LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
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December 4, 2019

Mr. Mike Beach
Ridgetop Engineering
5255 Ronald Reagan Blvd., Suite 210
Johnstown, CO 80534

Re: TLE Parker
Parker, CO
LSC #190581

Dear Mr. Beach:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed TLE Parker development in Parker, Colorado. As shown on Figure 1, the site is located north of Hess Road, south of Triple Crown Drive, and west of Pardee Street.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected short-term and long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include a 10,000 square-foot daycare center, about 2,500 square feet of retail land use, and a 2,500 square-foot fast-food restaurant. Full movement access is proposed to Pardee Street and Triple Crown Drive as shown in the conceptual site plan in Figure 2.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **Hess Road** is an east-west, four-lane major arterial roadway south of the site. The intersection with Pardee Street is stop-sign controlled. The posted speed limit in the vicinity of

the site is 45 mph. The intersection with Pardee Street is planned to be signalized once warrants are met.

- **Motsenbocker Road** is a north-south, two-lane collector roadway east of the site. The intersection with Triple Crown Drive is stop-sign controlled. The posted speed limit in the vicinity of the site is 35 mph.

- **Triple Crown Drive** is an east-west, two-lane local street north of the site. The intersections with Motsenbocker Road and Pardee Street are stop-sign controlled. No speed limit is posted in the vicinity of the site.

- **Pardee Street** is a short, north-south, two-lane local street east of the site. The intersections with Motsenbocker Road and Hess Road are stop-sign controlled. No speed limit is posted in the vicinity of the site. The intersection with Hess Road is planned to be signalized once warrants are met.

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, posted speed limits, and traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in November, 2019.

2021 and 2040 Background Traffic

Figure 4 shows the estimated 2021 background traffic, lane geometry, and traffic control based on an annual growth rate of three percent on Hess Road, two percent on Motsenbocker Road, and no additional development in the overall Horseshoe Ridge Commercial property.

Figure 5 shows the estimated 2040 background traffic, lane geometry, and traffic control based on an annual growth rate of one percent on Hess Road, two percent on Motshenbocker Road, and buildout of the balance of the Horseshoe Ridge Commercial property between 2021 and 2040.

Existing, 2021, and 2040 Background Levels of Service

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for unsignalized intersections.

The intersections in Figures 3, 4, and 5 were analyzed as appropriate to determine the existing, 2021, and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Hess Road/Pardee Street:** All movements at this unsignalized intersection currently operate at LOS "C" or better during both morning and afternoon peak-hours with the exception of the southbound left-turn movement which operates at LOS "F" during both peak-hours. It is expected to do so through 2021. Drivers making this movement will have the

option to exit the site via the Motsenbocker Road/Triple Crown Drive intersection. In 2040, this intersection is expected to be signalized and as such is expected to operate at an overall LOS "C" during the morning peak-hour and LOS "B" during the afternoon peak-hour.

- **Pardee Street/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.

- **Pardee Street/Triple Crown Crive:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2040.

- **Motsenbocker Road/Triple Crown Drive:** All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 10th Edition, 2017* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The site is projected to generate about 1,388 external one-way vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 110 vehicles would enter and about 102 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 111 vehicles would enter and about 116 vehicles would exit. The peak-hour estimates include pass-by trips (34% for the retail land use and 50% for the fast-food restaurant land use).

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site's proposed land use.

TRIP ASSIGNMENT

Figure 7a shows the estimated primary site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the primary trip generation estimate (from Table 2).

Figure 7b shows the estimated passby site-generated traffic volumes based on the directional split of traffic on Hess Road and the passby trip generation estimate (from Table 2).

2021 AND 2040 TOTAL TRAFFIC

Figure 8 shows the 2021 total traffic which is the sum of the 2021 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figures 7a and 7b). Figure 8 also shows the recommended 2021 lane geometry and traffic control.

Figure 9 shows the 2040 total traffic which is the sum of 2040 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figures 7a and 7b). Figure 9 also shows the recommended 2040 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8 and 9 were analyzed to determine the 2021 and 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Hess Road/Pardee Street:** All movements are expected to operate at LOS "C" or better during both peak-hours in 2021 with the exception of the southbound left-turn movement which is expected to operate at LOS "F" prior to traffic signal control. Drivers making this movement will have the option to exit the site via the Motsenbocker Road/Triple Crown Drive intersection. This signalized intersection is expected to operate at an overall LOS "D" during the morning peak-hour and LOS "C" during the afternoon peak-hour through 2040.

- **Pardee Street/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2040.

- **Pardee Street/Triple Crown Drive:** All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.

- **Triple Crown Drive/Site Access:** All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2040.

- **Motsenbocker Road/Triple Crown Drive:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better through 2040.

