0
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	698
v/s Ratio Prot	
v/s Ratio Perm	0.00
v/c Ratio	0.01
Uniform Delay, d1	17.9
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	17.9
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

3: Industrial Blvd & Project Access

Hayward Crosspoint School
2035 With Project PM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Volume (veh/h)	73	14	950	32	5	972
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	15	1033	35	5	1057
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			758			1064
pX, platoon unblocked	0.87	0.83			0.83	
vC, conflicting volume	1589	534			1067	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1004	40			681	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	61	98			99	
cM capacity (veh/h)	206	852			756	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	79	15	688	379	358	704
Volume Left	79	0	0	0	5	0
Volume Right	0	15	0	35	0	0
cSH	206	852	1700	1700	756	1700
Volume to Capacity	0.39	0.02	0.40	0.22	0.01	0.41
Queue Length 95th (ft)	42	1	0	0	1	0
Control Delay (s)	33.1	9.3	0.0	0.0	0.2	0.0
Lane LOS	D	A			A	
Approach Delay (s)	29.2		0.0		0.1	
Approach LOS	D					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			41.1%		ICU Level of Service	A
Analysis Period (min)			15			

Timings

4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School

2035 With Project PM MIT

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	30	0	60	0	20	10	914	30	1021
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		3		4		5	2	1	6
Permitted Phases	3		4		4				
Detector Phase	3	3	4	4	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	11.0	27.0	27.0	27.0	11.0	29.0	11.0	29.0
Total Split (s)	20.0	20.0	27.0	27.0	27.0	13.0	30.0	13.0	30.0
Total Split (%)	22.2%	22.2%	30.0%	30.0%	30.0%	14.4%	33.3%	14.4%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	5.0	4.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90

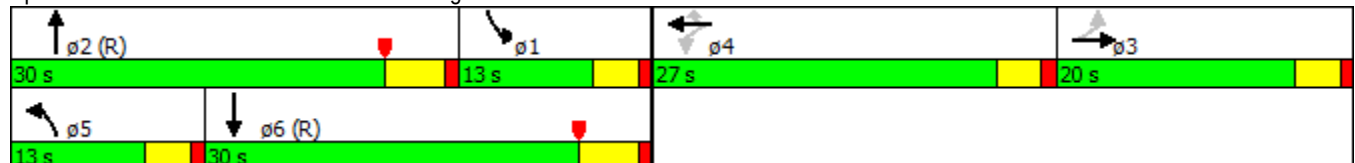
Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 4: Industrial Blvd & Bridge Entrance



HCM Signalized Intersection Capacity Analysis

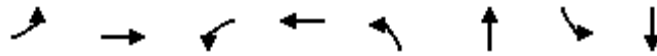
4: Industrial Blvd & Bridge Entrance

Hayward Crosspoint School
2035 With Project PM MIT

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	30	0	40	60	0	20	10	914	100	30	1021	10	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0		
Lane Util. Factor		1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95		
Frpb, ped/bikes		0.99		1.00	1.00	0.99	1.00	1.00		1.00	1.00		
Flpb, ped/bikes		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Frt		0.92		1.00	1.00	0.85	1.00	0.99		1.00	1.00		
Flt Protected		0.98		0.95	0.95	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1657		1677	1677	1561	1770	3479		1770	3533		
Flt Permitted		0.85		0.46	0.46	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (perm)		1431		813	813	1561	1770	3479		1770	3533		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	31	0	41	62	0	21	10	942	103	31	1053	10	
RTOR Reduction (vph)	0	68	0	0	0	19	0	6	0	0	0	0	
Lane Group Flow (vph)	0	4	0	31	31	2	10	1039	0	31	1063	0	
Confl. Peds. (#/hr)	2		3	3		2	4		1	1		4	
Confl. Bikes (#/hr)									1			4	
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA		
Protected Phases		3			4		5	2		1	6		
Permitted Phases	3			4		4							
Actuated Green, G (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3		
Effective Green, g (s)		5.6		9.7	9.7	9.7	1.4	50.7		7.0	56.3		
Actuated g/C Ratio		0.06		0.11	0.11	0.11	0.02	0.56		0.08	0.63		
Clearance Time (s)		4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0		
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0	4.0		2.0	4.0		
Lane Grp Cap (vph)		89		87	87	168	27	1959		137	2210		
v/s Ratio Prot							0.01	c0.30		0.02	c0.30		
v/s Ratio Perm		c0.00		c0.04	0.04	0.00							
v/c Ratio		0.05		0.36	0.36	0.01	0.37	0.53		0.23	0.48		
Uniform Delay, d1		39.7		37.3	37.3	35.9	43.9	12.2		39.0	9.0		
Progression Factor		1.00		1.00	1.00	1.00	1.14	0.68		1.00	1.00		
Incremental Delay, d2		0.1		0.9	0.9	0.0	2.9	1.0		0.3	0.8		
Delay (s)		39.8		38.2	38.2	35.9	52.8	9.3		39.3	9.8		
Level of Service		D		D	D	D	D	A		D	A		
Approach Delay (s)		39.8			37.6			9.7			10.6		
Approach LOS		D			D			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.48										
Actuated Cycle Length (s)			90.0								17.0		
Intersection Capacity Utilization			51.8%								A		
Analysis Period (min)			15										
c Critical Lane Group													

Timings 5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
2035 With Project PM MIT



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↔		↔	↔	↔	↔	↔
Volume (vph)	70	10	10	10	45	924	10	1091
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		8		4	5	2	1	6
Permitted Phases	8		4					
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	10.0	7.0	10.0
Minimum Split (s)	11.0	11.0	28.0	28.0	11.0	15.0	11.0	29.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	30.0	25.0	30.0
Total Split (%)	38.9%	38.9%	38.9%	38.9%	27.8%	33.3%	27.8%	33.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0		4.0	4.0	5.0	4.0	5.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 5: Industrial Blvd & Hayward Apartments

 25 s	 30 s	 35 s
 25 s	 30 s	 35 s

HCM Signalized Intersection Capacity Analysis

5: Industrial Blvd & Hayward Apartments

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	10	90	10	10	10	45	924	20	10	1091	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			0.95		1.00	1.00		1.00	0.99	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1680			1741		1770	3526		1770	3497	
Flt Permitted		0.85			0.90		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1462			1586		1770	3526		1770	3497	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	72	10	93	10	10	10	46	953	21	10	1125	82
RTOR Reduction (vph)	0	59	0	0	9	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	116	0	0	21	0	46	973	0	10	1204	0
Confl. Peds. (#/hr)	3					3	3		1	1		3
Confl. Bikes (#/hr)			1						1			3
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Effective Green, g (s)		12.9			12.9		4.9	62.7		1.4	59.2	
Actuated g/C Ratio		0.14			0.14		0.05	0.70		0.02	0.66	
Clearance Time (s)		4.0			4.0		4.0	5.0		4.0	5.0	
Vehicle Extension (s)		2.0			2.0		2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)		209			227		96	2456		27	2300	
v/s Ratio Prot							c0.03	c0.28		0.01	c0.34	
v/s Ratio Perm		c0.08			0.01							
v/c Ratio		0.55			0.09		0.48	0.40		0.37	0.52	
Uniform Delay, d1		35.9			33.5		41.3	5.7		43.9	8.0	
Progression Factor		1.00			1.00		1.00	1.00		0.88	1.12	
Incremental Delay, d2		1.8			0.1		1.4	0.5		2.9	0.8	
Delay (s)		37.7			33.5		42.7	6.2		41.6	9.8	
Level of Service		D			C		D	A		D	A	
Approach Delay (s)		37.7			33.5			7.8			10.1	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			11.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.0		
Intersection Capacity Utilization			59.1%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School

2035 With Project PM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	260	70	370	90	20	10	460	754	10	981	170
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		8			4		1	6	5	2	
Permitted Phases	8		8	4		4					2
Detector Phase	8	8	8	4	4	4	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	4.0	10.0	10.0
Minimum Split (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	22.0	7.0	14.0	14.0
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	38.0	10.0	38.0	38.0
Total Split (%)	27.6%	27.6%	27.6%	27.6%	27.6%	27.6%	22.4%	50.0%	13.2%	50.0%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	3.0	4.0	4.0
Lead/Lag							Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 76

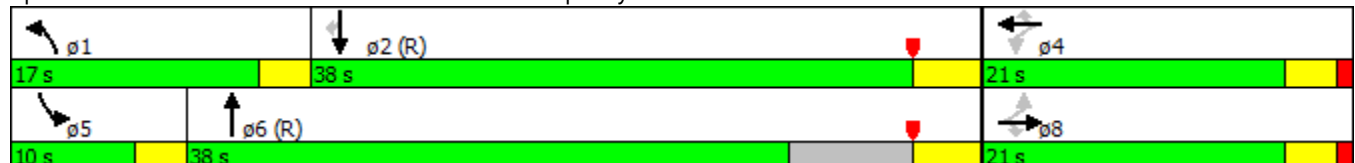
Actuated Cycle Length: 76

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 6: Industrial Blvd & SR 92 WB Ramps/Cryer St



HCM Signalized Intersection Capacity Analysis

6: Industrial Blvd & SR 92 WB Ramps/Cryer St

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	70	370	90	20	10	460	754	220	10	981	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.99
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1792	1583		1790	1583	1770	3400		1770	3539	1561
Flt Permitted		0.70	1.00		0.27	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1298	1583		508	1583	1770	3400		1770	3539	1561
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	268	72	381	93	21	10	474	777	227	10	1011	175
RTOR Reduction (vph)	0	0	238	0	0	8	0	30	0	0	0	78
Lane Group Flow (vph)	0	340	143	0	114	2	474	974	0	10	1011	97
Confl. Peds. (#/hr)									2	2		
Confl. Bikes (#/hr)									1			4
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4						2
Actuated Green, G (s)		17.0	17.0		17.0	17.0	14.0	46.8		1.2	34.0	34.0
Effective Green, g (s)		17.0	17.0		17.0	17.0	14.0	46.8		1.2	34.0	34.0
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.18	0.62		0.02	0.45	0.45
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0		3.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)		290	354		113	354	326	2093		27	1583	698
v/s Ratio Prot							c0.27	0.29		0.01	c0.29	
v/s Ratio Perm		c0.26	0.09		0.22	0.00						0.06
v/c Ratio		1.17	0.40		1.01	0.01	1.45	0.47		0.37	0.64	0.14
Uniform Delay, d1		29.5	25.2		29.5	22.9	31.0	7.9		37.0	16.2	12.4
Progression Factor		1.00	1.00		1.00	1.00	1.45	0.72		1.00	1.00	1.00
Incremental Delay, d2		107.9	0.3		87.1	0.0	218.3	0.5		3.1	2.0	0.4
Delay (s)		137.4	25.4		116.6	22.9	263.2	6.1		40.1	18.2	12.8
Level of Service		F	C		F	C	F	A		D	B	B
Approach Delay (s)		78.3			109.0			88.6			17.6	
Approach LOS		E			F			F			B	
Intersection Summary												
HCM 2000 Control Delay		63.1										
HCM 2000 Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		76.0								11.0		
Intersection Capacity Utilization		87.3%										
Analysis Period (min)		15										
c Critical Lane Group												

Timings 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
2035 With Project PM MIT

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	290	100	980	10	30	67	170	1104	30	100	905
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases		8			4		1	6		5	2
Permitted Phases	8		8	4		4			6		
Detector Phase	8	8	8	4	4	4	1	6	6	5	2
Switch Phase											
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	4.0	10.0	10.0	4.0	10.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0	7.0	22.0	22.0	7.0	14.0
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	17.0	38.0	38.0	10.0	38.0
Total Split (%)	27.6%	27.6%	27.6%	27.6%	27.6%	27.6%	22.4%	50.0%	50.0%	13.2%	50.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Min	Min	Min	None	C-Max	C-Max	None	C-Max

Intersection Summary

Cycle Length: 76
Actuated Cycle Length: 76
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

					
17 s	38 s		21 s		
					
10 s	38 s		21 s		

HCM Signalized Intersection Capacity Analysis

7: Industrial Blvd & SR 92 EB Ramps/Sleepy Hollow

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	100	980	10	30	67	170	1104	30	100	905	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected		0.96	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1796	1583		1840	1583	1770	3539	1547	1770	3358	
Flt Permitted		0.75	1.00		0.67	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1406	1583		1240	1583	1770	3539	1547	1770	3358	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	302	104	1021	10	31	70	177	1150	31	104	943	433
RTOR Reduction (vph)	0	0	245	0	0	54	0	0	14	0	66	0
Lane Group Flow (vph)	0	406	776	0	41	16	177	1150	17	104	1310	0
Confl. Peds. (#/hr)									1	1		
Confl. Bikes (#/hr)									1			3
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8		8	4		4			6			
Actuated Green, G (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Effective Green, g (s)		17.0	17.0		17.0	17.0	11.3	42.4	42.4	5.6	36.7	
Actuated g/C Ratio		0.22	0.22		0.22	0.22	0.15	0.56	0.56	0.07	0.48	
Clearance Time (s)		4.0	4.0		4.0	4.0	3.0	4.0	4.0	3.0	4.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		314	354		277	354	263	1974	863	130	1621	
v/s Ratio Prot							c0.10	0.32		c0.06	c0.39	
v/s Ratio Perm		0.29	c0.49		0.03	0.01			0.01			
v/c Ratio		1.29	2.19		0.15	0.04	0.67	0.58	0.02	0.80	0.81	
Uniform Delay, d1		29.5	29.5		23.7	23.1	30.6	11.0	7.5	34.6	16.7	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.94	0.63	
Incremental Delay, d2		153.6	545.2		0.1	0.0	5.2	1.3	0.0	21.2	3.4	
Delay (s)		183.1	574.7		23.8	23.1	35.9	12.3	7.6	53.7	13.8	
Level of Service		F	F		C	C	D	B	A	D	B	
Approach Delay (s)		463.3			23.4			15.2			16.6	
Approach LOS		F			C			B			B	
Intersection Summary												
HCM 2000 Control Delay		162.0			HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio		1.15										
Actuated Cycle Length (s)		76.0			Sum of lost time (s)				11.0			
Intersection Capacity Utilization		115.7%			ICU Level of Service				H			
Analysis Period (min)		15										
c Critical Lane Group												

Timings 8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
2035 With Project PM MIT

						
Lane Group	WBL	WBR	NBT	SBL	SBT	ø5
Lane Configurations						
Volume (vph)	80	261	1203	591	1314	
Turn Type	Prot	Perm	NA	Prot	NA	
Protected Phases	4		2	1	6	5
Permitted Phases		4				
Detector Phase	4	4	2	1	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	8.0	4.0	8.0	6.0
Minimum Split (s)	18.0	18.0	26.0	8.0	13.0	10.0
Total Split (s)	30.0	30.0	50.0	20.0	50.0	20.0
Total Split (%)	30.0%	30.0%	50.0%	20.0%	50.0%	20%
Yellow Time (s)	3.0	3.0	4.0	3.0	4.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.0	4.0	5.0	
Lead/Lag			Lag	Lead	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	None	C-Max	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 8: Industrial Blvd & Tennyson Rd

		
ø1	ø2 (R)	ø4
20 s	50 s	30 s
		
ø5	ø6 (R)	
20 s	50 s	

HCM Signalized Intersection Capacity Analysis

8: Industrial Blvd & Tennyson Rd

Hayward Crosspoint School
2035 With Project PM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	80	261	1203	170	591	1314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.0		4.0	5.0
Lane Util. Factor	0.97	0.91	0.95		1.00	0.95
Frpb, ped/bikes	0.98	0.98	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	0.91	0.85	0.98		1.00	1.00
Flt Protected	0.98	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3155	1414	3468		1770	3539
Flt Permitted	0.98	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3155	1414	3468		1770	3539
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	85	278	1280	181	629	1398
RTOR Reduction (vph)	126	126	8	0	0	0
Lane Group Flow (vph)	98	13	1453	0	629	1398
Confl. Peds. (#/hr)		3				
Confl. Bikes (#/hr)				1		
Turn Type	Prot	Perm	NA		Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		4				
Actuated Green, G (s)	9.7	9.7	61.3		16.0	71.3
Effective Green, g (s)	9.7	9.7	61.3		16.0	71.3
Actuated g/C Ratio	0.10	0.10	0.61		0.16	0.71
Clearance Time (s)	4.0	4.0	5.0		4.0	5.0
Vehicle Extension (s)	4.0	4.0	6.0		2.0	6.0
Lane Grp Cap (vph)	306	137	2125		283	2523
v/s Ratio Prot	c0.03		c0.42		c0.36	0.40
v/s Ratio Perm		0.01				
v/c Ratio	0.32	0.10	0.68		2.22	0.55
Uniform Delay, d1	42.1	41.2	12.9		42.0	6.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.4	1.8		561.5	0.9
Delay (s)	42.9	41.6	14.7		603.5	7.7
Level of Service	D	D	B		F	A
Approach Delay (s)	42.4		14.7			192.6
Approach LOS	D		B			F
Intersection Summary						
HCM 2000 Control Delay			110.9		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	13.0
Intersection Capacity Utilization			88.1%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Timings 9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
2035 With Project PM MIT

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	190	651	80	370	301	270	70	50	1660	40	550	1110
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA	custom	Prot	NA
Protected Phases	3	8		7	4			1	6		5	2
Permitted Phases			8			4	1			5		
Detector Phase	3	8	8	7	4	4	1	1	6	5	5	2
Switch Phase												
Minimum Initial (s)	4.0	9.0	9.0	4.0	9.0	9.0	4.0	4.0	9.0	4.0	4.0	11.0
Minimum Split (s)	8.0	32.6	32.6	8.0	37.6	37.6	8.0	8.0	37.6	8.0	8.0	35.6
Total Split (s)	20.0	33.0	33.0	26.0	39.0	39.0	12.0	12.0	39.0	22.0	22.0	49.0
Total Split (%)	16.7%	27.5%	27.5%	21.7%	32.5%	32.5%	10.0%	10.0%	32.5%	18.3%	18.3%	40.8%
Yellow Time (s)	3.0	3.6	3.6	3.0	3.6	3.6	3.0	3.0	3.6	3.0	3.0	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6		4.0	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max	None	None	C-Max

Intersection Summary

Cycle Length: 120

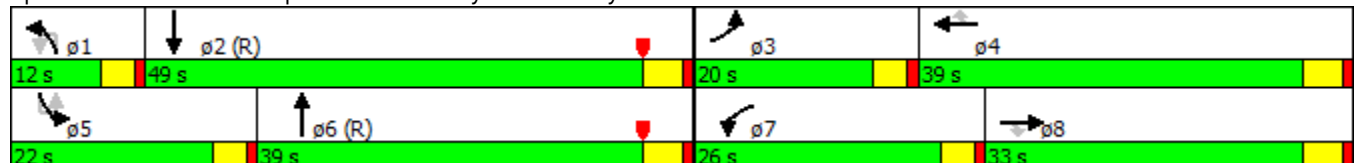
Actuated Cycle Length: 120

Offset: 71 (59%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 95

Control Type: Actuated-Coordinated

Splits and Phases: 9: Hesperian Blvd & Tennyson Rd/Tennyson



HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Volume (vph)	190	651	80	370	301	270	70	50	1660	320	40	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	0.91			1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.98			1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.98			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00			0.95
Satd. Flow (prot)	1770	3539	1502	1770	3539	1537		1767	4879			1763
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.50	1.00			0.22
Satd. Flow (perm)	1770	3539	1502	1770	3539	1537		930	4879			412
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	685	84	389	317	284	74	53	1747	337	42	579
RTOR Reduction (vph)	0	0	65	0	0	89	0	0	23	0	0	0
Lane Group Flow (vph)	200	685	19	389	317	195	0	127	2061	0	0	621
Confl. Peds. (#/hr)	14		30	30		14		7		84		84
Confl. Bikes (#/hr)			2			3				2		
Turn Type	Prot	NA	Perm	Prot	NA	Perm	custom	Prot	NA		custom	Prot
Protected Phases	3	8		7	4			1	6			5
Permitted Phases			8			4	1				5	
Actuated Green, G (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Effective Green, g (s)	15.3	27.1	27.1	22.0	33.8	33.8		8.0	35.7			18.0
Actuated g/C Ratio	0.13	0.23	0.23	0.18	0.28	0.28		0.07	0.30			0.15
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6		4.0	4.6			4.0
Vehicle Extension (s)	1.5	3.0	3.0	2.2	3.0	3.0		1.5	4.0			1.5
Lane Grp Cap (vph)	225	799	339	324	996	432		62	1451			61
v/s Ratio Prot	0.11	c0.19		c0.22	0.09				c0.42			
v/s Ratio Perm			0.01			0.13		0.14				c1.51
v/c Ratio	0.89	0.86	0.06	1.20	0.32	0.45		2.05	1.42			10.18
Uniform Delay, d1	51.5	44.6	36.4	49.0	34.0	35.5		56.0	42.1			51.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2	31.0	9.0	0.1	116.1	0.2	0.8		522.9	193.2			4163.6
Delay (s)	82.5	53.6	36.5	165.1	34.2	36.2		578.9	235.4			4214.6
Level of Service	F	D	D	F	C	D		F	F			F
Approach Delay (s)		58.1			86.2				255.1			
Approach LOS		E			F				F			
Intersection Summary												
HCM 2000 Control Delay			554.8				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			2.74									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)		17.2			
Intersection Capacity Utilization			129.0%				ICU Level of Service		H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: Hesperian Blvd & Tennyson Rd/Tennyson

Hayward Crosspoint School
2035 With Project PM MIT



Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Volume (vph)	1110	100
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.6	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5014	
Flt Permitted	1.00	
Satd. Flow (perm)	5014	
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	1168	105
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	1264	0
Confl. Peds. (#/hr)		7
Confl. Bikes (#/hr)		2
Turn Type	NA	
Protected Phases	2	
Permitted Phases		
Actuated Green, G (s)	45.7	
Effective Green, g (s)	45.7	
Actuated g/C Ratio	0.38	
Clearance Time (s)	4.6	
Vehicle Extension (s)	4.0	
Lane Grp Cap (vph)	1909	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	0.66	
Uniform Delay, d1	30.8	
Progression Factor	1.00	
Incremental Delay, d2	1.8	
Delay (s)	32.6	
Level of Service	C	
Approach Delay (s)	1403.8	
Approach LOS	F	
Intersection Summary		

Timings
10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
2035 With Project PM MIT



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Volume (vph)	40	1200	369	400	240	0	860	30	0
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2	1	6		8			4
Permitted Phases					8		8	4	
Detector Phase	5	2	1	6	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	8.0	5.0	8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	9.0	28.6	9.0	28.6	30.9	30.9	30.9	31.9	31.9
Total Split (s)	10.0	78.0	20.0	88.0	32.0	32.0	32.0	32.0	32.0
Total Split (%)	7.7%	60.0%	15.4%	67.7%	24.6%	24.6%	24.6%	24.6%	24.6%
Yellow Time (s)	3.0	3.6	3.0	3.6	3.9	3.9	3.9	3.9	3.9
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.6	4.0	4.6	4.9	4.9	4.9		4.9
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 50 (38%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
 Natural Cycle: 140
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Clawiter Rd & Winton Ave

ø1	ø2 (R)	ø3	ø4
20 s	78 s	10 s	32 s
ø5	ø6 (R)	ø7	ø8
10 s	88 s	10 s	32 s

HCM Signalized Intersection Capacity Analysis

10: Clawiter Rd & Winton Ave

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1200	270	369	400	0	240	0	860	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		0.97	0.95		0.95	0.95	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85		1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.95	1.00		0.95	
Satd. Flow (prot)	1770	3419		3433	3539		1681	1681	1563		1770	
Flt Permitted	0.95	1.00		0.95	1.00		0.73	0.73	1.00		0.57	
Satd. Flow (perm)	1770	3419		3433	3539		1301	1301	1563		1062	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	45	1348	303	415	449	0	270	0	966	34	0	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	150	0	0	0
Lane Group Flow (vph)	45	1636	0	415	449	0	135	135	816	0	34	0
Confl. Peds. (#/hr)			13	13								
Confl. Bikes (#/hr)			9			1			1			
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	4.8	73.4		16.0	84.6		27.1	27.1	27.1		27.1	
Effective Green, g (s)	4.8	73.4		16.0	84.6		27.1	27.1	27.1		27.1	
Actuated g/C Ratio	0.04	0.56		0.12	0.65		0.21	0.21	0.21		0.21	
Clearance Time (s)	4.0	4.6		4.0	4.6		4.9	4.9	4.9		4.9	
Vehicle Extension (s)	2.0	4.0		2.0	4.0		2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	65	1930		422	2303		271	271	325		221	
v/s Ratio Prot	0.03	c0.48		c0.12	0.13							
v/s Ratio Perm							0.10	0.10	c0.52		0.03	
v/c Ratio	0.69	0.85		0.98	0.19		0.50	0.50	2.51		0.15	
Uniform Delay, d1	61.9	23.6		56.9	9.1		45.4	45.4	51.5		42.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	22.6	4.9		39.1	0.2		0.5	0.5	689.5		0.1	
Delay (s)	84.5	28.5		96.0	9.3		46.0	46.0	740.9		42.2	
Level of Service	F	C		F	A		D	D	F		D	
Approach Delay (s)		30.0			50.9			589.1			42.2	
Approach LOS		C			D			F			D	
Intersection Summary												
HCM 2000 Control Delay			215.2			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			113.9%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Timings 11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
2035 With Project PM MIT

												
Lane Group	EBL	EBT	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	686	1004	310	375	250	40	80	2080	470	270	1270	314
Turn Type	Prot	NA	Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	7	4			5	2		1	6	
Permitted Phases					4	5			2			6
Detector Phase	3	8	7	4	4	5	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	6.0	11.0	6.0	9.0	9.0	6.0	6.0	11.0	11.0	7.0	11.0	11.0
Minimum Split (s)	10.5	38.5	10.5	36.5	36.5	10.5	10.5	40.5	40.5	11.5	38.5	38.5
Total Split (s)	20.0	39.0	39.0	58.0	58.0	15.0	15.0	46.0	46.0	16.0	47.0	47.0
Total Split (%)	14.3%	27.9%	27.9%	41.4%	41.4%	10.7%	10.7%	32.9%	32.9%	11.4%	33.6%	33.6%
Yellow Time (s)	3.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5	5.5
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 140
Offset: 125 (89%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 11: Hesperian Blvd & Winton Ave

			
ø1	ø2 (R)	ø3	ø4
16 s	46 s	20 s	58 s
			
ø5	ø6 (R)	ø7	ø8
15 s	47 s	39 s	39 s

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
2035 With Project PM MIT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations	 	  			 				  		  	  
Volume (vph)	686	1004	100	310	375	250	40	80	2080	470	270	1270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00		1.00	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98		1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	4995		1770	3539	1550		1768	5085	1519	3433	5085
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.38	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	4995		1770	3539	1550		709	5085	1519	3433	5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	707	1035	103	320	387	258	41	82	2144	485	278	1309
RTOR Reduction (vph)	0	8	0	0	0	115	0	0	0	84	0	0
Lane Group Flow (vph)	707	1130	0	320	387	143	0	123	2144	401	278	1309
Confl. Peds. (#/hr)	6		27	27		6		5		24	24	
Confl. Bikes (#/hr)			2			2				1		
Turn Type	Prot	NA		Prot	NA	Perm	custom	Prot	NA	Perm	Prot	NA
Protected Phases	3	8		7	4			5	2		1	6
Permitted Phases						4	5			2		
Actuated Green, G (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Effective Green, g (s)	15.5	33.4		28.8	46.7	46.7		10.5	46.3	46.3	11.5	47.3
Actuated g/C Ratio	0.11	0.24		0.21	0.33	0.33		0.08	0.33	0.33	0.08	0.34
Clearance Time (s)	4.5	5.5		4.5	5.5	5.5		4.5	5.5	5.5	4.5	5.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1191		364	1180	517		53	1681	502	281	1718
v/s Ratio Prot	c0.21	c0.23		c0.18	0.11				c0.42		0.08	0.26
v/s Ratio Perm						0.09		c0.17		0.26		
v/c Ratio	1.86	0.95		0.88	0.33	0.28		2.32	1.28	0.80	0.99	0.76
Uniform Delay, d1	62.2	52.5		53.9	34.9	34.3		64.8	46.9	42.6	64.2	41.3
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	397.2	15.0		20.1	0.1	0.1		649.0	128.7	12.6	50.1	3.3
Delay (s)	459.5	67.5		74.0	35.0	34.4		713.7	175.6	55.2	114.3	44.6
Level of Service	F	E		E	C	C		F	F	E	F	D
Approach Delay (s)		217.7			47.8				178.4			52.9
Approach LOS		F			D				F			D
Intersection Summary												
HCM 2000 Control Delay		139.1										
HCM 2000 Volume to Capacity ratio		1.28										
Actuated Cycle Length (s)		140.0										
Intersection Capacity Utilization		106.9%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: Hesperian Blvd & Winton Ave

Hayward Crosspoint School
2035 With Project PM MIT



Movement	SBR
Left Lane Configurations	7
Volume (vph)	314
Ideal Flow (vphpl)	1900
Total Lost time (s)	5.5
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1553
Flt Permitted	1.00
Satd. Flow (perm)	1553
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	324
RTOR Reduction (vph)	215
Lane Group Flow (vph)	109
Confl. Peds. (#/hr)	5
Confl. Bikes (#/hr)	1
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	47.3
Effective Green, g (s)	47.3
Actuated g/C Ratio	0.34
Clearance Time (s)	5.5
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	524
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.21
Uniform Delay, d1	33.0
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	33.9
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Unsignalized Intersection Capacity Analysis

12: Industrial Blvd & Driveway 1

Hayward Crosspoint School
2035 With Project PM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	14	964	0	0	977
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	15	1048	0	0	1062
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1185			637
pX, platoon unblocked	0.90	0.86			0.86	
vC, conflicting volume	1579	524			1048	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1007	117			727	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	214	784			749	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	15	524	524	531	531	
Volume Left	0	0	0	0	0	
Volume Right	15	0	0	0	0	
cSH	784	1700	1700	1700	1700	
Volume to Capacity	0.02	0.31	0.31	0.31	0.31	
Queue Length 95th (ft)	1	0	0	0	0	
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.7	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			36.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Industrial Blvd & Driveway 2

Hayward Crosspoint School
2035 With Project PM MIT

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	982	32	4	1041
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	1067	35	4	1132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)			383			
pX, platoon unblocked	0.82	0.82			0.82	
vC, conflicting volume	1659	551			1102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1365	14			686	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	113	871			741	
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	712	391	382	754		
Volume Left	0	0	4	0		
Volume Right	0	35	0	0		
cSH	1700	1700	741	1700		
Volume to Capacity	0.42	0.23	0.01	0.44		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.2	0.0		
Lane LOS			A			
Approach Delay (s)	0.0		0.1			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			34.9%		ICU Level of Service	A
Analysis Period (min)			15			

Appendix C

Signal & Stop Warrant Analysis

Warrant 3A: Peak Hour Delay

The peak hour delay warrant is intended for application where traffic conditions are such that for one hour of the day minor street traffic suffers undue delay in entering or crossing the major street. The peak hour delay warrant is satisfied when the conditions given below exist for one hour (any four consecutive 15-minute periods) of an average weekday.

The peak hour delay warrant is met when:

1. The total delay experienced by the traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, and
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes, and
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four (or more) approaches or 650 vph for intersections with three approaches.

Analysis

Minor Street Lanes	1
Total Approaches	4
Time	7:15 AM

	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced for the Intersection (vph)
Existing	4.1	114	1,213
Limiting Value	4	100	800
Met/ Not Met	Met	Met	Met

Warrant	Met
---------	-----

Warrant 3B: Peak Hour Volume

Driveway A

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

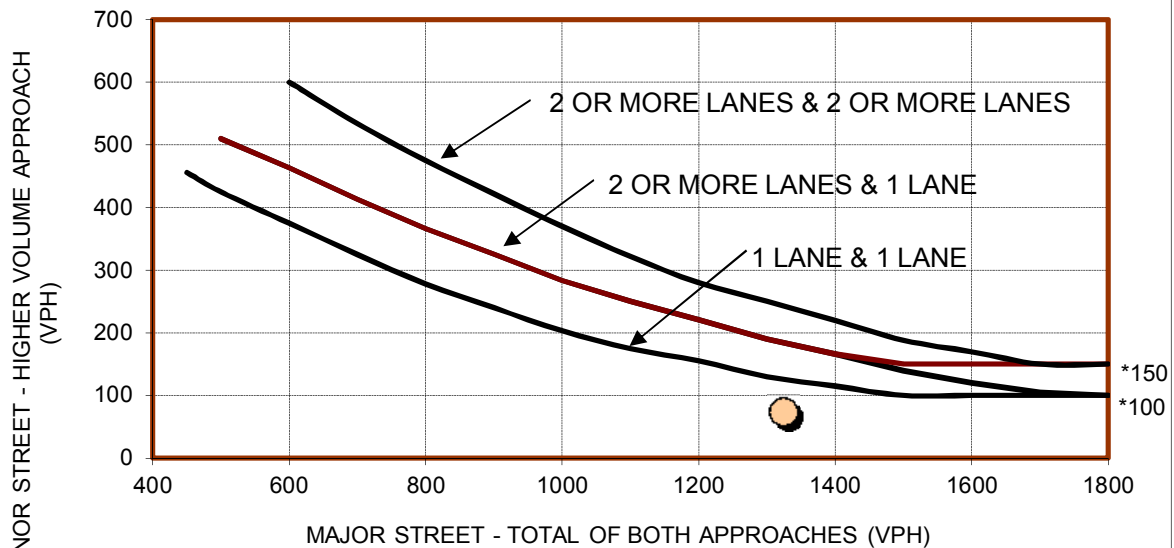
Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Hour

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
8:00 AM	1,325	74

FIGURE 4C-3. PEAK HOUR VOLUME WARRANT



*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 or lane.

● Peak Hour

Warrant

Not Met

Warrant 3B: Peak Hour Volume

Main Driveway

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

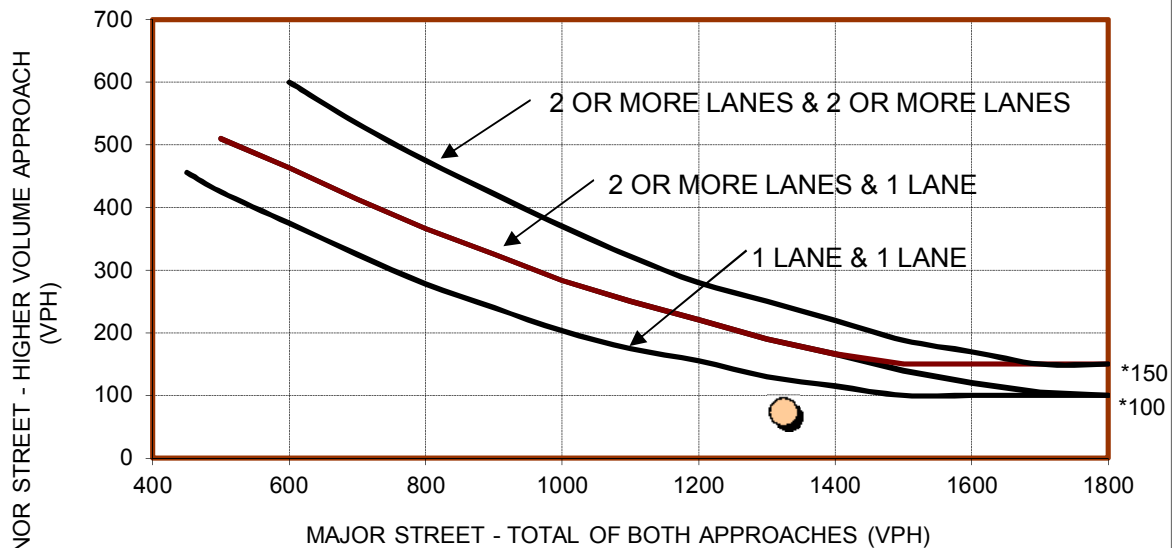
Analysis

	No of lanes
Major Street	2
Minor Street	2

Peak Hour

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
8:00 AM	1,325	74

FIGURE 4C-3. PEAK HOUR VOLUME WARRANT



*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 or lane.

● Peak Hour

Warrant

Not Met

Warrant 3B: Peak Hour Volume

The peak hour volume warrant is satisfied when the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour of the higher volume minor street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the curve in Figure 4-5 for the existing combination of approach lanes.

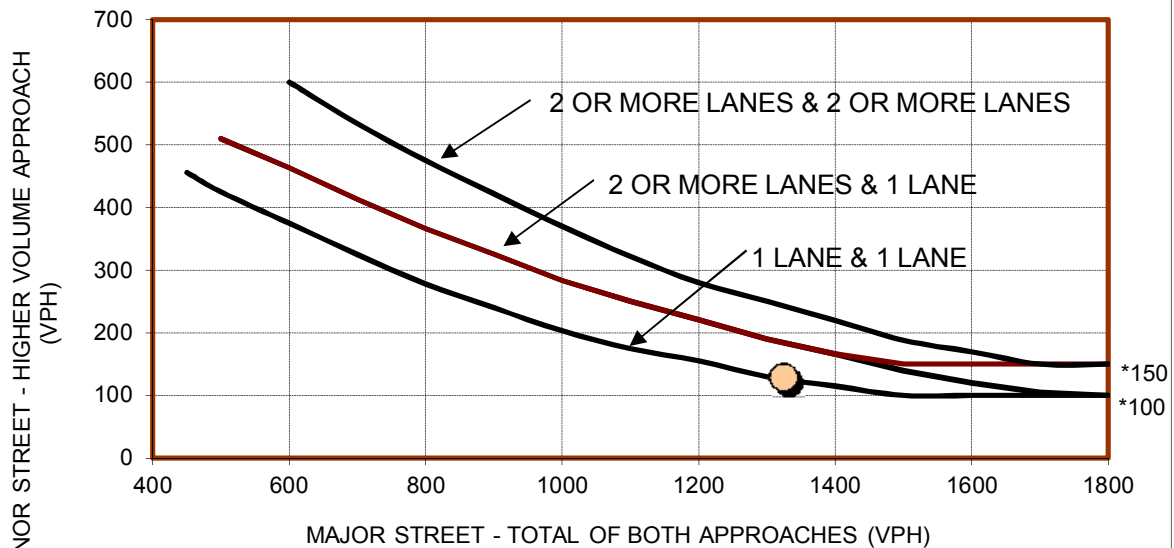
Analysis

	No of lanes
Major Street	2
Minor Street	1

Peak Hour

Time	Vehicles Per Hour	
	Major Street (Sum of both approaches)	Minor street (High volume approach)
8:00 AM	1,325	129

FIGURE 4C-3. PEAK HOUR VOLUME WARRANT



*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 or lane.

● Peak Hour

Warrant	Not Met
---------	---------

Guidance Criterion C.1: Eight Hour Major Street Volume

Guidance Criterion C.1 is met if the vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day.

Analysis Sum of Major Street approaches

Time	Vehicles/hour
7:00 AM	1525
10:00 AM	1010
11:00 AM	1142
12:00 PM	1206
1:00 PM	1393
3:00 PM	1617
4:00 PM	1571
5:00 PM	992

Hourly volume average	1307
Limiting Value	300

Criterion	Met
------------------	------------

Guidance Criterion C.2: Eight Hour Minor Street Volume

Guidance Criterion C.2 is met if the combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street

Analysis Sum of Minor Street approaches

Time	Vehicles/hour	Pedestrians/hour	Bicycles/hour	Total/hour
7:30 AM	29	5	0	34
8:30 AM	54	5	0	59
11:30 AM	54	5	0	59
12:30 PM	54	5	0	59
1:30 PM	54	5	0	59
3:00 PM	31	5	0	36
4:30 PM	54	5	0	59
5:30 PM	54	5	0	59

Hourly volume average	53
Limiting Value	200

Criterion	Not Met
------------------	----------------

Guidance Criterion C.2: Eight Hour Minor Street Volume

Guidance Criterion C.2 is met if the combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street

Analysis Sum of Minor Street approaches

Time	Vehicles/hour	Pedestrians/hour	Bicycles/hour	Total/hour
7:30 AM	132	5	0	137
8:30 AM	54	5	0	59
11:30 AM	54	5	0	59
12:30 PM	54	5	0	59
1:30 PM	54	5	0	59
3:00 PM	141	5	0	146
4:30 PM	54	5	0	59
5:30 PM	54	5	0	59

Hourly volume average	80
Limiting Value	200

Criterion	Not Met
------------------	----------------

Guidance Criterion C.2: Eight Hour Minor Street Volume

Guidance Criterion C.2 is met if the combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street

Analysis Sum of Minor Street approaches

Time	Vehicles/hour	Pedestrians/hour	Bicycles/hour	Total/hour
7:30 AM	129	5	0	134
8:30 AM	54	5	0	59
11:30 AM	54	5	0	59
12:30 PM	54	5	0	59
1:30 PM	54	5	0	59
3:00 PM	64	5	0	69
4:30 PM	54	5	0	59
5:30 PM	54	5	0	59

Hourly volume average	70
Limiting Value	200

Criterion	Not Met
------------------	----------------

Appendix D

Signal Timing Sheets

[illegible]

Clawiter RQ @ Industrial Blvd

3. COORDINATOR SUBMENU

MIDDAY PEAK

1. COORDINATOR OPTIONS

SPLIT UNITS	SEC	ACT CRD PHASE	☒
OFFSET UNITS	SEC	ACT WALK/REST	☐
INTERCNT FMT	STD	INHIBIT MAX	☒
INTERCNT SRC	TLM	MAX2 SELECT	☐
RESYNC COUNT		MULTISYNC	☐
TRANSITION	SMOOTH	FLOAT FORCE	☐
DWELL PERIOD	0		
FREE ALTERNATE SEQUENCE	A	B	C D E F

STD FORMAT

COORD PATTERN	2	OFFSET	87
CYCLE LENGTH	100	C/O/S	211

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

2. COORD MANUAL AND SPLIT DEMAND

MANUAL ENABLE	MANUAL PATTERN											
SPLIT DEMAND:	DEMAND 1						DEMAND 2					
DEMAND CALL TIME												
DEMAND CYCLE COUNT												
DEMAND PHASE	1	2	3	4	5	6	7	8	9	10	11	12
DEMAND 1 PHASE												
DEMAND 2 PHASE												

SPLITS:												
PHASE 1)	12	2)	38	3)	12	4)	38					
PHASE 5)	12	6)	38	7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE					(1)			(2)				
VEH PERM 2 DISP												
PHASE RESERVICE	☒											
SPLIT EXTENSION/RING					(1)			(2)				
SPL DMD PATTERN					(1)			(2)				
XARTERY PATTERN												
SPLITS:	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES	☒	☒				☒						
VEHICLE RECALL	☒	☒				☒						
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
	A	B	C	D	E	F						
ALT SEQUENCE												

3. COORD AUTO PERM MIN GREEN

PHASE	AUTO PERM MIN GRN	PHASE	AUTO PERM MIN GRN
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

4. PATTERN DATA FORMAT

AM PEAK

COORD PATTERN	1	OFFSET	70
CYCLE LENGTH	106	C/O/S	111

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)	15	2)	40	3)	11	4)	40					
PHASE 5)	15	6)	40	7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE					(1)			(2)				
VEH PERM 2 DISP												
PHASE RESERVICE	☒											
SPLIT EXTENSION/RING					(1)			(2)				
SPL DMD PATTERN					(1)			(2)				
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES	☒	☒				☒						
VEHICLE RECALL	☒	☒				☒						
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
	A	B	C	D	E	F						
ALT SEQUENCE												

STD FORMAT

PM PEAK

COORD PATTERN	3	OFFSET	20
CYCLE LENGTH	106	C/O/S	311

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)	15	2)	40	3)	11	4)	40					
PHASE 5)	15	6)	40	7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE					(1)			(2)				
VEH PERM 2 DISP												
PHASE RESERVICE	☒											
SPLIT EXTENSION/RING					(1)			(2)				
SPL DMD PATTERN					(1)			(2)				
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES	☒	☒				☒						
VEHICLE RECALL	☒	☒				☒						
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
	A	B	C	D	E	F						
ALT SEQUENCE												

Date Installed: 8/7/03

Clawiter Rd @ Industrial Blvd 5/8

4. PREEMPTOR SUBMENU

(EVA)

PRIORITY PREEMPTOR 1

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES												
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:					B:				C:		D:
ACTIVE										PED DARK		
PRIORITY										PED ACTIVE		
DET LOCK										ZERO PC TIME		
HOLD FLASH										PC THRU YELLOW		
TERM OVLP ASAP										TERM PHASES		
DONT OVERRIDE FLASH										ACTIVE ONLY DURING HOLD		
FLASH ALL OUTPUTS										NO CVM IN FLASH		
YELLOW-RED GOES GREEN										FAST FLASH GRN ON HOLD		
ENABLE MAX PREEMPT TIME										OUT OF FLASH		
MAX TIME										DURATION TIME		
MIN HOLD TIME										DELAY TIME		
MIN PED CLEAR										INHIBIT TIME		
EXIT MAX										HLD DELAY TIME		
										GRN	YEL	RED
MINIMUM												
TRACK CLEAR												
HOLD												

3. PRIORITY PREEMPTOR 3

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES			X			X						
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:					B:				C:		D:
ACTIVE										PED DARK		
PRIORITY										PED ACTIVE		
DET LOCK										ZERO PC TIME		
HOLD FLASH										PC THRU YELLOW		
TERM OVLP ASAP										TERM PHASES		
DONT OVERRIDE FLASH										ACTIVE ONLY DURING HOLD		
FLASH ALL OUTPUTS										NO CVM IN FLASH		
YELLOW-RED GOES GREEN										FAST FLASH GRN ON HOLD		
ENABLE MAX PREEMPT TIME										OUT OF FLASH		
MAX TIME										DURATION TIME		
MIN HOLD TIME										10 DELAY TIME		
MIN PED CLEAR										INHIBIT TIME		
EXIT MAX										HLD DELAY TIME		
										GRN	YEL	RED
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

2. PRIORITY PREEMPTOR 2

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES												
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:					B:				C:		D:
ACTIVE										PED DARK		
PRIORITY										PED ACTIVE		
DET LOCK										ZERO PC TIME		
HOLD FLASH										PC THRU YELLOW		
TERM OVLP ASAP										TERM PHASES		
DONT OVERRIDE FLASH										ACTIVE ONLY DURING HOLD		
FLASH ALL OUTPUTS										NO CVM IN FLASH		
YELLOW-RED GOES GREEN										FAST FLASH GRN ON HOLD		
ENABLE MAX PREEMPT TIME										OUT OF FLASH		
MAX TIME										DURATION TIME		
MIN HOLD TIME										DELAY TIME		
MIN PED CLEAR										INHIBIT TIME		
EXIT MAX										HLD DELAY TIME		
										GRN	YEL	RED
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

4. PRIORITY PREEMPTOR 4

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES				X								
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:					B:				C:		D:
ACTIVE										PED DARK		
PRIORITY										PED ACTIVE		
DET LOCK										ZERO PC TIME		
HOLD FLASH										PC THRU YELLOW		
TERM OVLP ASAP										TERM PHASES		
DONT OVERRIDE FLASH										ACTIVE ONLY DURING HOLD		
FLASH ALL OUTPUTS										NO CVM IN FLASH		
YELLOW-RED GOES GREEN										FAST FLASH GRN ON HOLD		
ENABLE MAX PREEMPT TIME										OUT OF FLASH		
MAX TIME										DURATION TIME		
MIN HOLD TIME										10 DELAY TIME		
MIN PED CLEAR										INHIBIT TIME		
EXIT MAX										HLD DELAY TIME		
										GRN	YEL	RED
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

(EVB)

5 (EVC)

6. PRIORITY PREEMPTOR 6

7. BUS PREEMPTORS

[illegible]

Clawiter Rd @ Industrial Blvd ^{7/8}

5. NIC/TOD SUBMENU

1. NIC/TOD CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL NIC PROGRAM STEP	
MANUAL TOD PROGRAM STEP	
SYNC REFERENCE TIME	3:00
SYNC REFERENCE	LAST EVENT
WEEK 1 BEGINS ON 1ST SUNDAY	
DISABLE DAYLIGHT SAVINGS	
DST BEGINS LAST SUNDAY	

2. NIC/TOD WEEKLY PROGRAMS

WEEK	SUN	MON	TUE	WED	THU	FRI	SAT
1	2	1	1	1	1	1	2
2							
3							
4							
5							
6							
7							
8							
9							
10							