PROJECTED QUEUE LENGTHS

The southbound left-turn and through/right lanes at the Hess Road/Pardee Street intersection have the potential to queue back to the site access intersection and result in poor sight distance to/from the site access south to Hess Road. The site access may need to be converted to three-quarter movement over time. The east side of the intersection does not have this issue and can likely remain full movement.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 1,388 external one-way vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 110 vehicles would enter and 102 vehicles would exit the site. During the afternoon peak-hour, about 111 vehicles would enter and about 116 vehicles would exit. The peak-hour estimates include pass-by trips (34% for the retail land use and 50% for the fast-food restaurant land use).

Projected Levels of Service

2. All movements at the unsignalized intersections analyzed are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2040 with the following exception: The southbound left-turn movement at the Hess Road/ Pardee Street intersection is expected to operate at LOS "F" during both peak-hours until the intersection is signalized in 2040.

Conclusions

3. The impact of the proposed TLE Parker development can be accommodated by the existing and planned roadway network. This includes signalization of the Hess Road/Pardee Street intersection some time between 2021 and 2040.

4. The Town of Parker should consider restriping the opposing left-turn lanes on Motsenbocker Road at the Triple Crown Drive intersection so they are in alignment to improve sight distance for these movements.

5. The west side of the site access intersection may need to be restricted to three-quarter movement by 2040 due to poor sight distance to the south towards Hess Road caused by traffic signal queues. The east side of the intersection does not have this issue.

* * * * *

We trust our findings will assist you in gaining approval of the proposed TLE Parker development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By _____
Christopher S. McGranahan, PE, PTOE
Principal

COLORADO LICENSED
CHRISTOPHER S. MCGRANAHAN
39018
PROFESSIONAL ENGINEER

12-4-19

CSM/wc

Enclosures: Tables 1 and 2
Figures 1 - 9
Traffic Count Reports
Level of Service Definitions
Level of Service Reports

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Table 1
Intersection Levels of Service Analysis
TLE Parker
Parker, CO
LSC #190581; December, 2019

		Existing Traffic		2021 Background		2021 Total		2040 Background		2040 Total	
Intersection Location	Traffic Control	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM
Hess Road/Pardee Street	TWSC										
EB Left		C	A	C	A	C	B	--	--	--	--
SB Left		F	F	F	F	F	F	--	--	--	--
Critical Movement Delay		>240	71.0	>240	87.3	>240	>240	--	--	--	--
	Signalized										
EB Left		--	--	--	--	--	--	D	A	E	B
EB Through		--	--	--	--	--	--	A	C	B	C
EB Right		--	--	--	--	--	--	A	A	A	A
WB Left		--	--	--	--	--	--	A	A	A	A
WB Through		--	--	--	--	--	--	D	B	D	B
WB Right		--	--	--	--	--	--	A	A	A	A
NB Left		--	--	--	--	--	--	E	D	E	D
NB Through/Right		--	--	--	--	--	--	B	B	B	C
SB Left		--	--	--	--	--	--	D	D	D	D
SB Through/Right		--	--	--	--	--	--	C	B	D	B
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	31.8	19.0	38.6	20.3
Entire Intersection LOS		--	--	--	--	--	--	C	B	D	C
Pardee Street/Site Access	TWSC										
NB Through or Through/Right		--	--	--	--	A	A	--	--	A	A
EB Approach		--	--	--	--	A	A	--	--	A	A
WB Approach		--	--	--	--	--	--	B	B	C	C
SB Through or Through/Right		--	--	--	--	--	--	A	A	A	A
Critical Movement Delay		--	--	--	--	9.4	9.0	10.8	11.1	17.9	19.7
Pardee Street/Triple Crown Drive	TWSC										
NB Left		A	A	A	A	A	A	B	B	B	B
NB Right		A	A	A	A	A	A	A	A	A	A
WB Left		A	A	A	A	A	A	A	A	A	A
Critical Movement Delay		9.3	9.0	9.3	9.0	9.5	9.1	10.2	10.1	10.4	10.3
Triple Crown Drive/Site Access	TWSC										
NB Approach		--	--	--	--	A	A	--	--	A	A
WB Left/Through		--	--	--	--	A	A	--	--	A	A
Critical Movement Delay		--	--	--	--	8.9	8.8	--	--	9.3	9.1
Motsenbocker Road/Triple Crown Drive	TWSC										
NEB Left		B	B	B	B	B	B	B	B	C	B
NWB Left		A	A	A	A	A	A	A	A	A	A
SEB Approach		A	A	A	A	A	A	A	A	A	A
SWB Approach		A	A	B	B	B	B	B	B	B	B
Critical Movement Delay		12.6	10.3	12.9	10.3	13.1	10.4	14.8	13.4	15.0	13.6

Table 2
ESTIMATED TRAFFIC GENERATION COMPARISON
TLE Parker
Parker, CO
LSC #190581; December, 2019