3. NIC/TOD YEARLY PROGRAMS

WEEK OF YEAR	1	2	3	4	5	6	7	8
WEEKLY PROGRAM								
WEEK OF YEAR	9	10	11	12	13	14	15	16
WEEKLY PROGRAM								
WEEK OF YEAR	17	18	19	20	21	22	23	24
WEEKLY PROGRAM								
WEEK OF YEAR	25	26	27	28	29	30	31	32
WEEKLY PROGRAM								
WEEK OF YEAR	33	34	35	36	37	38	39	40
WEEKLY PROGRAM								
WEEK OF YEAR	41	42	43	44	45	46	47	48
WEEKLY PROGRAM								
WEEK OF YEAR				49	50	51	52	53
WEEKLY PROGRAM								

4. NIC/TOD HOLIDAY PROGRAM

HOLIDAY	FLOAT/FIXED	MON/MON	DOW/DOM	WOM/YEAR	PROG
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

Clawiter Rd @ Industrial Blvd

[illegible]

Date deactivated: 1.12.05

Clawiter Rd @ Industrial Blvd

5. NIC PROGRAM STEP

[illegible][illegible]

Date Installed: 1.12.05 (To satisfy
Alan Silver, a Citizen,

Station : 22 - Hesperian @ Tennyson (Upload File)

Phase	1 (NL)	2 (ST)	3 (EL)	4 (WT)	5 (SL)	6 (NT)	7 (WL)	8 (ET)	9	10	11	12	13	14	15	16
Walk		7		7		7		7								
Ped Clearance		24		26		26		28								
Min Green	4	11	4	9	4	9	4	9								
Passage	1.5	4	1.5	3	1.5	4	2.2	3								
Max1	20	44	20	34	20	34	26	35								
Max2	25	40	25	40	25	40	25	40								
Yellow	3	3.6	3	3.6	3	3.6	3	3.6								
Red	1	1	1	1	1	1	1	1								
Red Revert	2	2	2	2	2	2	2	2								
Added Initial		1				1										
Max Initial		20				20										
Time Before Reduce		15		15		15		15								
Cars Before Reduce																
Time To Reduce																
Reduce By																
Min Gap	1.5	3	1.5	2	1.5	3	1.5	2								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry		ON				ON										
Auto Exit		ON				ON										
Non Act1		ON				ON										
Non Act2				ON				ON								
Lock Call		ON				ON										
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input						
Override Flash						
Override Higher						
Flash Dwell	ON					
Link						
Delay						
Min Duration			10	10	10	10
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell						
Max Presence			90	90	90	90
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1						
Exit R2						
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Prepared By		Date Implemented
-------------	--	------------------

Reviewed By		Traffic Engineer
-------------	--	------------------

Coordination

[illegible]

Scheduler

User Comments:

Station : 12 - Hesperian @ Winton (Upload File)

Phase	1 (SL)	2 (NT)	3 (EL)	4 (WT)	5 (NL)	6 (ST)	7 (WL)	8 (ET)	9	10	11	12	13	14	15	16
Walk		5		5		5		5								
Ped Clearance		30		26		28		29								
Min Green	7	11	6	9	6	11	6	11								
Passage	2	2	2	2	2	2	2	2								
Max1	25	40	35	40	25	40	35	45								
Max2	25	45	20	25	25	45	20	25								
Yellow	3	4	3	4	3	4	3	4								
Red	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5								
Red Revert	2	2	2	2	2	2	2	2								
Added Initial		2	2	2		2		2								
Max Initial		25		25		25		25								
Time Before Reduce	5	10	5	15	5	10		15								
Cars Before Reduce		6	6	6		6		6								
Time To Reduce	5	12	5	12	5	12		12								
Reduce By																
Min Gap	1	1	1.5	1	1	1	1.5	1								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON	ON	ON	ON	ON	ON	ON								
Auto Entry		ON				ON										
Auto Exit		ON				ON										
Non Act1		ON				ON										
Non Act2																
Lock Call		ON		ON		ON	ON	ON								
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry		ON		ON		ON		ON								
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input			ON	ON	ON	ON
Override Flash						
Override Higher						
Flash Dwell	ON					
Link						
Delay						
Min Duration			10	10	10	10
Min Green						
Min Walk						
Ped Clear			7	7	7	7
Track Green						
Min Dwell			5	5	5	5
Max Presence			90	80	80	80
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1			4	2	4	2
Exit R2			8	6	8	6
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Prepared By		Date Implemented
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Reviewed By		Traffic Engineer
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Coordination

[illegible][illegible]

Scheduler

User Comments:

COORD MAX RECALL				
CODE	PATTERN	ENTER	CALL LAMPS	TIMING DATA
D-D-1	1			
D-D-2	2			
D-D-3	3			
D-D-4	4			
D-D-5	5			
D-D-6	6			
D-D-7	7			
D-D-8	8			
D-D-9	9			

COORD MIN RECALL				
CODE	PATTERN	ENTER	CALL LAMPS	TIMING DATA
D-E-1	1	4 8	4 8	d136
D-E-2	2	4 8	4 8	d136
D-E-3	3	4 8	4 8	d136
D-E-4	4	4 8	4 8	d136
D-E-5	5			
D-E-6	6			
D-E-7	7			
D-E-8	8			
D-E-9	9			

COORD PED RECALL				
CODE	PATTERN	ENTER	CALL LAMPS	TIMING DATA
D-F-1	1			
D-F-2	2			
D-F-3	3			
D-F-4	4			
D-F-5	5			
D-F-6	6			
D-F-7	7			
D-F-8	8			
D-F-9	9			

PATTERN 7				
CODE	FUNCTION	ENTER	DISPLAY	
C-7-0	CYC. LENG.	E C	E C	
C-7-1	↓ 1 SPLIT	E C	E C	
C-7-2	↓ 2 SPLIT	E C	E C	
C-7-3	↓ 3 SPLIT	E C	E C	
C-7-4	↓ 4 SPLIT	E C	E C	
C-7-5	↓ 5 SPLIT	E C	E C	
C-7-6	↓ 6 SPLIT	E C	E C	
C-7-7	↓ 7 SPLIT	E C	E C	
C-7-8	↓ 8 SPLIT	E C	E C	
C-7-A	OFFSET A	E C 000	E C	
C-7-B	OFFSET B	E C	E C	
C-7-C	OFFSET C	E C	E C	

PATTERN 8				
CODE	FUNCTION	ENTER	DISPLAY	
C-8-0	CYC. LENG.	E C	E C	
C-8-1	↓ 1 SPLIT	E C	E C	
C-8-2	↓ 2 SPLIT	E C	E C	
C-8-3	↓ 3 SPLIT	E C	E C	
C-8-4	↓ 4 SPLIT	E C	E C	
C-8-5	↓ 5 SPLIT	E C	E C	
C-8-6	↓ 6 SPLIT	E C	E C	
C-8-7	↓ 7 SPLIT	E C	E C	
C-8-8	↓ 8 SPLIT	E C	E C	
C-8-A	OFFSET A	E C 000	E C	
C-8-B	OFFSET B	E C	E C	
C-8-C	OFFSET C	E C	E C	

PATTERN 9				
CODE	FUNCTION	ENTER	DISPLAY	
C-9-0	CYC. LENG.	E C	E C	
C-9-1	↓ 1 SPLIT	E C	E C	
C-9-2	↓ 2 SPLIT	E C	E C	
C-9-3	↓ 3 SPLIT	E C	E C	
C-9-4	↓ 4 SPLIT	E C	E C	
C-9-5	↓ 5 SPLIT	E C	E C	
C-9-6	↓ 6 SPLIT	E C	E C	
C-9-7	↓ 7 SPLIT	E C	E C	
C-9-8	↓ 8 SPLIT	E C	E C	
C-9-A	OFFSET A	E C 000	E C	
C-9-B	OFFSET B	E C	E C	
C-9-C	OFFSET C	E C	E C	

PATTERN 4				
CODE	FUNCTION	ENTER	DISPLAY	
C-4-0	CYC. LENG.	76 E C 075	E C	
C-4-1	↓ 1 SPLIT	14 E C 014	E C	
C-4-2	↓ 2 SPLIT	E C	E C	
C-4-3	↓ 3 SPLIT	E C	E C	
C-4-4	↓ 4 SPLIT	17 E C 017	E C	
C-4-5	↓ 5 SPLIT	7 E C 007	E C	
C-4-6	↓ 6 SPLIT	E C	E C	
C-4-7	↓ 7 SPLIT	E C	E C	
C-4-8	↓ 8 SPLIT	17 E C 017	E C	
C-4-A	OFFSET A	0 E C 000	E C	
C-4-B	OFFSET B	E C	E C	
C-4-C	OFFSET C	E C	E C	

PATTERN 5				
CODE	FUNCTION	ENTER	DISPLAY	
C-5-0	CYC. LENG.	E C	E C	
C-5-1	↓ 1 SPLIT	E C	E C	
C-5-2	↓ 2 SPLIT	E C	E C	
C-5-3	↓ 3 SPLIT	E C	E C	
C-5-4	↓ 4 SPLIT	E C	E C	
C-5-5	↓ 5 SPLIT	E C	E C	
C-5-6	↓ 6 SPLIT	E C	E C	
C-5-7	↓ 7 SPLIT	E C	E C	
C-5-8	↓ 8 SPLIT	E C	E C	
C-5-A	OFFSET A	E C 000	E C	
C-5-B	OFFSET B	E C	E C	
C-5-C	OFFSET C	E C	E C	

PATTERN 6				
CODE	FUNCTION	ENTER	DISPLAY	
C-6-0	CYC. LENG.	E C	E C	
C-6-1	↓ 1 SPLIT	E C	E C	
C-6-2	↓ 2 SPLIT	E C	E C	
C-6-3	↓ 3 SPLIT	E C	E C	
C-6-4	↓ 4 SPLIT	E C	E C	
C-6-5	↓ 5 SPLIT	E C	E C	
C-6-6	↓ 6 SPLIT	E C	E C	
C-6-7	↓ 7 SPLIT	E C	E C	
C-6-8	↓ 8 SPLIT	E C	E C	
C-6-A	OFFSET A	E C 000	E C	
C-6-B	OFFSET B	E C	E C	
C-6-C	OFFSET C	E C	E C	

PATTERN 1				
CODE	FUNCTION	ENTER	DISPLAY	
C-1-0	CYC. LENG.	65 E C 065	E C	
C-1-1	↓ 1 SPLIT	22 E C 022	E C	
C-1-2	↓ 2 SPLIT	E C	E C	
C-1-3	↓ 3 SPLIT	E C	E C	
C-1-4	↓ 4 SPLIT	15 E C 015	E C	
C-1-5	↓ 5 SPLIT	7 E C 007	E C	
C-1-6	↓ 6 SPLIT	E C	E C	
C-1-7	↓ 7 SPLIT	E C	E C	
C-1-8	↓ 8 SPLIT	15 E C 015	E C	
C-1-A	OFFSET A	15 E C 015	E C	
C-1-B	OFFSET B	E C	E C	
C-1-C	OFFSET C	E C	E C	

PATTERN 2				
CODE	FUNCTION	ENTER	DISPLAY	
C-2-0	CYC. LENG.	70 E C 070	E C	
C-2-1	↓ 1 SPLIT	22 E C 022	E C	
C-2-2	↓ 2 SPLIT	E C	E C	
C-2-3	↓ 3 SPLIT	E C	E C	
C-2-4	↓ 4 SPLIT	22 E C 022	E C	
C-2-5	↓ 5 SPLIT	7 E C 007	E C	
C-2-6	↓ 6 SPLIT	E C	E C	
C-2-7	↓ 7 SPLIT	E C	E C	
C-2-8	↓ 8 SPLIT	22 E C 022	E C	
C-2-A	OFFSET A	15 E C 015	E C	
C-2-B	OFFSET B	E C	E C	
C-2-C	OFFSET C	E C	E C	

PATTERN 3				
CODE	FUNCTION	ENTER	DISPLAY	
C-3-0	CYC. LENG.	65 E C 065	E C	
C-3-1	↓ 1 SPLIT	14 E C 014	E C	
C-3-2	↓ 2 SPLIT	E C	E C	
C-3-3	↓ 3 SPLIT	E C	E C	
C-3-4	↓ 4 SPLIT	17 E C 017	E C	
C-3-5	↓ 5 SPLIT	7 E C 007	E C	
C-3-6	↓ 6 SPLIT	E C	E C	
C-3-7	↓ 7 SPLIT	E C	E C	
C-3-8	↓ 8 SPLIT	17 E C 017	E C	
C-3-A	OFFSET A	0 E C 000	E C	
C-3-B	OFFSET B	E C	E C	
C-3-C	OFFSET C	E C	E C	

Configuration Continued

Enable BIU: 1 2 3 4 5 6 7 8
Terminal/Facilities.
Detector Rack.

Type 2 Runs as Type 1.
MMU Disable. X
Diagnostic Enable.
Peer-Peer Comm Enable.

Peer To Peer Addresses . . 1 2 3 4 5 6 7 8 9 10
255 255 255 255 255 255 255 255 255 255

Port 2:

Port 2 Protocol Terminal
Port 2 Enable YES
AB3418 Address. 2
AB3418 Group Address. 0
AB3418 Response Delay 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time. 0
AB3418 TOD SF Select. 0
Data Rate 1200 bps
Data, Parity, Stop. 8, 0, 1

Port 3:

Port 3 Protocol Telemetry
Port 3 Enable YES
Telemetry Address 2
System Detector 9-16 Address. . 0
Telemetry Response Delay. . . . 8000
AB3418 Address. 0
AB3418 Group Address. 0
AB3418 Response Delay 0
AB3418 Single Flag Enable . . . NO
AB3418 Drop-Out Time. 0
AB3418 TOD SF Select. 0
Duplex. Full
Data Rate 1200 bps
Data, Parity, Stop. 8, 0, 1

Configuration Continued

Event Enabling										Alarm Enabling									
Critical RFE'S (MMU/TF)	.	.	.	.	.	.	.	.	.	ALARM 1	.	.	.	.	.	.	.	.	.
Non-Critical RFE'S (DET/TEST)	.	.	.	.	.	.	.	.	.	ALARM 2	.	.	.	.	.	.	.	.	.
Detector Errors	.	.	.	.	.	.	.	.	.	ALARM 3	.	.	.	.	.	.	.	.	.
Coordination Errors	.	.	.	.	.	.	.	.	.	ALARM 4	.	.	.	.	.	.	.	.	.
MMU Flash Faults	.	.	.	.	.	.	.	.	.	ALARM 5	.	.	.	.	.	.	.	.	.
Local Flash Faults	.	.	.	.	.	.	.	.	.	ALARM 6	.	.	.	.	.	.	.	.	.
Preempt	.	.	.	.	.	.	.	.	.	ALARM 7	.	.	.	.	.	.	.	.	.
Power On/Off	.	.	.	.	.	.	.	.	.	ALARM 8	.	.	.	.	.	.	.	.	.
Low Battery	.	.	.	.	.	.	.	.	.	ALARM 9	.	.	.	.	.	.	.	.	.
										ALARM 10	.	.	.	.	.	.	.	.	.
										ALARM 11	.	.	.	.	.	.	.	.	.
										ALARM 12	.	.	.	.	.	.	.	.	.
										ALARM 13	.	.	.	.	.	.	.	.	.
										ALARM 14	.	.	.	.	.	.	.	.	.
										ALARM 15	.	.	.	.	.	.	.	.	.
										ALARM 16	.	.	.	.	.	.	.	.	.

Supervisor Access Code. . . *****
Data Change Access Code . . . *****

MMU Compatibility Program (Info Only)

Channel	Is Allowed to Time With Channel														
	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15 . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Version Info:		
Software Assy.	Part No.	Version
Boot	27831	2.83
Program	45561	6.6
Application		. 3
Help	27891	5.23
Configuration	27918	C000

By-Phase Timing Data

	Phase											
Direction	1	2	3	4	5	6	7	8	9	10	11	12
Minimum Green	4	8	0	4	4	0	3	0	5	5	5	5
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	0	0	10	0	10
Ped Clearance	0	14	7	20	0	14	0	11	0	16	0	16
Veh Extension	6.0	8.0	2.0	6.0	6.0	8.0	3.0	3.0	5.0	5.0	5.0	5.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	25	40	8	15	25	40	8	8	35	35	35	35
Max 2	41	72	0	15	45	40	0	0	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Change	3.0	4.0	3.0	3.5	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clearance	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act. B4 Init	0	6	0	0	0	6	0	0	0	0	0	0
Sec/Actuation	0.0	6.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	0	24	0	0	0	24	30	30	30	30	30	30
Time B4 Reduction	0	10	0	0	0	10	0	0	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	20	0	0	0	20	0	0	0	0	0	0
Minimum Gap	0.0	3.0	0.0	2.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0

Ped Carryover

Ped Start Phase	Carry Over Phase
-----------------	------------------

1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0

Overlap Data

Overlap A	Phase:	1	2	3	4	5	6	7	8	9	10	11	12
Standard.		.	.	.	.	.	.	.	.	.	.	.	.
Protected		.	.	.	.	.	.	.	.	.	.	.	.
Permitted		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lag.		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lead		.	.	.	.	.	.	.	.	.	.	.	.
Spare		.	.	.	.	.	.	.	.	.	.	.	.
Advance Green Timer					0.0								
					Green		Yellow		Red				
Lag/Lead Timers					0.0		0.0		0.0				

Overlap B	Phase:	1	2	3	4	5	6	7	8	9	10	11	12
Standard.		.	.	.	.	.	.	.	.	.	.	.	.
Protected		.	.	.	.	.	.	.	.	.	.	.	.
Permitted		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lag.		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lead		.	.	.	.	.	.	.	.	.	.	.	.
Spare		.	.	.	.	.	.	.	.	.	.	.	.
Advance Green Timer					0.0								
					Green		Yellow		Red				
Lag/Lead Timers					0.0		0.0		0.0				

Overlap C	Phase:	1	2	3	4	5	6	7	8	9	10	11	12
Standard.		.	.	.	.	.	.	.	.	.	.	.	.
Protected		.	.	.	.	.	.	.	.	.	.	.	.
Permitted		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lag.		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lead		.	.	.	.	.	.	.	.	.	.	.	.
Spare		.	.	.	.	.	.	.	.	.	.	.	.
Advance Green Timer					0.0								
					Green		Yellow		Red				
Lag/Lead Timers					0.0		0.0		0.0				

Overlap D	Phase:	1	2	3	4	5	6	7	8	9	10	11	12
Standard.		.	.	.	.	.	.	.	.	.	.	.	.
Protected		.	.	.	.	.	.	.	.	.	.	.	.
Permitted		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lag.		.	.	.	.	.	.	.	.	.	.	.	.
Enable Lead		.	.	.	.	.	.	.	.	.	.	.	.
Spare		.	.	.	.	.	.	.	.	.	.	.	.
Advance Green Timer					0.0								
					Green		Yellow		Red				
Lag/Lead Timers					0.0		0.0		0.0				

Power Start, Remote Flash

	Phase															
	1	2	3	4	5	6	7	8	9	10	11	12				
Power Start.	.	X	.	.	.	X	.	.	.	.	.	.				
External Start	.	X	.	.	.	X	.	.	.	.	.	.				
Into Remote Flash. . .	.	X	.	.	.	X	.	.	.	.	.	.				
Exit Remote Flash. . .	.	X	.	.	.	X	.	.	.	.	.	.				
Remote Flash Yellow.	.	.	.	.	.	.	.	.	.	.	.	.	Overlap			
Flash Together	.	X	.	X	.	X	.	X	.	X	.	X	A	B	C	D

Initialization Interval:

Power Start Yellow
External Start. Yellow

Power Start All Red Time. . 4
Power Start Flash Time. . . 6

Remote Flash Options:

Out of Flash Yellow YES
Out of Flash All Red. . . . NO
Minimum Recall. NO
Alternate Flash NO
Flash Thru Load Switches. . NO
Cycle Through Phases. . . . NO

	Five Section Left Turn Control					
	Phases: 5-2	7-4	1-6	3-8	11-10	9-12
Left Turn Head.	.	.	.	.	.	.

Detector Type/Timers

Det.	Locking Memory	Log Enable	Timers Extend Delay		Don't Reset Extend	Type
1	NO	NO	0.0	0	.	0 - Normal
2	YES	NO	10.0	0	.	1 - Extend/Delay
3	NO	NO	0.0	0	.	0 - Normal
4	NO	NO	0.0	0	.	0 - Normal
5	NO	NO	0.0	0	.	0 - Normal
6	YES	NO	10.0	0	.	1 - Extend/Delay
7	NO	NO	0.0	0	.	0 - Normal
8	NO	NO	0.0	0	.	0 - Normal
9	NO	NO	0.0	0	.	0 - Normal
10	NO	NO	0.0	0	.	0 - Normal
11	NO	NO	0.0	0	.	0 - Normal
12	NO	NO	0.0	0	.	0 - Normal
13	NO	NO	0.0	0	.	0 - Normal
14	NO	NO	0.0	0	.	0 - Normal
15	NO	NO	0.0	0	.	0 - Normal
16	NO	NO	0.0	0	.	0 - Normal
17	NO	NO	0.0	0	.	0 - Normal
18	NO	NO	0.0	0	.	0 - Normal
19	NO	NO	0.0	0	.	0 - Normal
20	NO	NO	0.0	0	.	0 - Normal
21	NO	NO	0.0	0	.	0 - Normal
22	NO	NO	0.0	0	.	0 - Normal
23	NO	NO	0.0	0	.	0 - Normal
24	NO	NO	0.0	0	.	0 - Normal
25	NO	NO	0.0	0	.	0 - Normal
26	NO	NO	0.0	0	.	0 - Normal
27	NO	NO	0.0	0	.	0 - Normal
28	NO	NO	0.0	0	.	0 - Normal
29	NO	NO	0.0	0	.	0 - Normal
30	NO	NO	0.0	0	.	0 - Normal
31	NO	NO	0.0	0	.	0 - Normal
32	NO	NO	0.0	0	.	0 - Normal

Detector Names

Det 1: Detector 1	Det 17: Detector 17
Det 2: Detector 2	Det 18: Detector 18
Det 3: Detector 3	Det 19: Detector 19
Det 4: Detector 4	Det 20: Detector 20
Det 5: Detector 5	Det 21: Detector 21
Det 6: Detector 6	Det 22: Detector 22
Det 7: Detector 7	Det 23: Detector 23
Det 8: Detector 8	Det 24: Detector 24
Det 9: Detector 9	Det 25: Detector 25
Det 10: Detector 10	Det 26: Detector 26
Det 11: Detector 11	Det 27: Detector 27
Det 12: Detector 12	Det 28: Detector 28
Det 13: Detector 13	Det 29: Detector 29
Det 14: Detector 14	Det 30: Detector 30
Det 15: Detector 15	Det 31: Detector 31
Det 16: Detector 16	Det 32: Detector 32

Detector Type/Timers

33	NO	NO	0.0	0	.	0 - Normal
34	NO	NO	0.0	0	.	0 - Normal
35	NO	NO	0.0	0	.	0 - Normal
36	NO	NO	0.0	0	.	0 - Normal
37	NO	NO	0.0	0	.	0 - Normal
38	NO	NO	0.0	0	.	0 - Normal
39	NO	NO	0.0	0	.	0 - Normal
40	NO	NO	0.0	0	.	0 - Normal
41	NO	NO	0.0	0	.	0 - Normal
42	NO	NO	0.0	0	.	0 - Normal
43	NO	NO	0.0	0	.	0 - Normal
44	NO	NO	0.0	0	.	0 - Normal
45	NO	NO	0.0	0	.	0 - Normal
46	NO	NO	0.0	0	.	0 - Normal
47	NO	NO	0.0	0	.	0 - Normal
48	NO	NO	0.0	0	.	0 - Normal
49	NO	NO	0.0	0	.	0 - Normal
50	NO	NO	0.0	0	.	0 - Normal
51	NO	NO	0.0	0	.	0 - Normal
52	NO	NO	0.0	0	.	0 - Normal
53	NO	NO	0.0	0	.	0 - Normal
54	NO	NO	0.0	0	.	0 - Normal
55	NO	NO	0.0	0	.	0 - Normal
56	NO	NO	0.0	0	.	0 - Normal
57	NO	NO	0.0	0	.	0 - Normal
58	NO	NO	0.0	0	.	0 - Normal
59	NO	NO	0.0	0	.	0 - Normal
60	NO	NO	0.0	0	.	0 - Normal
61	NO	NO	0.0	0	.	0 - Normal
62	NO	NO	0.0	0	.	0 - Normal
63	NO	NO	0.0	0	.	0 - Normal
64	NO	NO	0.0	0	.	0 - Normal

Detector Names

Det 33: Detector 33	Det 49: Detector 49
Det 34: Detector 34	Det 50: Detector 50
Det 35: Detector 35	Det 51: Detector 51
Det 36: Detector 36	Det 52: Detector 52
Det 37: Detector 37	Det 53: Detector 53
Det 38: Detector 38	Det 54: Detector 54
Det 39: Detector 39	Det 55: Detector 55
Det 40: Detector 40	Det 56: Detector 56
Det 41: Detector 41	Det 57: Detector 57
Det 42: Detector 42	Det 58: Detector 58
Det 43: Detector 43	Det 59: Detector 59
Det 44: Detector 44	Det 60: Detector 60
Det 45: Detector 45	Det 61: Detector 61
Det 46: Detector 46	Det 62: Detector 62
Det 47: Detector 47	Det 63: Detector 63
Det 48: Detector 48	Det 64: Detector 64

Detector Phase Assignment

[illegible]

Detector Cross Switching

[illegible]

Ped/SD Local Assign,Log Interval

Phase Ped Detector													
	1	2	3	4	5	6	7	8	9	10	11	12	
Is Ped Detector No. . . .	1	2	3	4	5	6	7	8	9	10	11	12	

*Local System Detector No.																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Is Local Detector No. . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Detector Log Interval . . 0

*NOTE: System master designations cross referenced to local
system detector numbers are:

- SDA1 = 1 & 9
- SDA2 = 2 & 10
- SDB1 = 3 & 11
- SDB2 = 4 & 12
- SDC1 = 5 & 13
- SDC2 = 6 & 14
- SDD1 = 7 & 15
- SDD2 = 8 & 16

Diagnostic Plans/Fail Action

		Detector															
Plan		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Detector															
Plan		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*NOTE: 0 = No Action, 1 = Min Recall, 2 = Max Recall in Effect
3 = Detector Fail Max Tiime from By-Phase Timing Data

Diagnostic Plans/Fail Action

		Detector															
Plan		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

		Detector															
Plan		49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
1	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*NOTE: 0 = No Action, 1 = Min Recall, 2 = Max Recall in Effect
3 = Detector Fail Max Tiime from By-Phase Timing Data

Ped Diagnostic Plans

[illegible]

Detector Diagnostic Intervals

Diagnostic Number	*No-Activity Diagnostic Interval	*Max Presence Diagnostic Interval	Erratic Counts
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
32	0	0	0

*NOTE: Scaling is specified in each detector diagnostic plan.

Speed Detectors

		Local Speed Detector						
One Detector Speed:	1	2	3	4	5	6	7	8
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Vehicle Length	0	0	0	0	0	0	0	0
Loop Length.	0	0	0	0	0	0	0	0
Two Detector Speed:								
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Speed Trap Length.	0	0	0	0	0	0	0	0

		Local Speed Detector						
One Detector Speed:	9	10	11	12	13	14	15	16
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Vehicle Length	0	0	0	0	0	0	0	0
Loop Length.	0	0	0	0	0	0	0	0
Two Detector Speed:								
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Speed Trap Length.	0	0	0	0	0	0	0	0

Units. Inches

NOTE: Speed Detector 1 = STA, Speed Detector 2 = STB

Coordinator Manual Command and Options

Manual Enable Pattern 0

Split Units Seconds OffsetUnits Seconds
Interconnect Format . STD Interconnect Source . TLM
Transition. SMOOTH Dwell Period. 0
Resync Count. 0

Actuated Coord Phase Actuated Walk Rest X
Inhibit Max Timing X Max 2 Select
Floating Force Off Multisync.

					Phase											
Split Demand:	Call	Time	Cyc	Count	1	2	3	4	5	6	7	8	9	10	11	12
Demand 1	.	0		0	.	.	.	.	.	.	.	.	.	.	.	.
Demand 2	.	0		0	.	.	.	.	.	.	.	.	.	.	.	.

				Phase											
				1	2	3	4	5	6	7	8	9	10	11	12
Auto Permissive Min Green .				0	0	0	0	0	0	0	0	0	0	0	0

				A	B	C	D	E	F
Free Alternate Sequence . .				.	.	.	.	.	.

Coordination Patterns

Preemptors

Preemptor 1

Active	Det Lock.	Ped Dark
Priority Preemption.	Yel-Red To Grn.	Ped Active
Outputs Only During Hold	Flash All Outputs	Zero Ped Clr Time.
Terminate Overlap ASAP	Terminate Phases.	Ped Clr Thru Yel
Don't Override Flash	Duration Time.	0
Flash During Hold.	Delay Time	0
No CVM in Flash.	Inhibit Time	0
Fast Flash Grn on Hold Phase.	Min Ped Clear.	0
Enable Max Time.	Max Time	0
	Exit Max	0
	Min Hold Time.	0
	Hold Delay Time.	0

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green

Preemptor 2

Active	Det Lock.	Ped Dark
Priority Preemption.	Yel-Red To Grn.	Ped Active
Outputs Only During Hold	Flash All Outputs	Zero Ped Clr Time.
Terminate Overlap ASAP	Terminate Phases.	Ped Clr Thru Yel
Don't Override Flash	Duration Time.	0
Flash During Hold.	Delay Time	0
No CVM in Flash.	Inhibit Time	0
Fast Flash Grn on Hold Phase.	Min Ped Clear.	0
Enable Max Time.	Max Time	0
	Exit Max	0
	Min Hold Time.	0
	Hold Delay Time.	0

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green

Linked Preemptor 0

Preemptors

Preemptor 3

Active	X	Det Lock.	Ped Dark	.
Priority Preemption.	.	Yel-Red To Grn.	Ped Active	.
Outputs Only During Hold	.	Flash All Outputs	Zero Ped Clr Time.	X
Terminate Overlap ASAP	.	Terminate Phases.	Ped Clr Thru Yel	.
Don't Override Flash	.	Duration Time.	0	
Flash During Hold.	.	Delay Time	0	
No CVM in Flash.	.	Inhibit Time	0	
Fast Flash Grn on Hold Phase.	.	Min Ped Clear.	0	
Enable Max Time.	.	Max Time	0	
		Exit Max	0	
		Min Hold Time.	10	
		Hold Delay Time.	0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Exit Phases	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green

Linked Preemptor 0

Preemptor 4

Active	.	Det Lock.	Ped Dark	.
Priority Preemption.	.	Yel-Red To Grn.	Ped Active	.
Outputs Only During Hold	.	Flash All Outputs	Zero Ped Clr Time.	X
Terminate Overlap ASAP	.	Terminate Phases.	Ped Clr Thru Yel	.
Don't Override Flash	.	Duration Time.	0	
Flash During Hold.	.	Delay Time	0	
No CVM in Flash.	.	Inhibit Time	0	
Fast Flash Grn on Hold Phase.	.	Min Ped Clear.	0	
Enable Max Time.	.	Max Time	0	
		Exit Max	0	
		Min Hold Time.	10	
		Hold Delay Time.	0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green

Linked Preemptor 0

Preemptors

Preemptor 5

Active	X	Det Lock.	Ped Dark	.
Priority Preemption.	X	Yel-Red To Grn.	Ped Active	.
Outputs Only During Hold	.	Flash All Outputs	Zero Ped Clr Time.	X
Terminate Overlap ASAP	.	Terminate Phases.	Ped Clr Thru Yel	.
Don't Override Flash	.	Duration Time.	0	
Flash During Hold.	.	Delay Time	0	
No CVM in Flash.	.	Inhibit Time	0	
Fast Flash Grn on Hold Phase.	.	Min Ped Clear.	0	
Enable Max Time.	.	Max Time	0	
		Exit Max	0	
		Min Hold Time.	10	
		Hold Delay Time.	0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green
Linked Preemptor 0

Preemptor 6

Active	X	Det Lock.	Ped Dark	.
Priority Preemption.	X	Yel-Red To Grn.	Ped Active	.
Outputs Only During Hold	.	Flash All Outputs	Zero Ped Clr Time.	X
Terminate Overlap ASAP	.	Terminate Phases.	Ped Clr Thru Yel	.
Don't Override Flash	.	Duration Time.	0	
Flash During Hold.	.	Delay Time	0	
No CVM in Flash.	.	Inhibit Time	0	
Fast Flash Grn on Hold Phase.	.	Min Ped Clear.	0	
Enable Max Time.	.	Max Time	0	
		Exit Max	0	
		Min Hold Time.	10	
		Hold Delay Time.	0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

	Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Track Clearance Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hold Phases	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Exit Phases	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Calls on Phase	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Out of Flash Color for Exit Phases Green
Linked Preemptor 0

NIC/TOD Clock/Calendar

Manual NIC Program Step 0

Manual TOD Program Step 0

NIC Resync Time 0300

Sync Reference is Last Event

Week 1 Begins on 1st Sunday NO If NO, then week containing Jan. 1

Disable Daylight Savings Time NO

Daylight Savings
Begins Last Sunday in March NO If NO, then Second Sunday as per 2007 DST Law

TOD Weekly/Yearly

[illegible]

	Week of Year																	
Prog	1 1	2 1	3 1	4 1	5 1	6 1	7 1	8 1	9 1	10 1	11 1	12 1	13 1	14 1	15 1	16 1	17 1	18 1
Prog	19 1	20 1	21 1	22 1	23 1	24 1	25 1	26 1	27 1	28 1	29 1	30 1	31 1	32 1	33 1	34 1	35 1	36 1
Prog	37 1	38 1	39 1	40 1	41 1	42 1	43 1	44 1	45 1	46 1	47 1	48 1	49 1	50 1	51 1	52 1	53 1	

Holiday Programs

Holiday	Type	Month	Day of Week/ Day of Month	Week of Year/ Year	Program
1	Fixed	0	0	0	0
2	Fixed	0	0	0	0
3	Fixed	0	0	0	0
4	Fixed	0	0	0	0
5	Fixed	0	0	0	0
6	Fixed	0	0	0	0
7	Fixed	0	0	0	0
8	Fixed	0	0	0	0
9	Fixed	0	0	0	0
10	Fixed	0	0	0	0
11	Fixed	0	0	0	0
12	Fixed	0	0	0	0
13	Fixed	0	0	0	0
14	Fixed	0	0	0	0
15	Fixed	0	0	0	0
16	Fixed	0	0	0	0
17	Fixed	0	0	0	0
18	Fixed	0	0	0	0
19	Fixed	0	0	0	0
20	Fixed	0	0	0	0
21	Fixed	0	0	0	0
22	Fixed	0	0	0	0
23	Fixed	0	0	0	0
24	Fixed	0	0	0	0
25	Fixed	0	0	0	0
26	Fixed	0	0	0	0
27	Fixed	0	0	0	0
28	Fixed	0	0	0	0
29	Fixed	0	0	0	0
30	Fixed	0	0	0	0
31	Fixed	0	0	0	0
32	Fixed	0	0	0	0
33	Fixed	0	0	0	0
34	Fixed	0	0	0	0
35	Fixed	0	0	0	0
36	Fixed	0	0	0	0

NIC Program Steps

Step	Program	Step Begins	Pattern	Override
------	---------	-------------	---------	----------

TOD Program Steps

$$\frac{1}{11}$$

[Handwritten signature]

CONTROLLER NUMBER ENTERED BY: DATE JAN 28, 1999

1. CONTROLLER SEQUENCE

2. PHASES IN USE

3. PHASE TO LOAD SWITCH (MMU) ASSIGNMENT

4. SDLC OPTIONS/ENABLES

5. TELEMETRY CONFIGURATION

6. TERMINAL PORT

7. ENABLE EVENT LOGS

8. OPTIONS

9. MMU PROGRAM
CAN SERVE WITH

[illegible]

2. CONTROLLER SUBMENU

1. CONTROLLER TIMING DATA

[illegible]

2 PHASE OVERLAP ASSIGNMENTS

[illegible]

3. PED TIMING CARRYOVER

PHASE	CARRYOVER PHASE	PHASE	CARRYOVER PHASE
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

4. CONTROLLER RECALL DATA

[illegible]

5. CONTROLLER OVERLAP DATA

CONTROLLED OVERLAP DATA												
OVERLAP A	1	2	3	4	5	6	7	8	9	10	11	12
STANDARD												
PROTECTED												
PERMITTED												
ENABLE LAG												
ENABLE LEAD												
SPARE												
ADVANCE GREEN TIMER												
LAG/LEAD GREEN TIMER												
LAG/LEAD YELLOW TIMER												
LAG/LEAD RED TIMER												

OVERLAP B	1	2	3	4	5	6	7	8	9	10	11	12
STANDARD												
PROTECTED												
PERMITTED												
ENABLE LAG												
ENABLE LEAD												
SPARE												
ADVANCE GREEN TIMER												
LAG/LEAD GREEN TIMER												
LAG/LEAD YELLOW TIMER												
LAG/LEAD RED TIMER												

OVERLAP C	1	2	3	4	5	6	7	8	9	10	11	12
STANDARD												
PROTECTED												
PERMITTED												
ENABLE LAG												
ENABLE LEAD												
SPARE												
ADVANCE GREEN TIMER												
LAG/LEAD GREEN TIMER												
LAG/LEAD YELLOW TIMER												
LAG/LEAD RED TIMER												

OVERLAP D	1	2	3	4	5	6	7	8	9	10	11	12
STANDARD												
PROTECTED												
PERMITTED												
ENABLE LAG												
ENABLE LEAD												
SPARE												
ADVANCE GREEN TIMER												
LAG/LEAD GREEN TIMER												
LAG/LEAD YELLOW TIMER												
LAG/LEAD RED TIMER												

PED OVERLAP ASSIGNMENTS
OVERLAP CONSISTS OF PHASES:

[illegible]

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12
POWER START		X				X						
EXTERNAL START		X				X						
ENTRY REM FLASH		X				X						
EXIT REM FLASH		X				X						
FLASH YEL		X				X						
TOGETHER PHS		X		X		X		X				
FL TOGETHER OVLPS	A:			B:			C:			D:		
POWER START												
EXTERNAL START												
POWER START ALL RED TIME	4											
POWER START FLASH TIME	10											
REMOTE FLASH OPTIONS:												
OUT OF FLASH YELLOW												
OUT OF FLASH ALL RED												
MINIMUM RECALL												
USE ALTERNATE FLASH												
FLASH THRU LOAD SWITCHES												
CYCLE THROUGH PHASES												
YELLOW FLASH MAIN STREET												

7. NO SERVE PHASES

CANNOT SERVE WITH:											
PHASE	12	11	10	9	8	7	6	5	4	3	2
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											

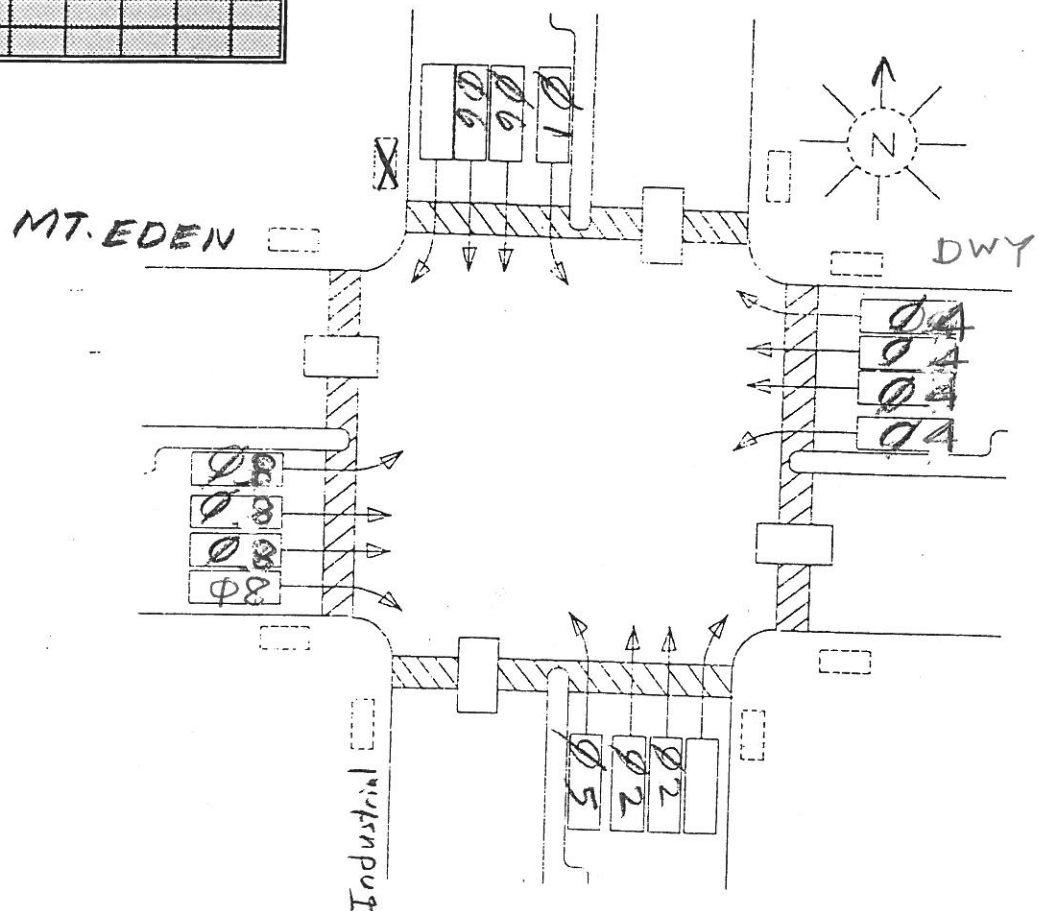
INDUSTRIAL BLVD / MT. EDEN DWY

8. DIMMING

LOAD SWITCH	1	2	3	4	5	6	7	8
DIM GRN/WLK								
DIM YEL/PC								
DIM RED/DW								
LOAD SWITCH	9	10	11	12	13	14	15	16
DIM GRN/WLK								
DIM YEL/PC								
DIM RED/DW								

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12
GUAR PASSAGE												
NONACTUATED I												
NONACTUATED II												
DUAL ENTRY												
COND SERVICE												
COND RESERVE												
ACT REST IN WALK												
FLASHING WALK												
FIVE SECTION LEFT TURN HEADS												
5-2				7-4					1-6			
3-8				11-10					9-12			
DUAL ENTRY				RESERVED								
COND SERVICE ENABLE				BACKUP PROTECTION GROUP 1								
COND SERVICE DET X SWITCHING				BACKUP PROTECTION GROUP 2								
PED CLR PROTECT				BACKUP PROTECTION GROUP 3								
SPEC PREEMPT OVL P FLASH				SIMULTANEOUS GAP GROUP 1								
LOCK DETECTORS IN RED ONLY				SIMULTANEOUS GAP GROUP 2								
RESERVED				SIMULTANEOUS GAP GROUP 3								



3. COORDINATOR SUBMENU

1. COORDINATOR OPTIONS

SPLIT UNITS	SEC	ACT CRD PHASE	
OFFSET UNITS	SEC	ACT WALK/REST	
INTERCNT FMT	STD	INHIBIT MAX	X
INTERCNT SRC	TLM	MAX2 SELECT	
RESYNC COUNT		MULTISYNC	
TRANSITION	SMOOTH	FLOAT FORCE	X
DWELL PERIOD			
FREE ALTERNATE SEQUENCE	A	B	C D E F

STD FORMAT

COORD PATTERN	L	OFFSET	
CYCLE LENGTH		C/O/S	

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

2. COORD MANUAL AND SPLIT DEMAND

MANUAL ENABLE		MANUAL PATTERN											
SPLIT DEMAND:		DEMAND 1						DEMAND 2					
DEMAND CALL TIME													
DEMAND CYCLE COUNT													
DEMAND PHASE	1	2	3	4	5	6	7	8	9	10	11	12	
DEMAND 1 PHASE													
DEMAND 2 PHASE													

3. COORD AUTO PERM MIN GREEN

PHASE	AUTO PERM MIN GRN	PHASE	AUTO PERM MIN GRN
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

SPLITS:												
PHASE 1)	2)	3)	4)									
PHASE 5)	6)	7)	8)									
PHASE 9)	10)	11)	12)									
VEH PERMISSIVE				[1]				[2]				
VEH PERM 2 DISP												
PHASE RESERVICE												
SPLIT EXTENSION/RING				[1]				[2]				
SPL DMD PATTERN				[1]				[2]				
XARTERY PATTERN												
SPLITS:												
COORD PHASES	1	2	3	4	5	6	7	8	9	10	11	12
VEHICLE RECALL												
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
				A	B	C	D	E	F			
ALT SEQUENCE												

PATTERN DATA

STD FORMAT

COORD PATTERN	STD	OFFSET	0
CYCLE LENGTH	90	C/O/S	111

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)	25	2)	30	3)		4)	35					
PHASE 5)	25	6)	30	7)		8)	35					
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE				[1] 0				[2] 0				
VEH PERM 2 DISP												
PHASE RESERVICE												
SPLIT EXTENSION/RING				[1]				[2]				
SPL DMD PATTERN				[1]				[2]				
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES		X				X						
VEHICLE RECALL												
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
				A	B	C	D	E	F			
ALT SEQUENCE												

STD FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		C/O/S	

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)		2)		3)		4)						
PHASE 5)		6)		7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE				[1]				[2]				
VEH PERM 2 DISP												
PHASE RESERVICE												
SPLIT EXTENSION/RING				[1]				[2]				
SPL DMD PATTERN				[1]				[2]				
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES												
VEHICLE RECALL												
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
				A	B	C	D	E	F			
ALT SEQUENCE												

6. DETECTORS

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

2. DETECTOR PHASE ASSIGNMENT

DETECTOR	PHASE ASSIGNMENT											
	1	2	3	4	5	6	7	8	9	10	11	12
1	X											
2		X										
3												
4				X								
5					X							
6						X						
7							X					
8								X				
9									X			
10										X		
11											X	
12												X
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												

3. PED AND SYSTEM DETECTOR LOCAL ASSIGNMENT

DETECTOR LOG INTERVAL					MINUTES	
LOCAL PED DET NUMBER	PHASE PED DETECTOR					
	1	2	3	4	5	6
	7	8	9	10	11	12
NUMBER						

LOCAL DETECTOR NUMBER	LOCAL SYSTEM DET NUMBER					
	1	2	3	4	5	6
	7	8	9	10	11	12
NUMBER						

INDUSTRIAL BLVD/MT. EDEN Dwy

7
11

5. PRIORITY PREEMPTOR 5

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES												
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:				B:				C:			D:
ACTIVE					PED DARK							
PRIORITY					PED ACTIVE							
DET LOCK					ZERO PC TIME							
HOLD FLASH					PC THRU YELLOW							
TERM OVLP ASAP					TERM PHASES							
DONT OVERRIDE FLASH					ACTIVE ONLY DURING HOLD							
FLASH ALL OUTPUTS					NO CVM IN FLASH							
YELLOW-RED GOES GREEN					FAST FLASH GRN ON HOLD							
ENABLE MAX PREEMPT TIME					OUT OF FLASH							
MAX TIME					DURATION TIME							
MIN HOLD TIME					DELAY TIME							
MIN PED CLEAR					INHIBIT TIME							
EXIT MAX					HLD DELAY TIME							
	GRN				YEL				RED			
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

7. BUS PREEMPTORS

	BUS PREEMPTOR			
	1	2	3	4
PREEMPTOR ACTIVE				
DETECTOR LOCK				
MAXIMUM TIME				
RESERVICE TIME				
DELAY TIME				
INHIBIT TIME				
ENTRANCE GREEN				
ENTRANCE PED CLR				
ENTRANCE YELLOW				
ENTRANCE RED				
MIN HOLD TIME				

	HOLD PHASE											
	1	2	3	4	5	6	7	8	9	10	11	12
PREEMPTOR 1												
PREEMPTOR 2												
PREEMPTOR 3												
PREEMPTOR 4												

6. PRIORITY PREEMPTOR 6

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES												
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:				B:				C:			D:
ACTIVE					PED DARK							
PRIORITY					PED ACTIVE							
DET LOCK					ZERO PC TIME							
HOLD FLASH					PC THRU YELLOW							
TERM OVLP ASAP					TERM PHASES							
DONT OVERRIDE FLASH					ACTIVE ONLY DURING HOLD							
FLASH ALL OUTPUTS					NO CVM IN FLASH							
YELLOW-RED GOES GREEN					FAST FLASH GRN ON HOLD							
ENABLE MAX PREEMPT TIME					OUT OF FLASH							
MAX TIME					DURATION TIME							
MIN HOLD TIME					DELAY TIME							
MIN PED CLEAR					INHIBIT TIME							
EXIT MAX					HLD DELAY TIME							
	GRN				YEL				RED			
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