		Trip Generation Rates [1] [2]					Vehicle-Trips Generated				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
Previously Proposed Land Use (September 12, 2006 *Horseshoe Ridge Commercial TIA* by Eugene G. Coppola)											
Daycare	4.5 KSF	79.26	6.779	6.011	6.195	6.985	357	31	27	28	31
Sit Down Restaurant	5.3 KSF	127.15	5.990	5.530	6.661	4.259	674	32	29	35	23
						Total =	**1,031**	**63**	**56**	**63**	**54**
Currently Proposed Land Use											
Daycare Center [3]	10 KSF [4]	47.62	5.830	5.170	5.226	5.894	476	58	52	52	59
Retail [5]	2.5 KSF	195.74	0.583	0.357	6.806	7.373	489	1	1	17	18
Fast Food Restaurant [6]	2.5 KSF	470.95	20.497	19.693	16.988	15.682	1,177	51	49	42	39
						Total =	**2,142**	**110**	**102**	**111**	**116**
						Passby Trips [7] =	*754*	*25*	*25*	*26*	*26*
						Net Total =	**1,388**	**85**	**77**	**85**	**90**
						Net Increase =	**357**	**22**	**21**	**22**	**36**
								AM = 43		**PM = 58**	

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 7th Edition, 2003 for previous land use per the 2006 TIS.
(2) Source: Trip Generation, Institute of Transportation Engineers, 10th Edition, 2017 for current land use.
(3) ITE Land Use 565 - Day Care Center - average rates
(4) KSF = 1,000 Square Feet
(5) ITE Land Use No. 820 - Shopping Center - formula rates for ADT and PM; average rates for AM
(6) ITE Land Use No. 934 - Fast Food Restaurant - average rates
(7) Passby trips are assumed to be 34% for the retail land use and 50% for the fast food restaurant land use based on the percentages in the ITE *Trip Generation Handbook*, 3rd Edition.

TRANSPORTATION CONSULTANTS, INC.

Approximate Scale
Scale: 1"=1,000'

Figure 1

Vicinity Map

TLE Parker (LSC #190581)

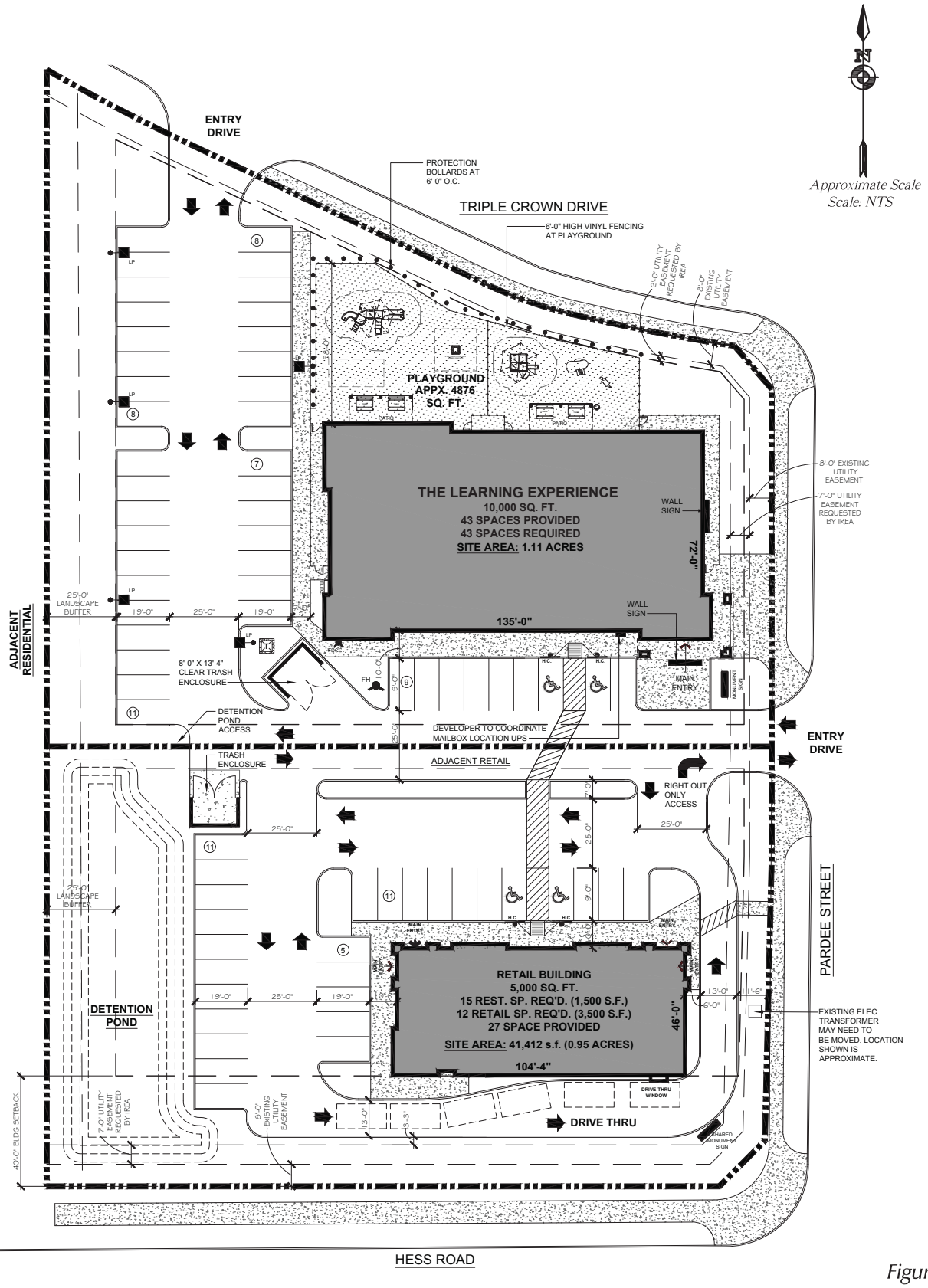

Figure 2

Site Plan

TLE Parker (LSC #190581)