INDUSTRIAL BLVD/MT. EDEN DWY

8/11

5. NIC/TOD SUBMENU

1. NIC/TOD CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL NIC PROGRAM STEP	
MANUAL TOD PROGRAM STEP	
SYNC REFERENCE TIME	
SYNC REFERENCE	
WEEK 1 BEGINS ON 1ST SUNDAY	
DISABLE DAYLIGHT SAVINGS	
DST BEGINS LAST SUNDAY	

2. NIC/TOD WEEKLY PROGRAMS

WEEK	SUN	MON	TUE	WED	THU	FRI	SAT
1	2	1	1	1	1	1	2
2							
3							
4							
5							
6							
7							
8							
9							
10							

3. NIC/TOD YEARLY PROGRAMS

WEEK OF YEAR	1	2	3	4	5	6	7	8
WEEKLY PROGRAM								
WEEK OF YEAR	9	10	11	12	13	14	15	16
WEEKLY PROGRAM								
WEEK OF YEAR	17	18	19	20	21	22	23	24
WEEKLY PROGRAM								
WEEK OF YEAR	25	26	27	28	29	30	31	32
WEEKLY PROGRAM								
WEEK OF YEAR	33	34	35	36	37	38	39	40
WEEKLY PROGRAM								
WEEK OF YEAR	41	42	43	44	45	46	47	48
WEEKLY PROGRAM								
WEEK OF YEAR				49	50	51	52	53
WEEKLY PROGRAM								

4. NIC/TOD HOLIDAY PROGRAM

HOLIDAY	FLOAT/FIXED	MON/MON	DOW/DOM	WOM/YEAR	PROG
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

INDUSTRIAL BLVD MT. EDEN OWY

$$\frac{9}{11}$$
[illegible][illegible]

$$\begin{array}{r} 10 \\ \hline 11 \end{array}$$
[illegible][illegible]

TOO PROGRAM STEP												
DAY PGM NUM				2.								
STEP BEGINS				2000								
FLASH				DIM ENABLE								
RED REST				ALT VEH EXTSN								
SPARE				DET LOG ENABLE								
SPARE				SPARE								
SPARE				SPARE								
DET DIAG PLAN												
ALTERNATE SEQUENCE				A	B	C	D	E	F			
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
MAX2 ENABLE	X	X		X	X	X		X				
MAX3 ENABLE												
VEH RECALL												
VEH MAX RECALL												
PED RECALL												
COND SERV INH												
PHASE OMIT												
SPECIAL FCTNS									(1 - 8)			

[illegible]

TOD PROGRAM STEP												
DAY PGM NUM	1											
STEP BEGINS	2300											
FLASH							DIM ENABLE					
RED REST							ALT VEH EXTSN					
SPARE							DET LOG ENABLE					
SPARE							SPARE					
SPARE							SPARE					
DET DIAG PLAN												
ALTERNATE SEQUENCE							A	B	C	D	E	F
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
MAX2 ENABLE												
MAX3 ENABLE	X	X		X	X	X		X				
VEH RECALL												
VEH MAX RECALL												
PED RECALL												
COND SERV INH												
PHASE OMIT												
SPECIAL FCNTNS												
(1 - 2)												

[illegible]

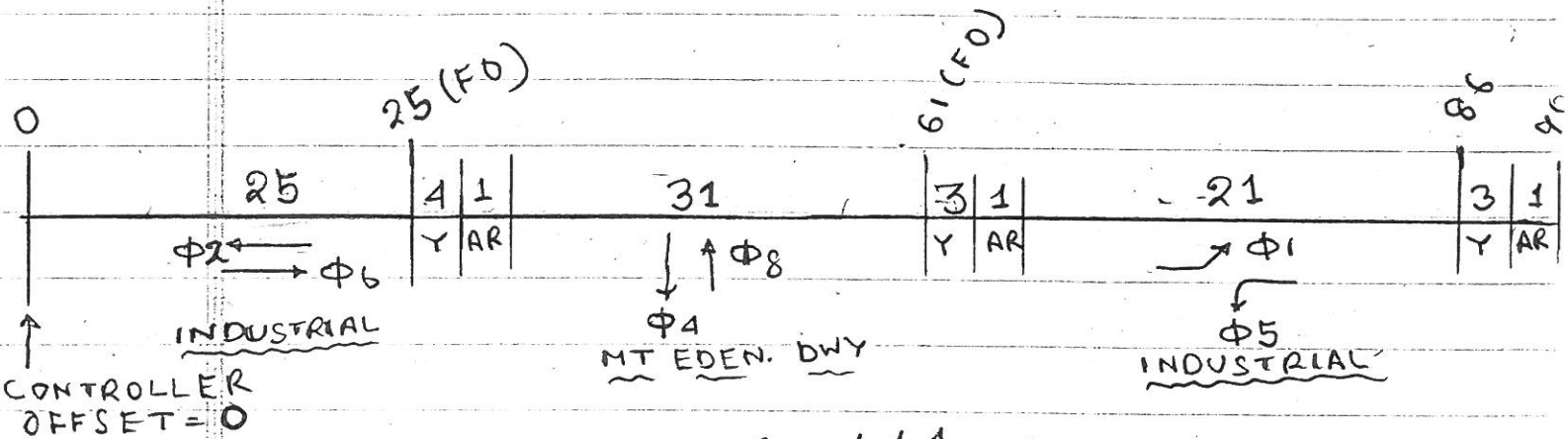
SHOREWOOD APTS.

MT. EDEN DWY

11
11

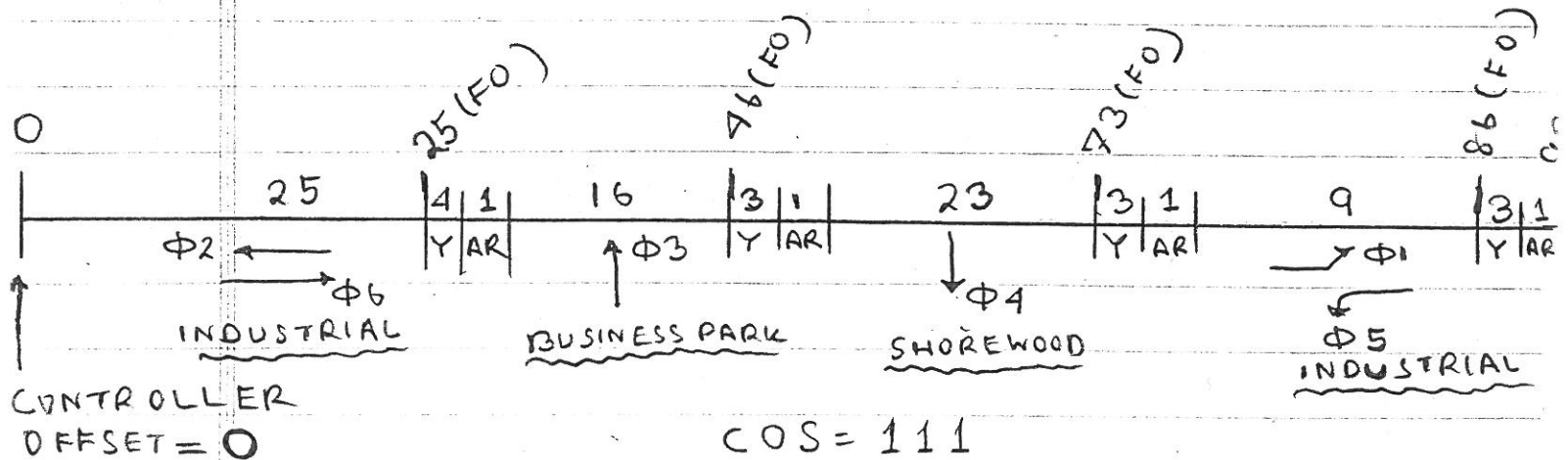


INDUSTRIAL BLVD



COS = 111

INDUSTRIAL BLVD / MT. EDEN DWY (AM/PM)



COS = 111

INDUSTRIAL BLVD / SHOREWOOD APTS. (AM/PM)

COORDINATED PHASES = $\Phi 2$ & $\Phi 6$

CONTROLLER OFFSET SETTING = AT THE BEGINNING OF GREEN OF $\Phi 2$ & $\Phi 6$

F0 = FORCE OFF, Y = YELLOW AR = ALL RED

$$\frac{1}{11}$$

CONTROLLER NUMBER _____ ENTERED BY: _____ DATE JAN 28, 1999

1. CONTROLLER SEQUENCE

PRIORITY	1	2	3	4	5	6	7	8	9	10	11	12
RING 1	1	2	3	4								
RING 2	5	6										
CG		X		X								

[illegible]

LOAD SWITCH (MMU)	SIGNAL DRIVER GROUP		LOAD SWITCH (MMU)	SIGNAL DRIVER GROUP	
CHANNEL	PHI/OLAP	PED	CHANNEL	PHI/OLAP	PED
1			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

		BIU NUMBER							
		1	2	3	4	5	6	7	8
TERM & FACIL									
DETECTOR RACK									
TYPE 2 RUNS AS TYPE 1									
MMU DISABLE									
DIAGNOSTIC ENABLE (TEST FIXTURE)									
PEER TO PEER ENABLE									
PEER TO PEER ADDRESS:									
1)		2)		3)		4)		5)	
6)		7)		8)		9)		10)	

TELEMETRY ADDRESS	
SYSTEM DETECTOR 9-16 ADDRESS	
TELEMETRY RESPONSE DELAY	

TERMINAL DATA RATE	
DATA, PARITY, STOP	

CRITICAL RFE'S (MMU/TF)	
NON-CRITICAL RFE'S (DET/TEST)	
DETECTOR ERRORS	
COORDINATION ERRORS	
MMU FLASH FAULTS	
LOCAL FLASH FAULTS	
PREEMPT	
POWER ON/OFF	
LOW BATTERY	
SPARE	
ALARM 1	
ALARM 2	
ALARM 3	
ALARM 4	
ALARM 5	
ALARM 6	
ALARM 7	
ALARM 8	
ALARM 9	
ALARM 10	
ALARM 11	
ALARM 12	
ALARM 13	
ALARM 14	
ALARM 15	
ALARM 16	

SUPERVISOR ACCESS CODE	
DATA CHANGE ACCESS CODE	
KEY CLICK ENABLE	
BACKLIGHT ENABLE	

[illegible]

CONTROLLER TIMING DATA

2. PHASE OVERLAP ASSIGNMENTS

OVERLAP CONSISTS OF PHASES:

3. PED TIMING CARRYOVER

4. CONTROLLER RECALL DATA

5. CONTROLLER OVERLAP DATA

PED OVERLAP ASSIGNMENTS
OVERLAP CONSISTS OF PHASES:

[illegible]

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12
POWER START		X				X						
EXTERNAL START		X				X						
ENTRY REM FLASH		X				X						
EXIT REM FLASH		X				X						
FL M FLASH YEL		X				X						
FL TOGETHER PHS		X				X						
FL TOGETHER OVLPS	A:		B:		C:		D:					
POWER START												
EXTERNAL START												
POWER START ALL RED TIME	4											
POWER START FLASH TIME	10											
REMOTE FLASH OPTIONS:												
OUT OF FLASH YELLOW												
OUT OF FLASH ALL RED												
MINIMUM RECALL												
USE ALTERNATE FLASH												
FLASH THRU LOAD SWITCHES												
CYCLE THROUGH PHASES												
YELLOW FLASH MAIN STREET												

7. NO SERVE PHASES

CANNOT SERVE WITH:												
PHASE	12	11	10	9	8	7	6	5	4	3	2	1
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

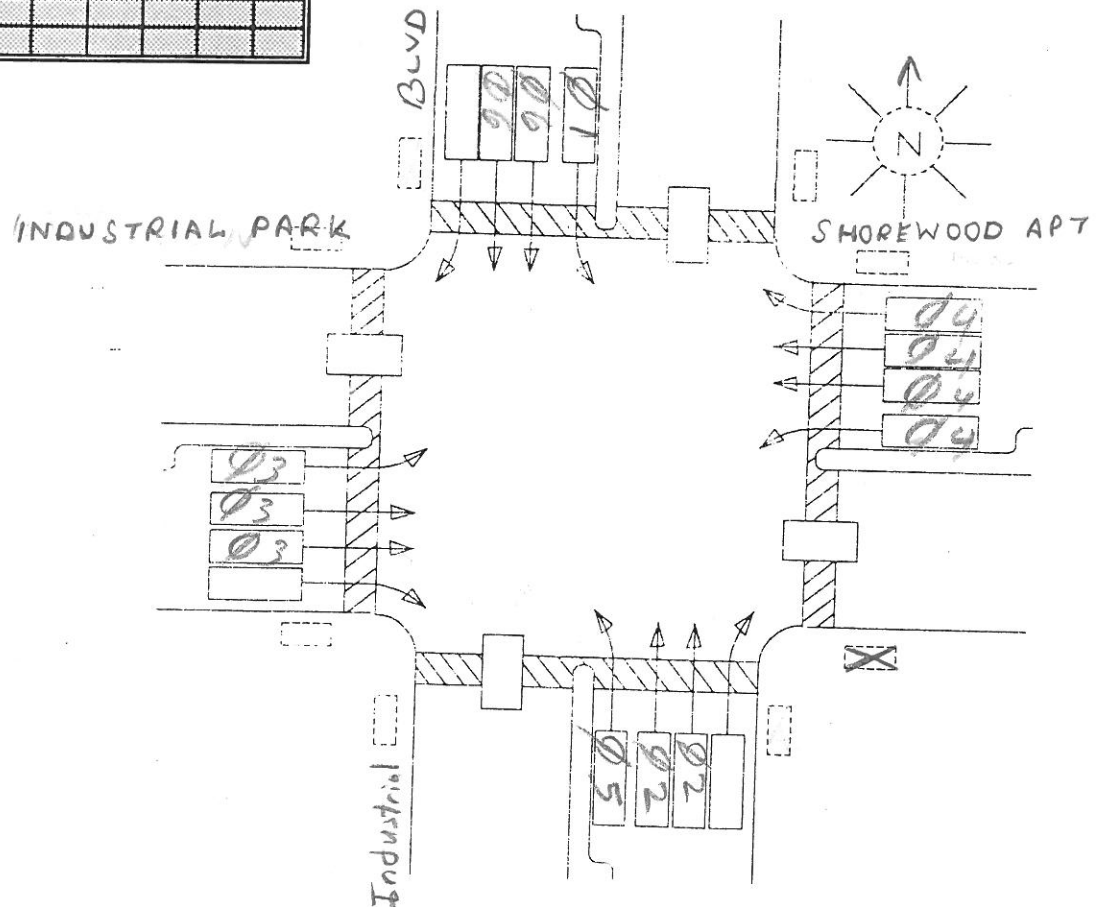
INDUSTRIAL BLVD / SHOREWOOD APTS.

8. DIMMING

LOAD SWITCH	1	2	3	4	5	6	7	8
DIM GRN/WLK								
DIM YEL/PC								
DIM RED/DW								
LOAD SWITCH	9	10	11	12	13	14	15	16
DIM GRN/WLK								
DIM YEL/PC								
DIM RED/DW								

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8	9	10	11	12
GUAR PASSAGE												
NONACTUATED I												
NONACTUATED II												
DUAL ENTRY												
COND SERVICE												
COND RESERVICE												
ACT REST IN WALK												
FLASHING WALK												
FIVE SECTION LEFT TURN HEADS												
5-2					7-4				1-6			
3-8					11-10				9-12			
DUAL ENTRY					RESERVED							
COND SERVICE ENABLE					BACKUP PROTECTION GROUP 1							
COND SERVICE DET X SWITCHING					BACKUP PROTECTION GROUP 2							
PED CLR PROTECT					BACKUP PROTECTION GROUP 3							
SPEC PREEMPT OVL P FLASH					SIMULTANEOUS GAP GROUP 1							
LOCK DETECTORS IN RED ONLY					SIMULTANEOUS GAP GROUP 2							
RESERVED					SIMULTANEOUS GAP GROUP 3							



3. COORDINATOR SUBMENU

1. COORDINATOR OPTIONS

SPLIT UNITS	SEC	ACT CRD PHASE	☒
OFFSET UNITS	SEC	ACT WALK/REST	☒
INTERCNT FMT	STD	INHIBIT MAX	☒
INTERCNT SRC	TLM	MAX2 SELECT	☐
RESYNC COUNT		MULTISYNC	☐
TRANSITION	SMOOTH	FLOAT FORCE	☐
DWELL PERIOD			
FREE ALTERNATE SEQUENCE	A	B	C D E F

STD FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		C/O/S	

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

2. COORD MANUAL AND SPLIT DEMAND

MANUAL ENABLE		MANUAL PATTERN	
SPLIT DEMAND:		DEMAND 1	DEMAND 2
DEMAND CALL TIME			
DEMAND CYCLE COUNT			
DEMAND PHASE	1	2	3 4 5 6 7 8 9 10 11 12
DEMAND 1 PHASE			
DEMAND 2 PHASE			

3. COORD AUTO PERM MIN GREEN

PHASE	AUTO PERM MIN GRN	PHASE	AUTO PERM MIN GRN
1		7	
2		8	
3		9	
4		10	
5		11	
6		12	

4. PATTERN DATA

STD FORMAT

COORD PATTERN	STD	OFFSET	0
CYCLE LENGTH	90	C/O/S	111

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)	13	2)	30	3)	20	4)	27					
PHASE 5)	13	6)	30	7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE				(1)	0	(2)	0					
VEH PERM 2 DISP												
PHASE RESERVICE												
SPLIT EXTENSION/RING				(1)		(2)						
SPL DMD PATTERN				(1)		(2)						
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES		X				X						
VEHICLE RECALL												
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
ALT SEQUENCE	A	B	C	D	E	F						

STD FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		C/O/S	

PLAN FORMAT

COORD PATTERN		OFFSET	
CYCLE LENGTH		PLAN	

TS2 FORMAT

COORD PATTERN		TIMING PLAN	
CYCLE LENGTH		OFFSTS	1 2 3

SPLITS:												
PHASE 1)		2)		3)		4)						
PHASE 5)		6)		7)		8)						
PHASE 9)		10)		11)		12)						
VEH PERMISSIVE				(1)		(2)						
VEH PERM 2 DISP												
PHASE RESERVICE												
SPLIT EXTENSION/RING				(1)		(2)						
SPL DMD PATTERN				(1)		(2)						
XARTERY PATTERN												
PHASE	1	2	3	4	5	6	7	8	9	10	11	12
COORD PHASES												
VEHICLE RECALL												
VEH MAX RECALL												
PED RECALL												
PHASE OMIT												
SPARE												
ALT SEQUENCE	A	B	C	D	E	F						

6. DETECTORS

5/11

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

2. DETECTOR PHASE ASSIGNMENT

DETECTOR	PHASE ASSIGNMENT											
	1	2	3	4	5	6	7	8	9	10	11	12
1	X											
2		X										
3			X									
4				X								
5					X							
6						X						
7							X					
8								X				
9									X			
10										X		
11											X	
12												X
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												

3. PED AND SYSTEM DETECTOR LOCAL ASSIGNMENT

DETECTOR LOG INTERVAL						MINUTES	
LOCAL PED DET NUMBER	PHASE PED DETECTOR						
	1	2	3	4	5	6	
	7	8	9	10	11	12	
NUMBER							

LOCAL DETECTOR NUMBER	LOCAL SYSTEM DET NUMBER					
	1	2	3	4	5	6
	7	8	9	10	11	12
NUMBER						

1. PRIORITY PREEMPTOR 1

2. PRIORITY PREEMPTOR 2

3. PRIORITY PREEMPTOR 3

4. PRIORITY PREEMPTOR 4

	1	2	3	4	5	6	7	8	9	10	11	12
TERM PHASE OVLP												
TRK CLR PHASE												
HOLD PHASES		X			X							
EXIT PHASES												
EXIT CALLS												
TERM OVERLAP	A:				B:			C:			D:	
ACTIVE					X			PED DARK				
PRIORITY								PED ACTIVE				
DET LOCK					X			ZERO PC TIME				
HOLD FLASH								PC THRU YELLOW				
TERM OVLP ASAP								TERM PHASES				
DON'T OVERRIDE FLASH								ACTIVE ONLY DURING HOLD				
FLASH ALL OUTPUTS								NO CVM IN FLASH				
YELLOW-RED GOES GREEN								FAST FLASH GRN ON HOLD				
ENABLE MAX PREEMPT TIME								OUT OF FLASH				
MAX TIME					DURATION TIME						10	
MIN HOLD TIME					DELAY TIME							
MIN PED CLEAR					INHIBIT TIME							
EXIT MAX					HLD DELAY TIME							
	GRN				YEL			RED				
MINIMUM												
TRACK CLEAR												
HOLD												
LINKED PREEMPTOR												

INDUSTRIAL BLVD/SFOREWOOD APTS.

8/11

5. NIC/TOD SUBMENU

1. NIC/TOD CLOCK/CALENDAR DATA

DATE SET:	
TIME SET:	
MANUAL NIC PROGRAM STEP	
MANUAL TOD PROGRAM STEP	
SYNC REFERENCE TIME	
SYNC REFERENCE	
WEEK 1 BEGINS ON 1ST SUNDAY	
DISABLE DAYLIGHT SAVINGS	
DST BEGINS LAST SUNDAY	

2. NIC/TOD WEEKLY PROGRAMS

WEEK	SUN	MON	TUE	WED	THU	FRI	SAT
1	2	1	1	1	1	1	2
2							
3							
4							
5							
6							
7							
8							
9							
10							

3. NIC/TOD YEARLY PROGRAMS

WEEK OF YEAR	1	2	3	4	5	6	7	8
WEEKLY PROGRAM								
WEEK OF YEAR	9	10	11	12	13	14	15	16
WEEKLY PROGRAM								
WEEK OF YEAR	17	18	19	20	21	22	23	24
WEEKLY PROGRAM								
WEEK OF YEAR	25	26	27	28	29	30	31	32
WEEKLY PROGRAM								
WEEK OF YEAR	33	34	35	36	37	38	39	40
WEEKLY PROGRAM								
WEEK OF YEAR	41	42	43	44	45	46	47	48
WEEKLY PROGRAM								
WEEK OF YEAR				49	50	51	52	53
WEEKLY PROGRAM								

4. NIC/TOD HOLIDAY PROGRAM

HOLIDAY	FLOAT/FIXED	MON/MON	DOW/DOM	WOM/YEAR	PROG
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

INDUSTRIAL BLVD SHOREWOOD APTS.

$$\frac{9}{11}$$
[illegible]

$$\begin{array}{r} 10 \\ \hline 11 \end{array}$$
[illegible]

TOO PROGRAM STEP																
DAY PGM NUM																
STEP BEGINS	0800															
FLASH																
RED REST									DIM ENABLE							
SPARE									ALT VEH EXTSN							
SPARE									DET LOG ENABLE							
SPARE									SPARE							
SPARE									SPARE							
DET DIAG PLAN																
ALTERNATE SEQUENCE																
				A	B				C	D				E	F	
PHASE	1	2	3	4	5	6	7	8	9	10	11	12				
MAX2 ENABLE																
MAX3 ENABLE																
VEH RECALL																
VEH MAX RECALL																
PED RECALL																
COND SERV INH																
PHASE OMIT																
SPECIAL FCTNS																

(1 - 8)

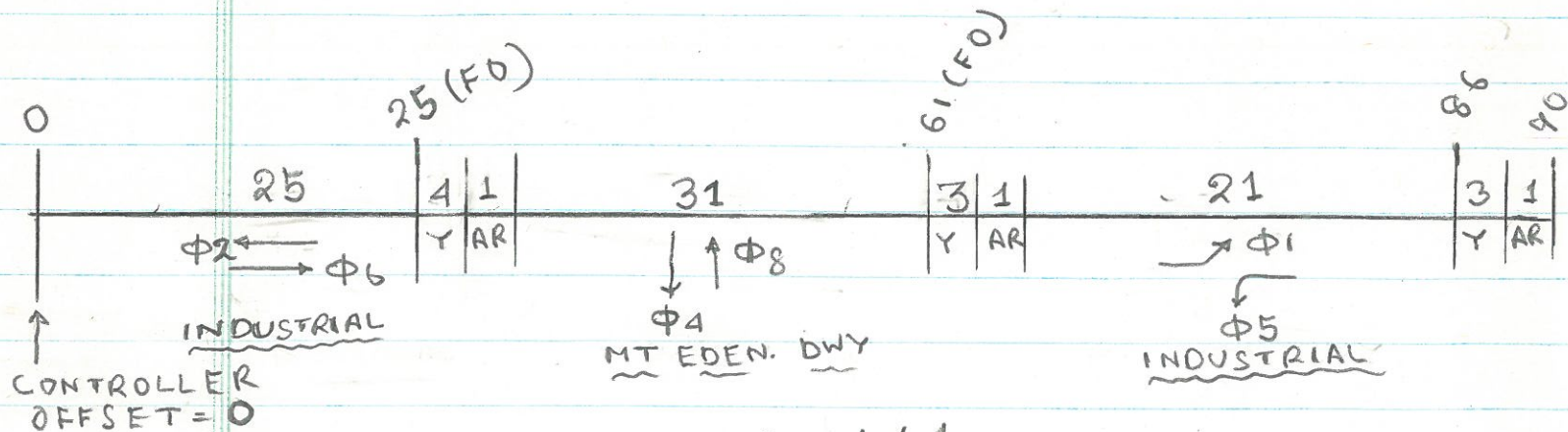
[illegible][illegible][illegible][illegible]

SHOREWOOD APTS.

MT. EDEN DWY

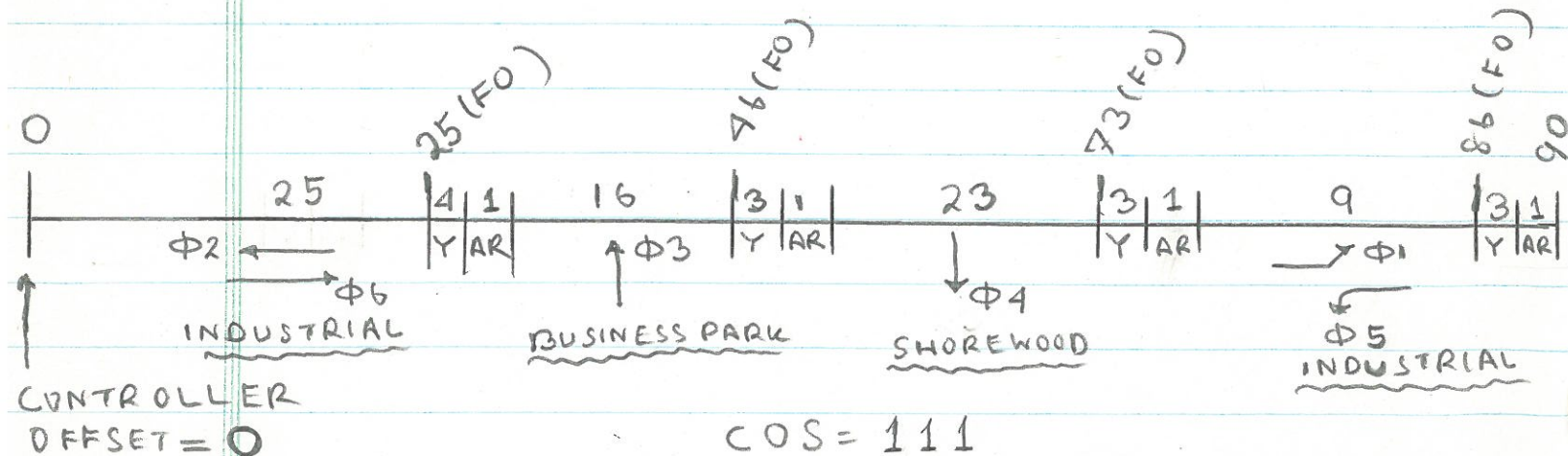
11
11

INDUSTRIAL BLVD



COS = 111

INDUSTRIAL BLVD / MT. EDEN DWY (AM/PM)



COS = 111

INDUSTRIAL BLVD / SHOREWOOD APTS. (AM/PM)

COORDINATED PHASES = Φ2 & Φ6

CONTROLLER OFFSET SETTING = AT THE BEGINNING OF GREEN OF Φ2 & Φ6

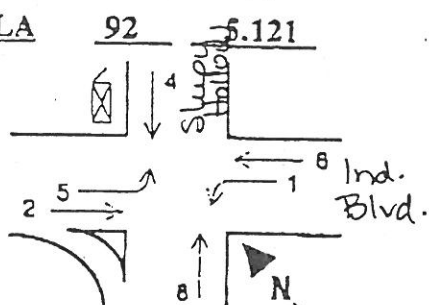
FO = FORCE OFF, Y = YELLOW, AR = ALL RED

INTERVAL	TIMING FUNCTION	$\phi 1$	$\phi 2$	$\phi 3$	$\phi 4$	$\phi 5$	$\phi 6$	$\phi 7$	$\phi 8$
0	WALK								
1	FLASHING DON'T WALK						7		
2	MINIMUM INITIAL						12		
3	TYPE 3 DET. DISCONNECT						10		
4	ADDED SEC./ACTUATION						16		
5	PASSAGE						2		
6	MAXIMUM GAP						4		
7	MINIMUM GAP						5		
8	MAXIMUM EXTENSION I						3		1.
9	MAXIMUM EXTENSION II						25		2
A	MAXIMUM EXTENSION III								
B									
C	SEC. OF GAP REDUCED								
D	PER SEC. OF INTERVAL								
E	YELLOW								
F	RED CLEARANCE								

TURN ON
AR/CEW

DATE
Aug 11, '82

COUNTY ROUTE PM
ALA 92 5.121



REMARKS

ALL RED FLASH

Print Date Printed By FILENAME

Sep 08, '94 EPB FBEDS.121

FILE
MaintOPERATION
5 ϕ

INTERSECTION

Industrial/Sleepy Hollow & Rte 92 E/B Ramps

PROGRAM
C8.4 Mstr

NOTE: To Initialize Controller: 1) Set Location & Feature Switches; 2) Clear RAM Location C-C-0 with STOP-TIME ON; 3) Enter Non-zero at C-C-1 to enter timing; 4) Enter 0 at C-C-1 to start

* MODEM REQUIRED: MASTER TO W/B RAMPS *

8/11/94 LOOKS GOOD

INTERVAL	FLAG FUNCTION	DISPLAY	$\phi 1$	$\phi 2$	$\phi 3$	$\phi 4$	$\phi 5$	$\phi 6$	$\phi 7$	$\phi 8$
0	PERMITTED PHASES	F 187	ON	ON		ON	ON	ON		ON
1	RED DETECTOR LOCK	F 017	ON				ON			
2	YELLOW DETECTOR LOCK									
3	VEHICLE RECALL	F 034		ON		ON		ON		
4	PEDESTRIAN RECALL									
5	PEDESTRIAN PHASES	F 032								
6	OVERLAP A							ON		
7	OVERLAP B									
8	DOUBLE ENTRY	F 170		ON		ON		ON		ON
9	MAX EXT. II									
A	LAG PHASES	VIEW	FOR OBSERVATION ONLY (SET LAG PHASES AT C-F-0 TO C-F-9)							
B	RED REST									
C	NON ACTUATED									
D	MAXIMUM EXT. III									
E	START UP YELLOW									
F	FIRST PHASE GREEN	F 034		ON				ON		

PROM BOARD - 412C										Sep 08, '94										CODE		FUNCTION		ENTER		DISPLAY		LAMP		TIMING			
CHIP		PROGRAM		NUMBER		CHECKSUM		CHIP		PROGRAM		NUMBER		CHECKSUM		FEATURE (1=ON)		SWITCH (0=OFF)		FEATURE (1=ON)		SWITCH (0=OFF)											
U1		C8.4		C# 74		0110		U2		C8.4		D# 74		4B																			
LOCATION (1=ON)		1	2	3	4	5	6	7	8	FEATURE (1=ON)		1	2	3	4	5	6	7	8	SWITCH (0=OFF)		0	0	0	0	0	0	0	0	0	0		
SWITCH (0=OFF)		0	0	0	0	0	0	0	0	SWITCH (0=OFF)		0	0	0	0	0	0	0	0	SWITCH (0=OFF)		0	0	0	0	0	0	0	0	0	0		
CODE		FUNCTION						ENTER		DISPLAY																							
										LAMP		TIMING																					
F-0-E		MAXIMUM VARIABLE INITIAL						20 E		F 020																							
F-0-F		RED REVERT						20 E		F 02.0																							
F-D-0		TBCSEL (1 = Same Time set at F-D-1 & 2)						1 E		F 001																							
F-D-1		HOUR Master Cycle Timer						0 E		F 000																							
F-D-2		MINUTE Master Cycle Timer						0 E		F 000																							
F-D-8		OFFSET SEEKING FLAG						1 E		F 001																							
C-0-0		LOCAL ADDRESS (Set by location switch)						OBSERVE		ONLY		C 000																					
C-C-2		PC MASTER DOWNLOAD						0 E		C 000																							
C-F-C		COORDINATED FAZES						2 6		C 034																							
D-0-9		FEATURE (Set by Feature Switch)						OBSERVE		ONLY		d 000																					
D-2-A		DELAY DETECTOR 8J7L						100 E		d10.0																							
D-4-7		STRETCH DETECTOR 8J6U						20 E		d02.0																							
D-4-8		STRETCH DETECTOR 8J6L						20 E		d02.0																							

CONTROL CODE "7"

TIME OF DAY ACTIVITY TABLE

KEY STROKES 7 + EVENT # + HOUR + MIN + ACT CODE + "E" + ON/OFF + DOW/LTS

EVENT #	TIME	ACTIVITY CODE	DEPRESS "E"	DAY OF THE WEEK SET DISPLAY LIGHTS 1-7							
				ON/OFF							
				LIMIT	SUN	MON	TUE	WED	THUR	FRI	SAT
				0	1	2	3	4	5	6	7
0			E								
1			E								
2			E								
3			E								
4			E								
5			E								
6			E								
7			E								
8			E								
9			E								
A			E								
B			E								
C			E								
D			E								
E			E								
F			E								

7 KEY ACTIVITY CODE

- 1=TYPE OF SIMULTANEOUS PHASE TERMINATION
 2=MAX 2 FAZES
 3=MAX 3 FAZES
 4=CONDITIONAL SERVICE (Fazes set at Loc E-F-0)
 5=CONDITIONAL SERVICE (Fazes set at Loc E-F-1)
 6=ENERGIZE AUX 6 RED
 7=ENERGIZE AUX 6 GREEN
 8=ENERGIZE AUX 6 YELLOW
 9=CONSTANT CALL ON FAZES SET AT D-F-A
 A=TRAFFIC ACTUATED MAX 2 OPERATION
 B=CONSTANT CALL ON FAZES SET AT D-F-B
 C=YELLOW YIELD COORDINATION
 D=YELLOW YIELD COORDINATION
 E=COORD FREE IF F-D-4 = 0
 F=FLASHING OPERATION

CONTROL CODE "9"

TIME OF DAY SELECTION FOR COORDINATED CONTROL PLANS

DATE	BY	EVENT #	TIME	CONTROL PLAN	OFFSET	DEPRESS "E"	DAY OF THE WEEK SET DISPLAY LIGHTS 1-7						
							SUN	MON	TUE	WED	THUR	FRI	SAT
							1	2	3	4	5	6	7
		0	0645	1	A	E		X	X	X	X	X	
		1	0745	2	A	E		X	X	X	X	X	
		2	0830	E	A	E		X	X	X	X	X	
		3				E							
		4				E							
		5	1500	3	A	E		X	X	X	X	X	
		6	1530	4	A	E		X	X	X	X	X	
		7	1545	3	A	E		X	X	X	X	X	
		8	1800	E	A	E		X	X	X	X	X	
		9				E							
		A				E							
		B				E							
		C				E							
		D				E							
		E				E							
		F				E							

9/9/94

1. TIMING DATA										PHASE
Ring 1 : 1 2										4
Ring 2 :										6 5*
Direction:										4 CHAR OR
MINIMUM GREEN.	4	8	0	4	0	8	0	0	0	MIN-255 SECONDS
WALK	0	7	0	7	0	0	0	0	0	MIN-255 SECONDS
PED CLEARANCE.	0	16	0	14	0	7	0	7	0	MIN-255 SECONDS
VEHICLE EXTENSION. . . .	2.0	6.0	0.0	4.0	0.0	6.0	0.0	0.0	0.0	0-25.5 SECONDS
MAX EXTENSION.	0	0	0	0	0	0	0	0	0	0-255 SECONDS
MAX 1.	30	40	0	35	0	40	0	0	0	0-255 SECONDS
MAX 2.	30	40	0	35	0	40	0	0	0	0-255 SECONDS
MAX 3.	30	40	0	35	0	40	0	0	0	0-255 SECONDS
YELLOW CHANGE.	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0	MIN-25.5 SECONDS
RED CLEARANCE.	1.0	1.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0	MIN-25.5 SECONDS
RED REVERT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	MIN-25.5 SECONDS
ACTUATIONS B4 INITIAL. . .	0	0	0	0	0	0	0	0	0	0-255 ACTUATIONS
SECONDS/ACTUATION. . . .	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0-25.5 SECONDS
MAX INITIAL.	0	24	0	0	0	24	0	0	0	0-255 SECONDS
TIME B4 REDUCTION. . . .	0	20	0	0	0	20	0	0	0	0-255 SECONDS
CARS WAITING	0	0	0	0	0	0	0	0	0	0-255 CARS
TIME TO REDUCE	0	10	0	0	0	10	0	0	0	0-255 SECONDS
MINIMUM GAP.	2.0	3.0	0.0	4.0	0.0	3.0	0.0	0.0	0.0	0-25.5 SECONDS
COND SERV. MIN GREEN . .	0	0	0	0	0	0	0	0	0	0-255 SECONDS

10-30-1992 00:37:22 INTERSECTION NO. 3-22 INDUSTRIAL & TENNYSON

*: ON 4.29.99, 9
MET OF HOSSAIN OF
SMI AT INDUSTRIAL
TENNYSON. THE FOLLOWING
PHASING SEQUENCE WAS
INSTALL TO HELP
DRIVERS EXIT FROM
THE DWY, LOCATED ON
THE SIS OF INDUSTRIAL

3. RECALL & START/FLASH

[Enter <X> for YES, for NO]

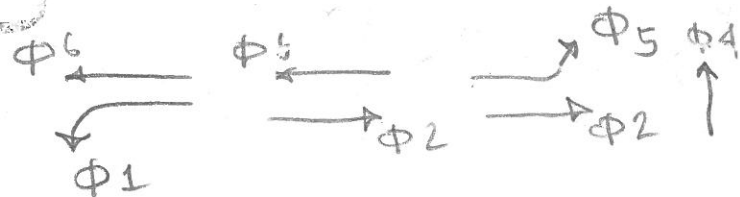
	PHASE			
	Ring 1 : 1	2	4	6
PHASES IN USE	X	X	X	X
LOCKING DETECTOR.		X		X
VEHICLE RECALL.		X		X
PEDESTRIAN RECALL				
RECALL TO MAX				
SOFT RECALL				
POWER START		X		X
EXTERNAL START.		X		X
REMOTE FLASH PHASES		X		X

INITIALIZATION INTERVAL			
GREEN	YELLOW	RED	YELLOW OVERLAPS

POWER START	X
EXTERNAL START.	X
POWER START ALL RED TIME.	4 0-255 SECONDS
POWER START FLASH TIME.	10 0-255 SECONDS

ENTER ONLY <X>
TO ENABLE

10-30-1992 00:37:22 INTERSECTION NO. 3-22 INDUSTRIAL & TENNYSON



NOTE: Φ5 IS A DUMMY
PHASE AND IS ON
RECALL. DURING EACH
CYCLE, Φ5 WILL
BE ACTIVATED FOR A
MINIMUM OF 6" WITH
OR WITHOUT Φ2.
THIS WILL ALLOW
DRIVERS TO EXIT
THE DWY AND
HOPEFULLY GO
THROUGH THE ILS.

DATE INSTALLED: 4.29.99

4. OPTIONS (Enter <X> for YES, for NO.)

	PHASE							
	1	2	3	4	5	6	7	8
GUARANTEED PASSAGE	.	.	.	.	.	.	.	.
CALL TO NONACTUATED 1	.	.	.	.	.	.	.	.
CALL TO NONACTUATED 2	.	.	X	.	.	.	.	.
DUAL ENTRY	.	.	.	.	.	.	.	.
CONDITIONAL SERVICE	.	.	.	.	.	.	.	.
CONDITIONAL RESERVICE	.	.	.	.	.	.	.	.
ACTUATED REST IN WALK	.	.	.	.	.	.	.	.
FLASHING WALK	.	.	.	.	.	.	.	.

ENABLE PROGRAMMABLE OPTIONS

DUAL ENTRY	BACKUP PROTECTION GROUP 1
CONDITIONAL SERVICE	BACKUP PROTECTION GROUP 2
PED CLEARANCE PROTECTION	SIMULTANEOUS GAP GROUP 1
SPECIAL PREEMPT OVERLAP FLASH . .	SIMULTANEOUS GAP GROUP 2

FIVE SECTION LEFT TURN CONTROL

PHASES: 1-6 3-8 5-2 7-4
LEFT TURN HEAD. . .

10-30-1992 00:37:23 INTERSECTION NO. 3-22 INDUSTRIAL & TENNYSON

6. DETECTOR TYPE AND PHASE ASSIGNMENT

[Enter <X> for YES, for NO]

	*TYPE	PHASE ASSIGNMENT								*NOTE:
		0-5	1	2	3	4	5	6	7	
DETECTOR 1	0	X	.	.	.	.	.	.	.	0=normal
DETECTOR 2	0	.	X	.	.	.	.	.	.	1=extend/delay
DETECTOR 3	0	.	.	X	.	.	.	.	.	2=stop bar
DETECTOR 4	0	.	.	.	X	.	.	.	.	3=stop bar w/timer
DETECTOR 5	0	.	.	.	.	X	.	.	.	(use extend timer)
DETECTOR 6	0	.	.	.	.	.	X	.	.	4=calling
DETECTOR 7	0	.	.	.	.	.	.	X	.	5=stop bar with
DETECTOR 8	0	.	.	.	.	.	.	.	X	resettable timer
DETECTOR 9	0	.	.	.	.	.	.	.	.	(use extend timer)
DETECTOR 10	0	.	.	.	.	.	.	.	.	
DETECTOR 11	0	.	.	.	.	.	.	.	.	
DETECTOR 12	0	.	.	.	.	.	.	.	.	
DETECTOR 13	0	.	.	.	.	.	.	.	.	
DETECTOR 14	0	.	.	.	.	.	.	.	.	
DETECTOR 15	0	.	.	.	.	.	.	.	.	
DETECTOR 16	0	.	.	.	.	.	.	.	.	

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PAGE 7. DETECTOR TIMERS AND CROSS SWITCHING

TIMERS		[Enter <X> for YES, for NO]							
EXTEND	DELAY	CROSS SWITCHING PHASE							
0-25.5	0-255	1	2	3	4	5	6	7	8
DETECTOR 1	0.0 . 0 .								
DETECTOR 2	0.0 . 0 .								
DETECTOR 3	0.0 . 0 .								
DETECTOR 4	0.0 . 0 .								
DETECTOR 5	0.0 . 0 .								
DETECTOR 6	0.0 . 0 .								
DETECTOR 7	0.0 . 0 .								
DETECTOR 8	0.0 . 0 .								
DETECTOR 9	0.0 . 0 .								
DETECTOR 10	0.0 . 0 .								
DETECTOR 11	0.0 . 0 .								
DETECTOR 12	0.0 . 0 .								
DETECTOR 13	0.0 . 0 .								
DETECTOR 14	3.2 . 0 .								
DETECTOR 15	0.0 . 0 .								
DETECTOR 16	0.0 . 0 .								

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9. CYCLE/PHASE OPTIONS (Enter <X> for YES, for NO.)

	CYCLE 1								CYCLE 2								CYCLE 3							
	PHASE: 1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
COORDINATED . . .	.	.	.	.	.	.	.	.	X.	.	X.	.	.	.	.	.	.	.	.	.	.	.	.	.
LAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OMIT.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEHICLE RECALL. .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PED RECALL. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
RECALL TO MAX . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	CYCLE 4								CYCLE 5								CYCLE 6							
	PHASE: 1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
COORDINATED . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LAG	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OMIT.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
VEHICLE RECALL. .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PED RECALL. . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
RECALL TO MAX . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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		CYCLE 1				CYCLE 2				CYCLE 3				
SPLIT		SPLIT				SPLIT				SPLIT				
RING	INTERVAL	1	2	3	4	1	2	3	4	1	2	3	4	
1	1	0	0	0	0	0	20	0	0	0	0	0	0	0-99%
1	2	0	0	0	0	0	50	0	0	0	0	0	0	0-99%
	3	0	0	0	0	0	0	0	0	0	0	0	0	0-99%
1	4	0	0	0	0	0	30	0	0	0	0	0	0	0-99%
	5	0	0	0	0	0	20	0	0	0	0	0	0	0-99%
2	6	0	0	0	0	0	50	0	0	0	0	0	0	0-99%
	7	0	0	0	0	0	0	0	0	0	0	0	0	0-99%
	8	0	0	0	0	0	0	0	0	0	0	0	0	0-99%
COORD PH SPLIT EXT. .		0	0	0	0	0	0	0	0	0	0	0	0	0-99%

*SPLIT SUM

RING 1	0	0	0	0	0	100	0	0	0	0	0	0	0	
RING 2	0	0	0	0	0	50	0	0	0	0	0	0	0	

*NOTE: Split sum greater than 100% may produce coordination errors.

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13. COORDINATOR MANUAL COMMANDS

MANUAL COMMAND	OFF	ON/OFF	SPARE.	OFF	ON/OFF
MANUAL FREE.	OFF	ON/OFF	SPARE.	OFF	ON/OFF
SPARE.	OFF	ON/OFF	SPARE.	OFF	ON/OFF
SPARE.	OFF	ON/OFF	SPARE.	OFF	ON/OFF

MANUAL COMMAND:

CYCLE 1 0-6
 OFFSET. 1 0-5
 SPLIT 1 0-4

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21. CLOCK/CALENDAR

ESYNC TIME 1758 0000-2359 HOURS
 FORCE NIC PROGRAM STEP. 0 0-160 (0=no force)
 DISABLE DAYLIGHT SAVINGS TIME <X> for YES, for NO
 DST BEGINS LAST SUNDAY. <X> for YES, for first Sunday

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22. WEEKLY & YEARLY PROGRAMS

WEEKLY PROGRAMS

	1	2	3	4	5	6	7	8	9	10	
SUNDAY.	1	1	2	1	3	1	1	1	1	1	1-16 (PROGRAM NO.)
MONDAY.	1	2	1	3	1	1	1	1	1	1	1-16 (PROGRAM NO.)
TUESDAY.	1	1	2	1	1	1	1	1	1	1	1-16 (PROGRAM NO.)
WEDNESDAY.	1	1	1	1	1	1	1	1	1	1	1-16 (PROGRAM NO.)
THURSDAY.	1	1	1	1	1	1	1	1	1	1	1-16 (PROGRAM NO.)
FRIDAY.	1	2	1	1	1	1	1	1	1	1	1-16 (PROGRAM NO.)
SATURDAY.	1	1	1	1	1	1	1	1	1	1	1-16 (PROGRAM NO.)

YEARLY PROGRAM:

WEEK-OF-YEAR

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
WEEKLY PROGRAM. . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1-10

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
--	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

WEEKLY PROGRAM. . .	1	1	1	1	1	1	1	2	3	4	5	1	1	1	1	1	1	1-10
---------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	------

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
--	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

WEEKLY PROGRAM. . .	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1-10
---------------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	------

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24. NIC PROGRAM STEPS 1-20 (Steps 1-32 may be plan command from master.)

[Enter <X> for YES, for NO.]