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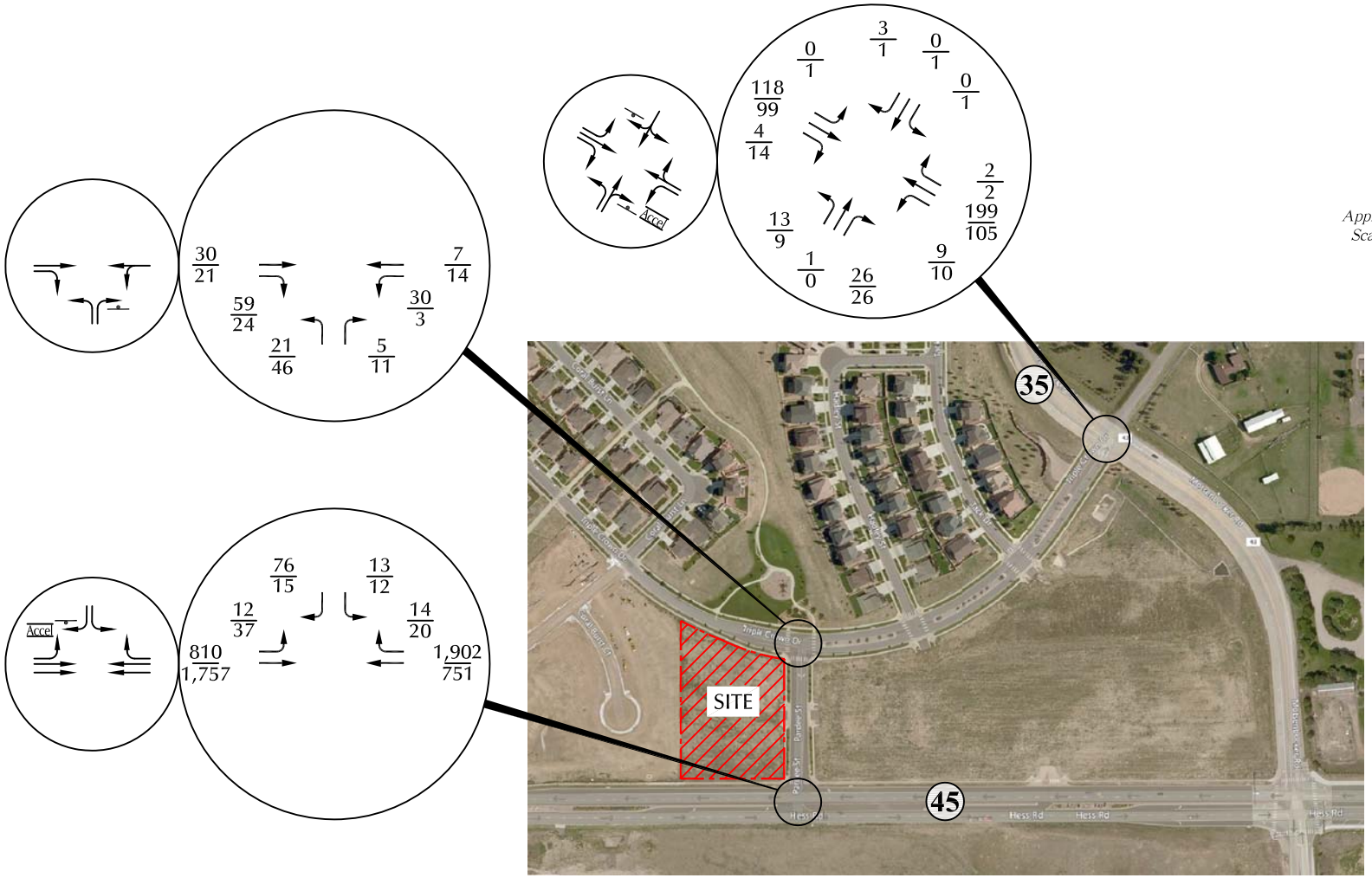
Accel
30/21
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21/46
5/11
30/3
7/14
Accel
0/1
3/1
0/1
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118/99
4/14
2/2
199/105
13/9
1/0
26/26
9/10
Accel
76/15
13/12
12/37
14/20
810/1,757
1,902/751
35
45
SITE
Hess Rd
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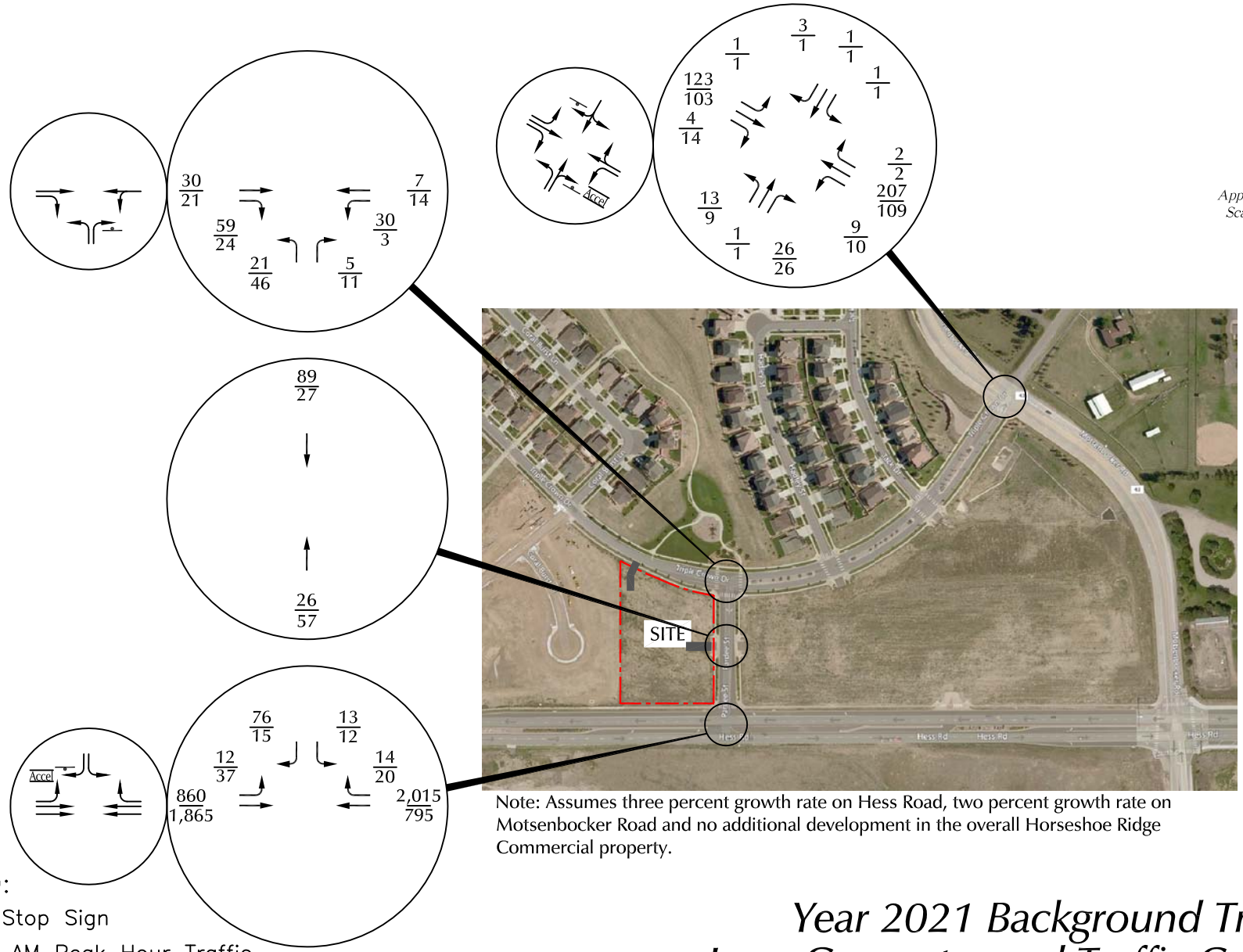
Hess Rd
Triple Crown Dr
Dunbar St
Dunbar St
Triple Crown Dr
Triple Crown Dr
Triple Crown Dr