PROGRAM	TIME	CYC	OFT	SPL	FLASH	DIM	MAX	SPECIAL	
0-16	0000-2359	0-6	0-5	1-4			2 3 1	2 3 4	
1. . 2	0930	0	0	1 .	.	.	X .	.	1
2. . 2	1330	0	0	1 .	.	.	.	.	2
3. . 2	1330	0	0	1 .	.	.	X .	.	3
4. . 2	1800	0	0	1 .	.	.	.	.	4
5. . 3	0900	0	0	1 .	.	.	X .	.	5
6. . 3	1300	0	0	1 .	.	.	.	.	6
7. . 3	1300	0	0	1 .	.	.	X .	.	7
8. . 3	1800	0	0	1 .	.	.	.	.	8
9. . 0	0000	0	0	1 .	.	.	.	.	9
10. . 0	0000	0	0	1 .	.	.	.	.	10
11. . 0	0000	0	0	1 .	.	.	.	.	11
12. . 0	0000	0	0	1 .	.	.	.	.	12
13. . 0	0000	0	0	1 .	.	.	.	.	13
14. . 0	0000	0	0	1 .	.	.	.	.	14
15. . 0	0000	0	0	1 .	.	.	.	.	15
16. . 0	0000	0	0	1 .	.	.	.	.	16
17. . 0	0000	0	0	1 .	.	.	.	.	17
18. . 0	0000	0	0	1 .	.	.	.	.	18
19. . 0	0000	0	0	1 .	.	.	.	.	19
20. . 0	0000	0	0	1 .	.	.	.	.	20

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Station : 28 - Winton @ Clawiter (Upload File)

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Walk		7		5		7		5								
Ped Clearance		17		22		17		21								
Min Green	5	8		8	5	8		8								
Passage	2	4		2	2	4		2								
Max1	25	74		27	15	83		27								
Max2	20	40		25	20	40										
Yellow	3	3.6		3.9	3	3.6		3.9								
Red	1	1		1	1	1		1								
Red Revert	2	2		2	2	2										
Added Initial		2				2										
Max Initial		15				15										
Time Before Reduce		10				10										
Cars Before Reduce																
Time To Reduce		10				10										
Reduce By																
Min Gap	3	2		3	3	2		3								
Dynamic Max Limit																
Dynamic Max Step																
Enable	ON	ON		ON	ON	ON										
Auto Entry		ON				ON										
Auto Exit		ON				ON										
Non Act1																
Non Act2																
Lock Call		ON				ON										
Min Recall		ON				ON										
Max Recall																
Ped Recall																
Soft Recall																
Dual Entry																
Sim Gap Enable																
Guar Passage																
Rest In Walk																
Cond Service																
Add Init Calc																
Bike Clear																

Preemption

Channel	1	2	3	4	5	6
Lock Input	ON				ON	
Override Flash						
Override Higher						
Flash Dwell						
Link						
Delay	5					
Min Duration	10					
Min Green						
Min Walk						
Ped Clear						
Track Green						
Min Dwell		10	10	10		
Max Presence	90	90	90	90		
Track R1						
Track R2						
Track R3						
Track R4						
Dwell Ped1						
Exit R1	2	2	4	2		
Exit R2	6	6		6		
Exit R3						
Exit R4						

Preempt LP

Channel	1	2	3	4
Min				
Max				
Type	OFF	OFF	OFF	OFF
Platoon Rx				
Cond Lockout				
Coord in Preempt				
Platoon Tx				
Lock				
Begin Mode	SKIP	SKIP	SKIP	SKIP
Priority P1				
Priority P2				
Priority P3				
Priority P4				
Max Lockout				
Ext Dwell				
Ant Arrival				
Max Grn 1				
Max Grn 2				
Max Grn 3				
Max Grn 4				
Max Grn 5				
Max Grn 6				
Max Grn 7				
Max Grn 8				
Max Grn 9				
Max Grn 10				
Max Grn 11				
Max Grn 12				
Max Grn 13				
Max Grn 14				
Max Grn 15				
Max Grn 16				
Headway Group				
Queue Jump				
Headway Time				
TX Time				
PP Hold Time				
PP Tx Phase 1				
PP Tx Phase 2				
PP Tx Phase 3				
PP Tx Phase 4				

Prepared By		Date Implemented
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Reviewed By		Traffic Engineer
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Coordination

[illegible][illegible]

Scheduler

User Comments:

Appendix E

Trip Distribution Calculations

Zip Code	Numbe of Students	Percentage	Region	Percent of Students Using Gateway					Route/Gateway
				880 North	880 South	92/Jackson St	Hesperian North	Hesperian South	
94501	33	16.34%	Alameda	100					100 880 North
94502	16	7.92%	Alameda	100					100 880 North
94506	1	0.50%	Danville	100					100 880 North
94536	2	0.99%	Fremont		100				100 880 South
94539	2	0.99%	Fremont		100				100 880 South
94541	5	2.48%	Hayward			100			100 92/Jackson East
94542	2	0.99%	Hayward			100			100 92/Jackson East
94544	7	3.47%	Hayward		85	15			100 880 South
94545	9	4.46%	Hayward				10	90	100 Hesperian South
94546	18	8.91%	Castro Valley	50		50			100 880 North/92 Jackson
94547	2	0.99%	Hercules	100					100 880 North
94552	9	4.46%	Castro Valley	50		50			100 880 North/92 Jackson
94555	6	2.97%	Fremont		100				100 880 South
94568	3	1.49%	Dublin	100					100 880 North
94577	17	8.42%	San Leandro	100					100 880 North
94578	11	5.45%	San Leandro	100					100 880 North
94579	20	9.90%	San Leandro	50			50		100 880 North/ Hesperian
94580	5	2.48%	San Lorenzo	75			25		100 Hesperian North
94582	2	0.99%	San Ramon	100					100 880 North
94587	5	2.48%	Union City		100				100 880 South
94598	1	0.50%	Walnut Creek	100					100 880 North
94601	2	0.99%	Oakland	100					100 880 North
94602	4	1.98%	Oakland	100					100 880 North
94603	2	0.99%	Oakland	100					100 880 North
94605	3	1.49%	Oakland	100					100 880 North
94606	3	1.49%	Oakland	100					100 880 North
94607	1	0.50%	Oakland	100					100 880 North
94610	2	0.99%	Oakland	100					100 880 North
94611	4	1.98%	Oakland	100					100 880 North
94619	4	1.98%	Oakland	100					100 880 North
94804	1	0.50%	Richmond	100					100 880 North
Total		202	100%						

AM- OUT BOUND						
Gateway	Number of Students	Percent of Students				
880 North		139.25	69%			
880 South		20.95	10%			
92/Jackson East		21.55	11%			
Hesperian North		12.15	6%			
Hesperian South		8.10	4%			
SUM		202	100%			
Gate Number	Trip Assignment	I-880 North	I-880 south	92/Jackson St	Final Trip Assign	
Gate 6	92/I-880 Interchange		131.379	18.855	21.55	85%
Gate 7	I-880/Winton Interchange		8.072			4%
	Depot					
	Clawiter					
Gate 11	Tennyson/I-880 Interchange			2.095		1.0%
Gate 8	Hesperian North					6.0%
Gate 4	Hesperian South					4.0%
AM- INBOUND						
Gateway	Number of Students	Percent of Students				
880 North		139.25	69%			
880 South		20.95	10%			
92/Jackson East		21.55	11%			
Hesperian North		12.15	6%			
Hesperian South		8.10	4%			
SUM		202	100%			
Gate Number	Trip Assignment	I-880 North	I-880 south	92/Jackson St	Final Trip Assign	
Gate 6	92/I-880 Interchange		125.325	18.855	21.55	82%
Gate 7	I-880/Winton Interchange		14.127			7%
	Depot					
	Clawiter					
Gate 11	Tennyson/I-880 Interchange			2.095		1.0%
Gate 8	Hesperian North					6.0%
Gate 4	Hesperian South					4.0%

Zip Code	Numbe of Students	Percentage	Region	Percent of Students Using Gateway					Route/Gateway
				880 North	880 South	92/Jackson St	Hesperian North	Hesperian South	
94501	33	16.34%	Alameda	100					100 880 North
94502	16	7.92%	Alameda	100					100 880 North
94506	1	0.50%	Danville	100					100 880 North
94536	2	0.99%	Fremont		100				100 880 South
94539	2	0.99%	Fremont		100				100 880 South
94541	5	2.48%	Hayward			100			100 92/Jackson East
94542	2	0.99%	Hayward			100			100 92/Jackson East
94544	7	3.47%	Hayward		85	15			100 880 South
94545	9	4.46%	Hayward				10	90	100 Hesperian South
94546	18	8.91%	Castro Valley	50		50			100 880 North/92 Jackson
94547	2	0.99%	Hercules	100					100 880 North
94552	9	4.46%	Castro Valley	50		50			100 880 North/92 Jackson
94555	6	2.97%	Fremont		100				100 880 South
94568	3	1.49%	Dublin	100					100 880 North
94577	17	8.42%	San Leandro	100					100 880 North
94578	11	5.45%	San Leandro	100					100 880 North
94579	20	9.90%	San Leandro	50			50		100 880 North/ Hesperian
94580	5	2.48%	San Lorenzo	75			25		100 Hesperian North
94582	2	0.99%	San Ramon	100					100 880 North
94587	5	2.48%	Union City		100				100 880 South
94598	1	0.50%	Walnut Creek	100					100 880 North
94601	2	0.99%	Oakland	100					100 880 North
94602	4	1.98%	Oakland	100					100 880 North
94603	2	0.99%	Oakland	100					100 880 North
94605	3	1.49%	Oakland	100					100 880 North
94606	3	1.49%	Oakland	100					100 880 North
94607	1	0.50%	Oakland	100					100 880 North
94610	2	0.99%	Oakland	100					100 880 North
94611	4	1.98%	Oakland	100					100 880 North
94619	4	1.98%	Oakland	100					100 880 North
94804	1	0.50%	Richmond	100					100 880 North
Total		202	100%						

PM- OUT BOUND						
Gateway	Number of Students	Percent of Students				
880 North	139.25	69%				
880 South	20.95	10%				
92/Jackson East	21.55	11%				
Hesperian North	12.15	6%				
Hesperian South	8.10	4%				
SUM	202	100%				
Gate Number	Trip Assignment	I-880 North	I-880 south	92/Jackson St	Final Trip Assign	
Gate 6	92/I-880 Interchange	135.416	18.855	21.55		87%
Gate 7	I-880/Winton Interchange	10.091				5%
	Depot					
	Clawiter					
Gate 11	Tennyson/I-880 Interchange		2.095			1.0%
Gate 8	Hesperian North					3.0%
Gate 4	Hesperian South					4.0%
PM- INBOUND						
Gateway	Number of Students	Percent of Students				
880 North	139.25	69%				
880 South	20.95	10%				
92/Jackson East	21.55	11%				
Hesperian North	12.15	6%				
Hesperian South	8.10	4%				
SUM	202	100%				
Gate Number	Trip Assignment	I-880 North	I-880 south	92/Jackson St	Final Trip Assign	
Gate 6	92/I-880 Interchange	145.506	18.855	21.55		92%
Gate 7	I-880/Winton Interchange					0%
	Depot					
	Clawiter					
Gate 11	Tennyson/I-880 Interchange		2.095			1.0%
Gate 8	Hesperian North					3.0%
Gate 4	Hesperian South					4.0%

Appendix F

Mid-block Crossing Tool



Type Uncontrolled Intersection

Input Parameters	Value	Intersection Characteristics	Yes	No
Speed Limit	35	Frequent at-grade transit?	☐	☒
Peak Hour Pedestrian Vol	70	Bicycle lanes?	☐	☒
Major Road Peak Hour Volume Total	1,617	Heavy bicycle traffic?	☐	☒
Major Road Peak Hour Vol Dir 1	832	Major/minor road intersection?	☒	☐
Major Road Peak Hour Vol Dir 2	785	Midblock/off-set intersection?	☒	☐
Avg Pedestrian Walking Speed	3	Heavy truck traffic?	☒	☐
15th Percentile Crossing Speed	3	Existing infrastructure limit treatments?	☐	☒
Ped start-up/end clearance time	5	On-street parking?	☐	☒
Pedestrian Crossing Distance	75	Downtown area?	☐	☒
1st Half Crossing Distance	37	Built-up area of an isolated community?	☐	☒
2nd Half Crossing Distance	38	Median refuge island?	☐	☒
Number of Lanes	5	Sufficient width for a median?	☒	☐
Actual Total Pedestrian Delay	11			
Expected Motorist Compliance	Moderate			

◀ 1 of 2 Recommendations ▶

Pedestrian Hybrid Beacon* Signal

TREATMENT IDENTIFICATION MATRIX FOR UNCONTROLLED LOCATIONS			
PEDESTRIAN LEVEL OF SERVICE	EXPECTED MOTORIST COMPLIANCE		
	LOW (or Speed > 35 MPH)	MODERATE	HIGH
LOS A-D (average delay up to 30 seconds)	LEVEL 3 2 Lane Road: In-Pavement Flashers, Overhead Flashing Beacons Multi-Lane Road: RRFB Plus LEVELS 1 and 2	LEVEL 2 Curb Extensions, Bus Bulb, Reduced Curb Radii, Staggered Pedestrian Refuge Plus LEVEL 1	LEVEL 1 High Visibility Crosswalk Markings, Advanced Yield Lines, Advance Signage
LOS E-F (average delay greater than 30 seconds)	LEVEL 4 PHB*, RRFB, or Direct Pedestrians to Nearest Safe Crossing Plus LEVELS 1, 2, and 3	LEVEL 3 2 Lane Road: In-Pavement Flashers, Overhead Flashing Beacons Multi-Lane Road: RRFB Plus LEVELS 1 and 2	LEVEL 2 Curb Extensions, Bus Bulb, Reduced Curb Radii, Staggered Pedestrian Refuge Plus LEVEL 1

Signalized or Unsignalized Crossing?	PHB* Signal
Pedestrian LOS	F
Candidate Pedestrian Treatment Identified	PHB* Signal
Candidate for Median Refuge Island?	YES
Candidate for Road Diet?	YES
Other Treatments for Consideration**	NA
Paired Treatments for Consideration**	NA

Appendix G

Drop-off Queuing Tool

Queuing Scenario Summary

[illegible]

Appendix H

Forecasting Calculation and Outputs

Intersection	Intersection				Turning Movement			Leg-In	Leg-Out	From Node Thru Node To Node Turn Movement Code				North link	South Link	East Link	West Link	Intersection Layout:
Intersection	Intersection		North/South	East/West						From Node	Thru Node	To Node	Turn Movement Code	North link	South Link	East Link	West Link	Enter in node IDs
1. Industrial Blvd / Clawiter Rd	1	1	Industrial Blvd	Clawiter Rd	NB	LT	1	28218-28217	28217-28218	28218	28217	734	28218-28217-00734	28215	28218	28219	734	28215 28217 28218
		1				TH	2			28218	28217	28215	28218-28217-28215					
		1				RT	3			28218	28217	28219	28218-28217-28219					
		1				LT	4			28215	28217	28219	28215-28217-28219					
		1			SB	TH	5	28215-28217	28217-28215	28215	28217	28218	28215-28217-28218					
		1				RT	6			28215	28217	734	28215-28217-00734					
		1				LT	7			734	28217	28215	0734-28217-28215					
		1				TH	8			734	28217	28219	0734-28217-28219					
		1			EB	RT	9	00734-28217	28217-00734	734	28217	28218	0734-28217-28218					
		1				LT	10			28219	28217	28218	28219-28217-28218					
		1				TH	11			28219	28217	734	28219-28217-00734					
		1				RT	12			28219	28217	28215	28219-28217-28215					
2. Industrial Blvd / Depot Rd	2	2	Industrial Blvd	Depot Rd	NB	LT	1	31400-28219	28219-31400	31400	28219	28218	31400-28219-28218	28217	31400	32923	28218	28217 28219 31400
		2				TH	2			31400	28219	28217	31400-28219-28217					
		2				RT	3			31400	28219	32923	31400-28219-32923					
		2				LT	4			28217	28219	32923	28217-28219-32923					
		2			SB	TH	5	28217-28219	28219-28217	28217	28219	31400	28217-28219-31400					
		2				RT	6			28217	28219	28218	28217-28219-28218					
		2				LT	7			28218	28219	28217	28218-28219-28217					
		2				TH	8			28218	28219	32923	28218-28219-32923					
		2			EB	RT	9	28218-28219	28219-28218	28218	28219	31400	28218-28219-31400					
		2				LT	10			32923	28219	31400	32923-28219-31400					
		2				TH	11			32923	28219	28218	32923-28219-28218					
		2				RT	12			32923	28219	28217	32923-28219-28217					
3. Industrial Blvd / Driveway	3	3	Industrial Blvd	Driveway	NB	LT	1	28643-31400	31400-28643	28643	31400	738	28643-31400-00738	28219	28643	728	738	28219 31400 28643
		3				TH	2			28643	31400	28219	28643-31400-28219					
		3				RT	3			28643	31400	728	28643-31400-00728					
		3				LT	4			28219	31400	728	28219-31400-00728					
		3			SB	TH	5	28219-31400	31400-28219	28219	31400	28643	28219-31400-28643					
		3				RT	6			28219	31400	738	28219-31400-00738					
		3				LT	7			738	31400	28219	0738-31400-28219					
		3				TH	8			738	31400	728	0738-31400-00728					
		3			EB	RT	9	00738-31400	31400-00738	738	31400	28643	0738-31400-28643					
		3				LT	10			728	31400	28643	0728-31400-28643					
		3				TH	11			728	31400	738	0728-31400-00738					
		3				RT	12			728	31400	28219	0728-31400-28219					
4. Industrial Blvd / Bridge Entrance	4	4	Industrial Blvd	Bridge Entrance	NB	LT	1	28643-31400	31400-28643	28643	31400	738	28643-31400-00738	28219	28643	728	738	28219 31400 28643
		4				TH	2			28643	31400	28219	28643-31400-28219					
		4				RT	3			28643	31400	728	28643-31400-00728					
		4				LT	4			28219	31400	728	28219-31400-00728					
		4			SB	TH	5	28219-31400	31400-28219	28219	31400	28643	28219-31400-28643					
		4				RT	6			28219	31400	738	28219-31400-00738					
		4				LT	7			738	31400	28219	0738-31400-28219					
		4				TH	8			738	31400	728	0738-31400-00728					
		4			EB	RT	9	00738-31400	31400-00738	738	31400	28643	0738-31400-28643					
		4				LT	10			728	31400	28643	0728-31400-28643					
		4				TH	11			728	31400	738	0728-31400-00738					
		4				RT	12			728	31400	28219	0728-31400-28219					
5. Industrial Blvd / Hayward Apartments	5	5	Industrial Blvd	Hayward Apartments	NB	LT	1	28643-31400	31400-28643	28643	31400	738	28643-31400-00738	28219	28643	728	738	28219 31400 28643
		5				TH	2			28643	31400	28219	28643-31400-28219					
		5				RT	3			28643	31400	728	28643-31400-00728					
		5				LT	4			28219	31400	728	28219-31400-00728					
		5			SB	TH	5	28219-31400	31400-28219	28219	31400	28643	28219-31400-28643					
		5				RT	6			28219	31400	738	28219-31400-00738					
		5				LT	7			738	31400	28219	0738-31400-28219					
		5				TH	8			738	31400	728	0738-31400-00728					
		5			EB	RT	9	00738-31400	31400-00738	738	31400	28643	0738-31400-28643					
		5				LT	10			728	31400	28643	0728-31400-28643					
		5				TH	11			728	31400	738	0728-31400-00738					
		5				RT	12			728	31400	28219	0728-31400-28219					
6. Industrial Blvd / 92 W On Ramp/E Off Ramp/Cryer	6	6	Industrial Blvd	92 W On Ramp/E Off	NB	LT	1	28652-28643	28643-28652	28652	28643	31398	28652-28643-31398	31400	28652	31397	31398	31400 28643 28652
		6				TH	2			28652	28643	31400	28652-28643-31400					
		6				RT	3			28652	28643	31397	28652-28643-31397					
		6				LT	4			31400	28643	31397	31400-28643-31397					
		6			SB	TH	5	31400-28643	28643-31400	31400	28643	28652	31400-28643-28652					
		6				RT	6			31400	28643	31398	31400-28643-31398					
		6				LT	7			31398	28643	31400	31398-28643-31400					
		6				TH	8			31398	28643	31397	31398-28643-31397					
		6			EB	RT	9	31398-28643	28643-31398	31398	28643	28652	31398-28643-28652					
		6				LT	10			31397	28643	28652	31397-28643-28652					
		6				TH	11			31397	28643	31398	31397-28643-31398					
		6				RT	12			31397	28643	31400	31397-28643-31400					

7. Industrial Blvd / 92 E On Ramp/W Off Ramp/ Sleepy Hallow	7	7	Industrial Blvd	92 E On Ramp/W Off	NB	LT	1	31362-28652	28652-31362	31362	28652	31399	31362-28652-31399										
		TH				2	31362			28652	28643	31362-28652-28643											
		RT				3	31362			28652	0			31362-28652-00000									
		LT				4	28643			28652	0				28643-28652-00000								
		TH				5	28643			28652	31362					28643-28652-31362							
		RT				6	28643			28652	31399						28643-28652-31399						
		LT				7	31399			28652	28643							31399-28652-28643					
		TH				8	31399			28652	0								31399-28652-00000				
		RT				9	31399			28652	31362									31399-28652-31362			
		LT				10	0			28652	31362										0000-28652-31362		
		TH				11	0			28652	31399											0000-28652-31399	
		RT				12	0			28652	28643												0000-28652-28643
8. Industrial Blvd / Tennyson Road	8	8	Industrial Blvd	Tennyson Road	NB	LT	1	31426-28661	28661-31426	31426	28661		0										
		TH				2	31426			28661	31362	31426-28661-31362											
		RT				3	31426			28661	31344		31426-28661-31344										
		LT				4	31362			28661	31344			31362-28661-31344									
		TH				5	31362			28661	31426				31362-28661-31426								
		RT				6	31362			28661	0					31362-28661-00000							
		LT				7	0			28661	31362						0000-28661-31362						
		TH				8	0			28661	31344							0000-28661-31344					
		RT				9	0			28661	31426								0000-28661-31426				
		LT				10	31344			28661	31426									31344-28661-31426			
		TH				11	31344			28661	0										31344-28661-00000		
		RT				12	31344			28661	31362											31344-28661-31362	
9. Hesperian Blvd / Tennyson Road	9	9	Hesperian Blvd	Tennyson Road	NB	LT	1	32928-28683	28683-32928	32928	28683												31343
		TH				2	32928			28683	31440	32928-28683-31440											
		RT				3	32928			28683	31310		32928-28683-31310										
		LT				4	31440			28683	31310			31440-28683-31310									
		TH				5	31440			28683	32928				31440-28683-32928								
		RT				6	31440			28683	31343					31440-28683-31343							
		LT				7	31343			28683	31440						31343-28683-31440						
		TH				8	31343			28683	31310							31343-28683-31310					
		RT				9	31343			28683	32928								31343-28683-32928				
		LT				10	31310			28683	32928									31310-28683-32928			
		TH				11	31310			28683	31343										31310-28683-31343		
		RT				12	31310			28683	31440											31310-28683-31440	
10. Clawiter Rd / Winton Ave	10	10	Clawiter Rd	Winton Ave	NB	LT	1	32963-28644	28644-32963	32963	28644												28607
		TH				2	32963			28644	741	32963-28644-00741											
		RT				3	32963			28644	32967		32963-28644-32967										
		LT				4	741			28644	32967			0741-28644-32967									
		TH				5	00741-28644			28644-00741	32963				0741-28644-32963								
		RT				6	741			28644	28607					0741-28644-28607							
		LT				7	28607			28644	741						28607-28644-00741						
		TH				8	28607-28644			28644-28607	28607							28607-28644-32967					
		RT				9	28607			28644	32963								28607-28644-32963				
		LT				10	32967			28644	32963									32967-28644-32963			
		TH				11	32967			28644	28607										32967-28644-28607		
		RT				12	32967			28644	741											32967-28644-00741	
11. Hesperian Blvd / Winton Ave	11	11	Hesperian Blvd	Winton Ave	NB	LT	1	31387-28648	28648-31387	31387	28648												32967
		TH				2	31387			28648	32972	31387-28648-32972											
		RT				3	31387			28648	31388		31387-28648-31388										
		LT				4	32972			28648	31388			32972-28648-31388									
		TH				5	32972			28648	31387				32972-28648-31387								
		RT				6	32972			28648	32967					32972-28648-32967							
		LT				7	32967			28648	32972						32967-28648-32972						
		TH				8	32967-28648			28648-32967	32967							32967-28648-31388					
		RT				9	32967			28648	31387								32967-28648-31387				
		LT				10	31388			28648	31387									31388-28648-31387			
		TH				11	31388			28648	32967										31388-28648-32967		
		RT				12	31388			28648	32972											31388-28648-32972	