Note: Assumes three percent growth rate on Hess Road, two percent growth rate on Motsenbocker Road and no additional development in the overall Horseshoe Ridge Commercial property.

LEGEND:

⊦ = Stop Sign

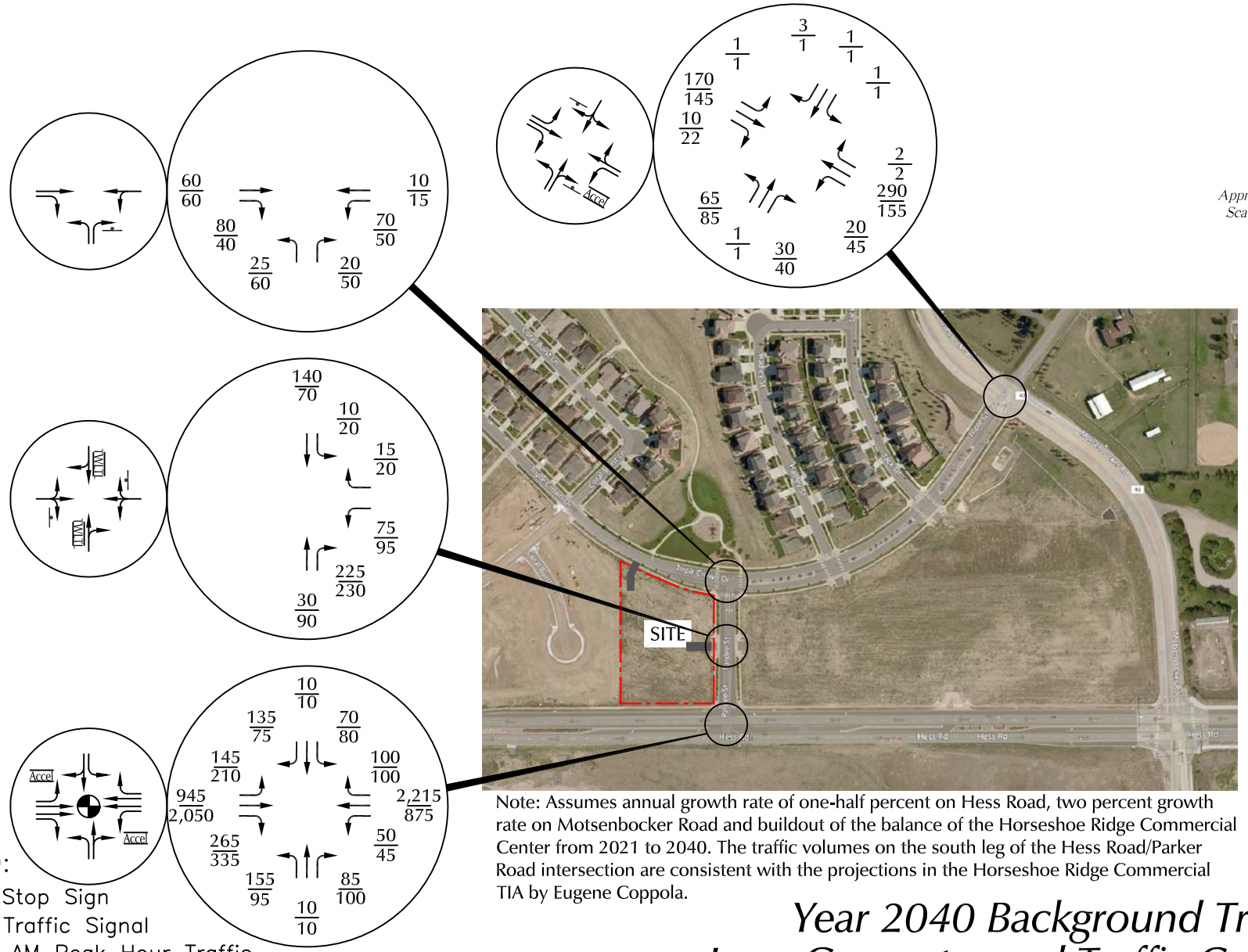
26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Figure 4

Year 2021 Background Traffic, Lane Geometry and Traffic Control

TLE Parker (LSC #190581)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Note: Assumes annual growth rate of one-half percent on Hess Road, two percent growth rate on Motsenbocker Road and buildout of the balance of the Horseshoe Ridge Commercial Center from 2021 to 2040. The traffic volumes on the south leg of the Hess Road/Parker Road intersection are consistent with the projections in the Horseshoe Ridge Commercial TIA by Eugene Coppola.

Figure 5

Year 2040 Background Traffic, Lane Geometry and Traffic Control

TLE Parker (LSC #190581)

Approximate Scale
Scale: 1"=1,000'

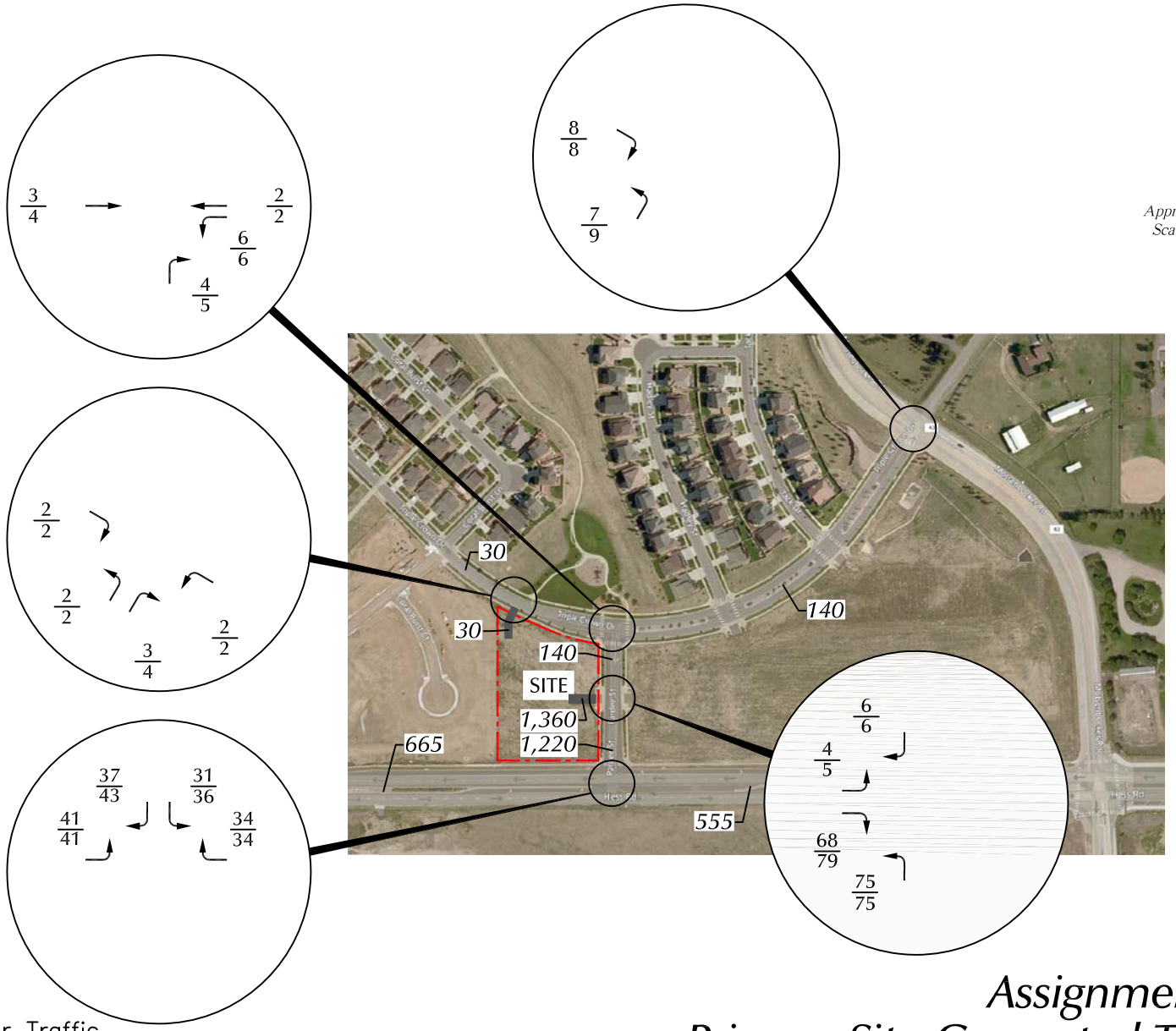
LEGEND:

65% = Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

TLE Parker (LSC #190581)



LEGEND:

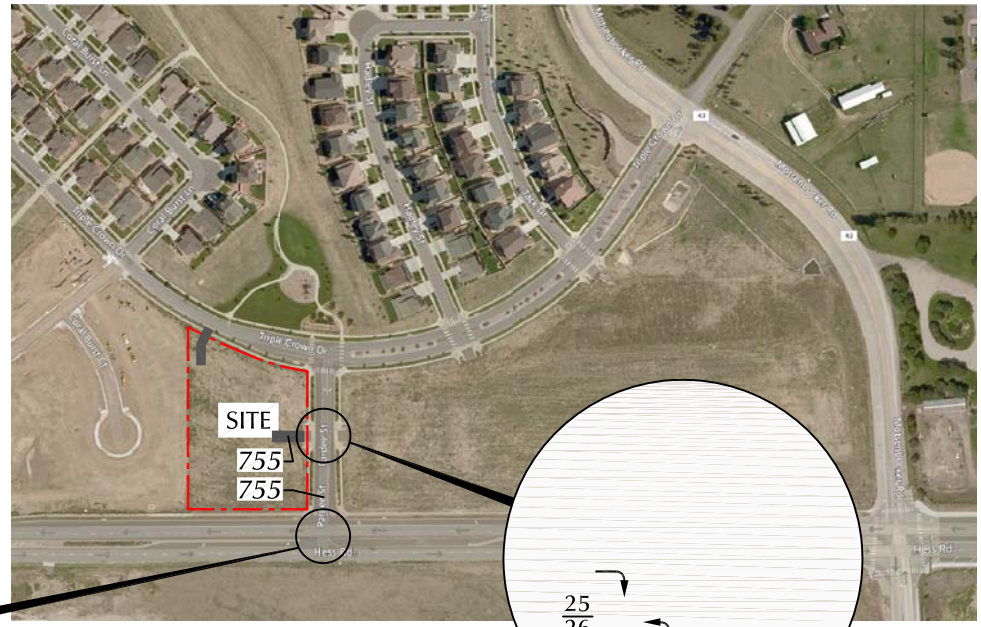
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