Intersection	Int - Movement			RawFixed Model	RawFixed Model	RawFixed Model	RawFixed Model	RawFixed Model	RawFixed Model	RawFixed Model	RawFixed Model	Raw Model	Raw Model	Raw Model	Raw Model	Raw Model	Raw Model	Raw Model	Raw Model	Furnished Future	Furnished Future
		Existing	Existing	d Base AM	d Base PM	d Future AM	d Future PM	d Base AM	d Base PM	d Future AM	d Future PM	Base AM	Base PM	Future AM	Future PM	Base AM	Base PM	Future AM	Future PM	Turns	Turns
		AM Turns	PM Turns	In	In	AM In	PM In	Out	Out	AM Out	PM Out	In	In	AM In	PM In	Out	Out	AM Out	PM Out	AM	PM
1. Industrial Blvd / Clawiter Rd	1-1	26	26																	10	10
	1-2	352	536	135	164	169	673	78	187	386	218	135	164	169	673	78	187	386	218	370	1070
	1-3	6	0																	60	0
	1-4	0	1																	0	170
	1-5	514	359	96	354	465	570	295	228	509	975	96	353	465	570	295	228	509	975	830	360
	1-6	795	197																	840	250
	1-7	120	499																	130	500
	1-8	2	3	24	30	32	59	18	34	37	65	24	30	32	59	18	34	37	65	20	50
	1-9	12	12																	10	10
	1-10	4	8																	20	60
	1-11	0	1	178	98	378	363	42	197	112	407	178	98	378	363	42	197	112	407	0	10
	1-12	2	3																	200	220
2. Industrial Blvd / Depot Rd	2-1	407	175																	50	10
	2-2	374	489	628	295	365	353	128	625	106	411	629	295	366	353	128	625	106	411	490	730
	2-3	72	125																	70	130
	2-4	6	33																	30	160
	2-5	438	363	42	197	112	407	178	98	378	363	42	197	112	407	178	98	378	363	520	460
	2-6	49	6																	30	10
	2-7	9	32																	10	10
	2-8	16	121	99	473	10	69	488	225	28	13	99	473	10	69	488	225	28	13	20	30
	2-9	110	298																	30	20
	2-10	95	54																	90	30
	2-11	134	36	38	28	41	24	13	45	16	66	38	28	41	24	13	45	16	66	60	10
	2-12	28	31																	130	90
3. Industrial Blvd / Driveway	3-1	0	0																	0	0
	3-2	860	789	907	373	924	712	156	798	139	602	906	373	659	436	156	798	139	602	870	790
	3-3	0	0																	0	0
	3-4	0	0																	0	0
	3-5	703	785	128	959	106	411	629	629	629	629	128	625	106	411	629	629	629	629	690	590
	3-6	0	0																	0	0
	3-7	0	0																	0	0
	3-8	0	0	29	176	33	208	280	80	296	99	29	176	33	208	280	80	296	99	0	0
	3-9	0	0																	0	0
	3-10	0	0																	0	0
	3-11	0	0	2	1	2	1	1	2	1	2	2	1	2	1	1	2	1	2	0	0
	3-12	0	0																	0	0
4. Industrial Blvd / Bridge Entrance	4-1	52	2																	0	0
	4-2	851	755	907	373	924	712	156	798	139	602	906	373	659	436	156	798	139	602	870	790
	4-3	26	62																	0	0
	4-4	12	18																	0	0
	4-5	665	800	128	959	106	411	629	629	629	629	128	625	106	411	629	629	629	629	690	590
	4-6	26	2																	0	0
	4-7	0	13																	0	0
	4-8	0	0	29	176	33	208	280	80	296	99	29	176	33	208	280	80	296	99	0	0
	4-9	6	20																	0	0
	4-10	97	39																	0	0
	4-11	1	0	2	1	2	1	1	2	1	2	2	1	2	1	1	2	1	2	0	0
	4-12	23	14																	0	0
5. Industrial Blvd / Hayward Apartments	5-1	142	32																	0	0
	5-2	900	779	907	373	661	436	156	798	139	602	906	373	659	436	156	798	139	602	870	790
	5-3	10	12																	0	0
	5-4	7	4																	0	0
	5-5	742	799	128	625	106	411	629	295	366	353	128	625	106	411	629	295	366	353	690	590
	5-6	49	56																	0	0
	5-7	53	44																	0	0
	5-8	1	5	29	176	33	208	280	80	296	99	29	176	33	208	280	80	296	99	0	0
	5-9	32	80																	0	0
	5-10	2	8																	0	0
	5-11	0	2	2	1	2	1	1	2	1	2	2	1	2	1	1	2	1	2	0	0
	5-12	1	7																	0	0
6. Industrial Blvd / 92 W On Ramp/E Off Ramp/Cryer	6-1	484	262																	710	440
	6-2	930	638	841	599	1037	1006	703	1074	897	1204	841	599	1038	1006	703	1074	897	1204	780	730
	6-3	121	72																	250	220
	6-4	6	6																	10	10
	6-5	575	784	156	798	139	602	906	373	659	436	156	798	139	602	906	373	659	436	670	660
	6-6	179	97																	80	40
	6-7	134	177																	60	170
	6-8	6	26	1034	381	982	645	469	358	575	469	1035	381	982	645	469	358	575	469	10	70
	6-9	39	121																	70	370
	6-10	157	64																	240	90
	6-11	33	12	78	89	121	96	31	62	148	240	78	89	121	96	31	62	148	240	20	10
	6-12	22	8																	10	10

7. Industrial Blvd / 92 E On Ramp/W Off Ramp/ Sleepy Hollow	7 - 1	103	72																	180	360
	7 - 2	1248	698	965	1152	1277	1881	822	1274	1214	1697	965	1151	1277	1881	822	1274	1214	1697	1480	1130
	7 - 3	4	5																	10	20
	7 - 4	36	67																	40	50
	7 - 5	535	720	703	1074	897	1204	841	599	1038	1006	703	1074	897	1204	841	599	1038	1006	730	740
	7 - 6	201	184																	220	330
	7 - 7	136	227																	130	220
	7 - 8	6	76	230	630	412	1041	235	983	334	1423	230	630	412	1041	235	983	334	1423	10	100
	7 - 9	309	570																	510	980
	7 - 10	18	6																	30	10
	7 - 11	38	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	30
	7 - 12	151	52																	140	40
8. Industrial Blvd / Tennyson Road	8 - 1	0	0																	0	0
	8 - 2	868	672	482	778	680	1417	445	1289	773	1656	1059	778	1384	1417	445	1289	773	1656	1080	1300
	8 - 3	42	148																	40	170
	8 - 4	101	443																	140	590
	8 - 5	722	938	822	1710	1214	2218	965	1151	1277	1881	822	1274	1214	1697	965	1151	1277	1881	1080	1310
	8 - 6	0	0																	0	0
	8 - 7	0	0																	0	0
	8 - 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8 - 9	0	0																	0	0
	8 - 10	437	74																	420	80
	8 - 11	0	0	121	54	206	162	15	102	50	260	121	54	206	162	15	102	50	260	0	0
	8 - 12	525	153																	640	260
9. Hesperian Blvd / Tennyson Road	9 - 1	95	77																	110	110
	9 - 2	1055	1053	2052	2365	2319	3203	1450	1812	2715	2223	2052	2364	2319	3202	1450	1812	2715	2223	1270	1660
	9 - 3	50	119																	100	320
	9 - 4	157	260																	330	550
	9 - 5	834	808	1528	2144	2768	2729	2712	2470	2944	3104	1528	2144	2768	2729	2712	2470	2944	3104	1880	1110
	9 - 6	172	84																	210	100
	9 - 7	136	162																	110	130
	9 - 8	177	476	12	81	41	201	96	43	168	132	12	81	41	201	96	43	168	132	220	650
	9 - 9	39	66																	60	60
	9 - 10	218	244																	430	370
	9 - 11	712	245	907	338	1198	583	241	603	499	1257	907	338	1198	583	241	603	499	1257	750	300
	9 - 12	236	193																	290	270
10. Clawiter Rd / Winton Ave	10 - 1	183	131																	230	240
	10 - 2	1	0	117	245	270	680	190	181	514	307	117	245	270	680	190	181	514	307	20	0
	10 - 3	193	517																	300	850
	10 - 4	1	7																	20	50
	10 - 5	0	0	98	330	113	369	305	170	339	201	98	330	113	369	305	170	339	201	0	0
	10 - 6	0	0																	0	0
	10 - 7	0	3																	0	40
	10 - 8	275	975	210	1517	266	1317	1432	482	1352	617	210	1516	266	1317	1432	482	1352	617	310	730
	10 - 9	92	251																	130	270
	10 - 10	925	243																	1220	360
	10 - 11	1105	361	1815	665	2011	806	313	1924	455	2047	1815	665	2010	806	313	1924	455	2047	990	400
	10 - 12	3	0																	30	0
11. Hesperian Blvd / Winton Ave	11 - 1	43	58																	70	120
	11 - 2	546	1068	703	1585	1557	2924	1305	732	2800	1484	703	1585	1557	2924	1305	732	2800	1484	1300	2080
	11 - 3	116	190																	210	470
	11 - 4	104	149																	150	270
	11 - 5	1246	629	1642	606	3218	1447	663	2431	1552	3376	1642	606	3219	1447	663	2431	1552	3376	2580	1270
	11 - 6	1050	212																	1260	310
	11 - 7	220	654																	320	600
	11 - 8	280	943	384	1993	532	2091	1870	725	2052	877	384	1993	532	2091	1870	725	2052	877	300	1080
	11 - 9	63	71																	110	100
	11 - 10	190	218																	320	310
	11 - 11	913	366	1575	825	1703	914	466	1121	606	1639	1575	825	1703	914	466	1121	606	1639	880	370
	11 - 12	90	138																	140	140

[illegible]

Intersection	In/Out Checks Base						In/Out Checks Future						DontFurne ss	
	Base						Future							
	AM In	AM Out	Out-In	PM In	PM Out	In/Out	AM In	AM Out	In/Out	PM In	PM Out	In/Out		
1. Industrial Blvd / Clawiter Rd	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
	433	433	0	645	646	1	1044	1044	0	1665	1665	0	0	0
2. Industrial Blvd / Depot Rd	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
	808	807	-1	993	993	0	529	528	-1	853	853	0	0	0
3. Industrial Blvd / Driveway	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
4. Industrial Blvd / Bridge Entrance	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
	1065	1066	1	1175	1509	334	800	1065	265	1056	1332	276	0	0
5. Industrial Blvd / Hayward Apartments	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
	1065	1066	1	1175	1175	0	800	802	2	1056	1056	0	0	0
6. Industrial Blvd / 92 W On Ramp/E Off Ramp/Cryer	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0
	2110	2109	-1	1867	1867	0	2280	2279	-1	2349	2349	0	0	0

Existing AM												
Intersection	Int. 1	Existing AM										
1. Industrial Blvd / Clawiter Rd	N/S:	Industrial Blvd										
	E/W:	Clawiter Rd										
			1309			474						
			SBR			SBT			SBL			
			795			514			0			
	821	EBL	120							2	WBR	6
		EBT	2			1833				0	WBT	
	134	EBR	12							4	WBL	8
			26			352			6			
			NBL			NBT			NBR			
		530						384				
2. Industrial Blvd / Depot Rd	Int. 2	Existing AM										
	N/S:	Industrial Blvd										
	E/W:	Depot Rd										
			493			411						
			SBR			SBT			SBL			
			49			438			6			
	590	EBL	9							28	WBR	257
		EBT	16			1738				134	WBT	
	135	EBR	110							95	WBL	94
			407			374			72			
		NBL			NBT			NBR				
		643						853				
3. Industrial Blvd / Driveway	Int. 3	Existing AM										
	N/S:	Industrial Blvd										
	E/W:	Driveway										
			703			860						
			SBR			SBT			SBL			
			0			703			0			
	0	EBL	0							0	WBR	0
		EBT	0			1563				0	WBT	
	0	EBR	0							0	WBL	0
			0			860			0			
		NBL			NBT			NBR				
		703						860				
4. Industrial Blvd / Bridge Entrance	Int. 4	Existing AM										
	N/S:	Industrial Blvd										
	E/W:	Bridge Entrance										
			703			874						
			SBR			SBT			SBL			
			26			665			12			
	79	EBL	0							23	WBR	121
		EBT	0			1759				1	WBT	
	6	EBR	6							97	WBL	38
			52			851			26			
		NBL			NBT			NBR				
		768						929				
5. Industrial Blvd / Hayward Apartments	Int. 5	Existing AM										
	N/S:	Industrial Blvd										
	E/W:	Hayward Apartments										
			798			954						
			SBR			SBT			SBL			
			49			742			7			
	191	EBL	53							1	WBR	3
		EBT	1			1939				0	WBT	
	86	EBR	32							2	WBL	18
			142			900			10			
		NBL			NBT			NBR				
		776						1052				

[illegible]

11. Hesperian Blvd / Winton Ave	Int. 11	Existing AM											
	N/S:	Hesperian Blvd	2400				856						
	E/W:	Winton Ave	SBR		SBT		SBL						
			1050		1246		104						
	2006	EBL	220					90		WBR	1193		
		EBT	280			4861		913		WBT			
	563	EBR	63					190		WBL	500		
			43		546		116						
			NBL		NBT		NBR						
			1499				705						

Raw Base Model AM					
Intersection	Int. 1	Raw Base Model AM			
1. Industrial Blvd / Clawiter Rd	N/S:	Industrial Blvd	96	295	
	E/W:	Clawiter Rd			
		18			178
		24		433	42
2. Industrial Blvd / Depot Rd	Int. 2	Raw Base Model AM			
	N/S:	Industrial Blvd	42	178	
	E/W:	Depot Rd			
		488			38
		99		807	13
3. Industrial Blvd / Driveway	Int. 3	Raw Base Model AM			
	N/S:	Industrial Blvd	128	629	
	E/W:	Driveway			
		280			2
		29		1066	1
4. Industrial Blvd / Bridge Entrance	Int. 4	Raw Base Model AM			
	N/S:	Industrial Blvd	128	629	
	E/W:	Bridge Entrance			
		280			2
		29		1066	1
5. Industrial Blvd / Hayward Apartments	Int. 5	Raw Base Model AM			
	N/S:	Industrial Blvd	128	629	
	E/W:	Hayward Apartments			
		280			2
		29		1066	1
			156	907	

		Int. 6	Raw Base Model AM			
6. Industrial Blvd / 92 W On Ramp/E Off Ramp/Cryer	N/S:	Industrial Blvd	156	906		
	E/W:	92 W On Ramp/E Off Ramp/Cryer				
		469				78
		1034		2109		31
			703	841		
		Int. 7	Raw Base Model AM			
7. Industrial Blvd / 92 E On Ramp/W Off Ramp/ Sleepy Hallow	N/S:	Industrial Blvd	703	841		
	E/W:	92 E On Ramp/W Off Ramp/ Sleepy Hallow				
		235				0
		230		1898		0
			822	965		
		Int. 8	Raw Base Model AM			
8. Industrial Blvd / Tennyson Road	N/S:	Industrial Blvd	822	965		
	E/W:	Tennyson Road				
		0				121
		0		1425		15
			445	482		
		Int. 9	Raw Base Model AM			
9. Hesperian Blvd / Tennyson Road	N/S:	Hesperian Blvd	1528	2712		
	E/W:	Tennyson Road				
		96				907
		12		4499		241
			1450	2052		
		Int. 10	Raw Base Model AM			
10. Clawiter Rd / Winton Ave	N/S:	Clawiter Rd	98	305		
	E/W:	Winton Ave				
		1432				1815
		210		2240		313
			190	117		

		Int. 11	Raw Base Model AM				
11. Hesperian Blvd / Winton Ave	N/S:	Hesperian Blvd	1642	663			
	E/W:	Winton Ave					
		1870				1575	
		384		4304		466	
			1305	703			

Raw Future Model AM					
Intersection	Int. 1	Raw Future Model AM			
1. Industrial Blvd / Clawiter Rd	N/S: E/W:	Industrial Blvd	465	509	
		Clawiter Rd			
		37			378
				1044	
		32			112
			386	169	
2. Industrial Blvd / Depot Rd	Int. 2 N/S: E/W:	Raw Future Model AM Industrial Blvd	112	378	
		Depot Rd			
		28			41
				528	
		10			16
			106	365	
3. Industrial Blvd / Driveway	Int. 3 N/S: E/W:	Raw Future Model AM Industrial Blvd	106	629	
		Driveway			
		296			2
				1065	
		33			1
			139	924	
4. Industrial Blvd / Bridge Entrance	Int. 4 N/S: E/W:	Raw Future Model AM Industrial Blvd	106	629	
		Bridge Entrance			
		296			2
				1065	
		33			1
			139	924	
5. Industrial Blvd / Hayward Apartments	Int. 5 N/S: E/W:	Raw Future Model AM Industrial Blvd	106	366	
		Hayward Apartments			
		296			2
				802	
		33			1
			139	661	

		Int. 6	Raw Future Model AM			
6. Industrial Blvd / 92 W On Ramp/E Off Ramp/Cryer	N/S:	Industrial Blvd	139	659		
	E/W:	92 W On Ramp/E Off Ramp/Cryer				
		575				121
		982		2279		148
			897	1037		
		Int. 7	Raw Future Model AM			
7. Industrial Blvd / 92 E On Ramp/W Off Ramp/ Sleepy Hallow	N/S:	Industrial Blvd	897	1038		
	E/W:	92 E On Ramp/W Off Ramp/ Sleepy Hallow				
		334				0
		412		2586		0
			1214	1277		
		Int. 8	Raw Future Model AM			
8. Industrial Blvd / Tennyson Road	N/S:	Industrial Blvd	1214	1277		
	E/W:	Tennyson Road				
		0				206
		0		2100		50
			773	680		
		Int. 9	Raw Future Model AM			
9. Hesperian Blvd / Tennyson Road	N/S:	Hesperian Blvd	2768	2944		
	E/W:	Tennyson Road				
		168				1198
		41		6326		499
			2715	2319		
		Int. 10	Raw Future Model AM			
10. Clawiter Rd / Winton Ave	N/S:	Clawiter Rd	113	339		
	E/W:	Winton Ave				
		1352				2011
		266		2660		455
			514	270		

11. Hesperian Blvd / Winton Ave	Int. 11	Raw Future Model AM			
	N/S:	Hesperian Blvd	3218	1552	
	E/W:	Winton Ave			
		2052			1703
			7010		
		532			606
			2800	1557	

Intersection	Future Volume Calculation from Furness- AM													Background Volume Calculation-AM														
11- Hesperian Blvd and Winton Ave	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			43	546	116	104	1246	1050	220	280	63	190	913		90													
fu-np-Am			70	1300	210	150	2580	1260	320	300	110	320	1000		140		49.00	710.00	136.00	114.00	1536.00	1096.00	242.00	284.00	73.00	218.00	932.00	101.00
10- Clawiter Rd and Winton Ave	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			183	1	193	1				275	92	925	1105		3													
fu-np-Am			230	10	300	10				310	130	1220	1200		10		0.00	193.00	3.00	216.00	3.00	0.00	0.00	0.00	283.00	100.00	989.00	1126.00
9- Hersperian Blvd and Tennyson Rd	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			95	1055	50	157	834	172	136	177	39	218	712		236													
fu-np-Am			110	1270	100	330	1880	210	160	220	60	430	750		290		0.00	98.00	1102.00	61.00	195.00	1061.00	180.00	141.00	186.00	44.00	264.00	720.00
8- Industrial Blvd and Tennyson Rd	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am				868	42	101	722					437	525															
fu-np-Am				1080	80	140	1080					560	640				0.00	0.00	914.00	50.00	109.00	800.00	0.00	0.00	0.00	0.00	464.00	0.00
7- Industrial Blvd and SR 92 EB Ramp	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			103	1248	4	36	535	201	136	6	309	18	38		151													
fu-np-Am			180	1530	10	40	730	220	160	10	510	30	50		180		0.00	120.00	1309.00	5.00	37.00	577.00	205.00	141.00	7.00	353.00	21.00	41.00
6- Industrial Blvd and SR 92 WB Ramp	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			484	930	121	6	575	179	134	6	39	157	33		22													
fu-np-Am			710	1000	250	10	670	270	200	10	70	240	60		40		0.00	533.00	945.00	149.00	7.00	596.00	199.00	148.00	7.00	46.00	175.00	39.00
5- Industrial and Hayward Apartments	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			142	900	10	7	742	49	53	1	32	2	1															
fu-np-Am			160	1000	20	20	855	80	80	10	55	10	10				0.00	146.00	922.00	12.00	10.00	767.00	56.00	59.00	3.00	37.00	4.00	0.00
4- Industrial Blvd and Bridge Entrance	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			52	851	26	12	665	26			6	97	1		23													
fu-np-Am			80	1000	40	30	770	40			10	150	10		40		0.00	58.00	883.00	29.00	16.00	688.00	29.00	0.00	0.00	7.00	109.00	3.00
3- Industrial Blvd and Project Access	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am				860			703																					
fu-np-Am				1080			880										0.00	0.00	908.00	0.00	0.00	741.00	0.00	0.00	0.00	0.00	0.00	0.00
2- Industrial Blvd and Depot Rd	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			407	374	72	6	438	49	9	16	110	95	134		28													
fu-np-Am			450	490	90	20	580	100	10	20	150	110	150		130		0.00	416.00	399.00	76.00	9.00	469.00	60.00	9.00	17.00	119.00	98.00	137.00
1- Industrial Blvd and Clawtier Rd	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	b-np-pm	NBU	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
ex-np-Am			26	352	6		514	795	120	2	12	4	2															
fu-np-Am			55	480	20		700	840	130	20	30	20	20				0.00	32.00	380.00	9.00	0.00	554.00	805.00	122.00	6.00	16.00	7.00	0.00

Intersection	Future Volume Calculation from Furness- PM															Background Volume Calculation-PM															
11- Hesperian Blvd and Winton Ave	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-pm	24	34	1068	190		149	629	212	654	943	71	218	366	138																	
fu-np-PM	40	80	2080	470		270	1270	310	680	1000	100	310	370	250	b-np-pm	27.00	44.00	1288.00	251.00		175.00	768.00	233.00	660.00	955.00	77.00	238.00	367.00	162.00		
10- Clawiter Rd and Winton Ave	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM	26	131		517		7			3	975	251	243	361																		
fu-np-PM	40	240	0	850		30	0	0	40	1200	270	360	400	0	b-np-pm	29.00	131.00	0.00	589.00		7.00	0.00	0.00	3.00	1024.00	251.00	243.00	361.00	0.00		
9- Hesperian Blvd and Tennyson Rd	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM	29	77	1053	119	26	260	808	84	162	476	66	244	245	193																	
fu-np-PM	45	110	1660	320	40	550	1110	100	190	650	80	370	300	270	b-np-pm	32.00	84.00	1185.00	163.00	29.00	323.00	874.00	87.00	168.00	514.00	69.00	271.00	257.00	210.00		
8- Industrial Blvd and Tennyson Rd	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM				672	148		443	938					74	153																	
fu-np-pm				1200	170		590	1310					80	260	b-np-pm	0.00	0.00	787.00	153.00		475.00	1019.00	0.00	0.00	0.00	0.00	75.00	0.00	176.00		
7- Industrial Blvd and SR 92 EB Ramp	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			72	698	5		67	720	184	227	76	570	6	14	52																
			170	1100	30		100	900	330	290	100	980	10	30	67	b-np-pm	0.00	93.00	785.00	10.00		74.00	759.00	216.00	241.00	81.00	659.00	7.00	17.00	55.00	
6- Industrial Blvd and SR 92 WB Ramp	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			262	638	72		6	784	97	177	26	121	64	12	8																
fu-np-PM			460	750	220		10	890	170	200	70	370	90	20	10	b-np-pm	0.00	305.00	662.00	104.00		7.00	807.00	113.00	182.00	36.00	175.00	70.00	14.00	8.00	
5- Industrial and Hayward Apartments	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			32	779	12		4	799	56	44	5	80	8	2	7																
fu-np-PM			45	860	20		10	1000	80	70	10	90	10	10	10	b-np-pm	0.00	35.00	797.00	14.00		5.00	843.00	61.00	50.00	6.00	82.00	8.00	4.00	8.00	
4- Industrial Blvd and Bridge Entrance	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			2	755	62		18	800	2	13		20	39	14																	
fu-np-PM			10	850	100		30	930	10	30		40	60	20	b-np-pm	0.00	4.00	776.00	70.00		21.00	828.00	4.00	17.00	0.00	24.00	44.00	0.00	15.00		
3- Industrial Blvd and Project Access	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM				789				785																							
fu-np-PM				950				950							b-np-pm	0.00	0.00	824.00	0.00		0.00	821.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2- Industrial Blvd and Depot Rd	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			175	489	125		33	363	6	32	121	298	54	36	31																
fu-np-PM			190	630	130		70	460	10	60	150	360	80	60	60	b-np-pm	0.00	178.00	520.00	126.00		41.00	384.00	7.00	38.00	127.00	311.00	60.00	41.00	37.00	
1- Industrial Blvd and Clawtier Rd	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR		
ex-np-PM			26	536			1	359	197	499	3	12	8	1	3																
fu-np-PM			60	750	0		10	450	250	550	10	30	30	10	10	b-np-pm	0.00	33.00	583.00	0.00		3.00	379.00	209.00	510.00	5.00	16.00	13.00	3.00	5.00	