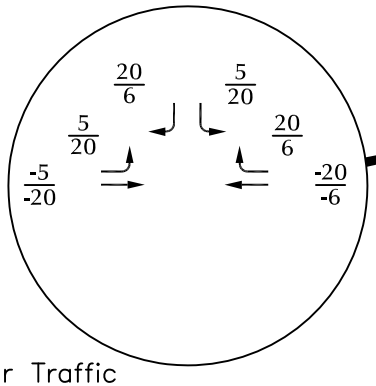
1,000 = Average Daily Traffic

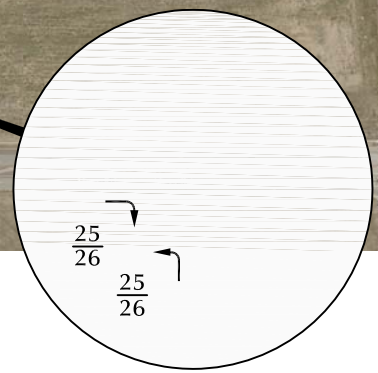
Figure 7a

Assignment of Primary Site-Generated Traffic

TLE Parker (LSC #190581)







LEGEND:

$\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Approximate Scale
Scale: 1"=400'

Figure 7b

Assignment of Passby Site-Generated Traffic

TLE Parker (LSC #190581)

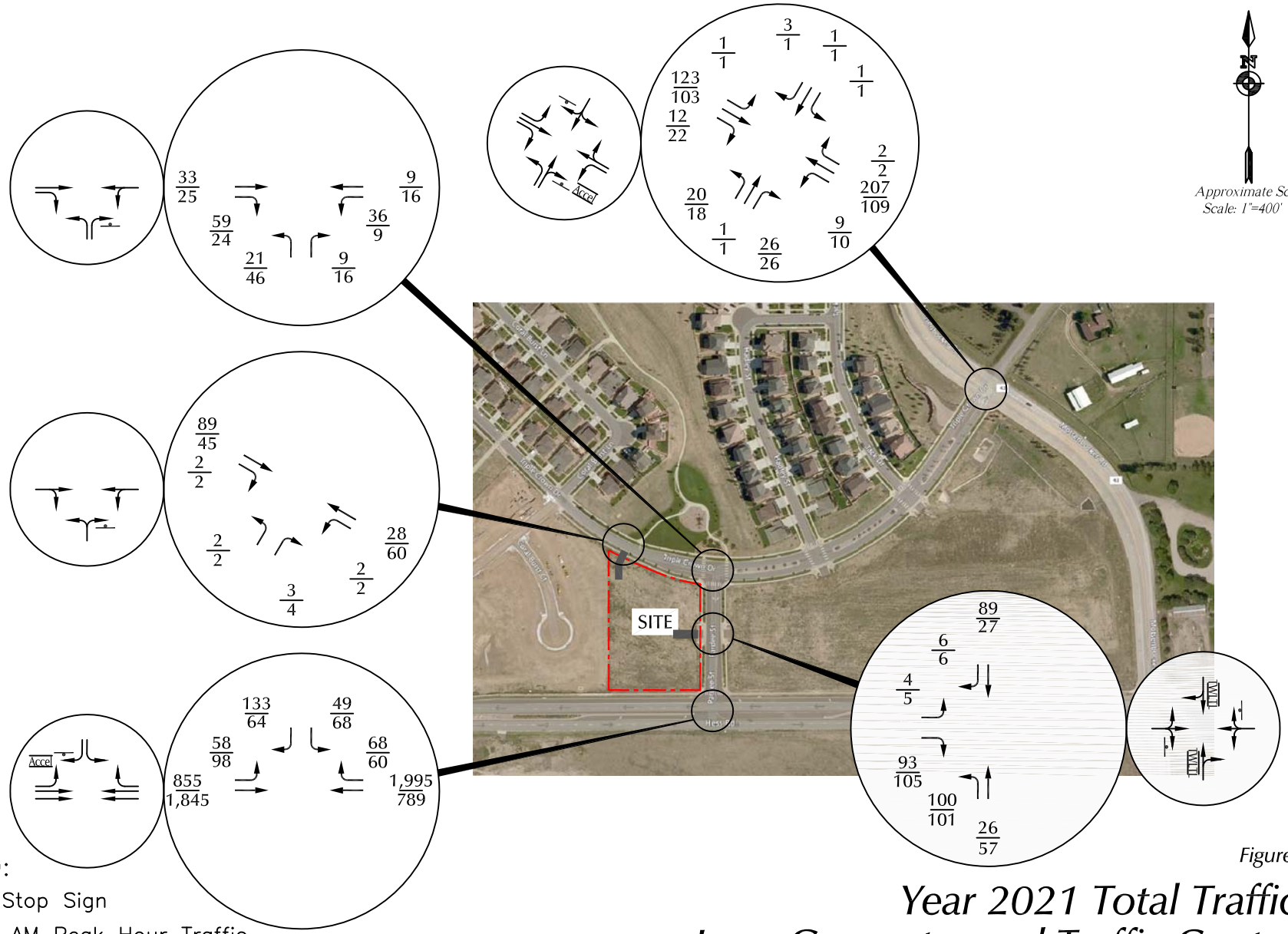
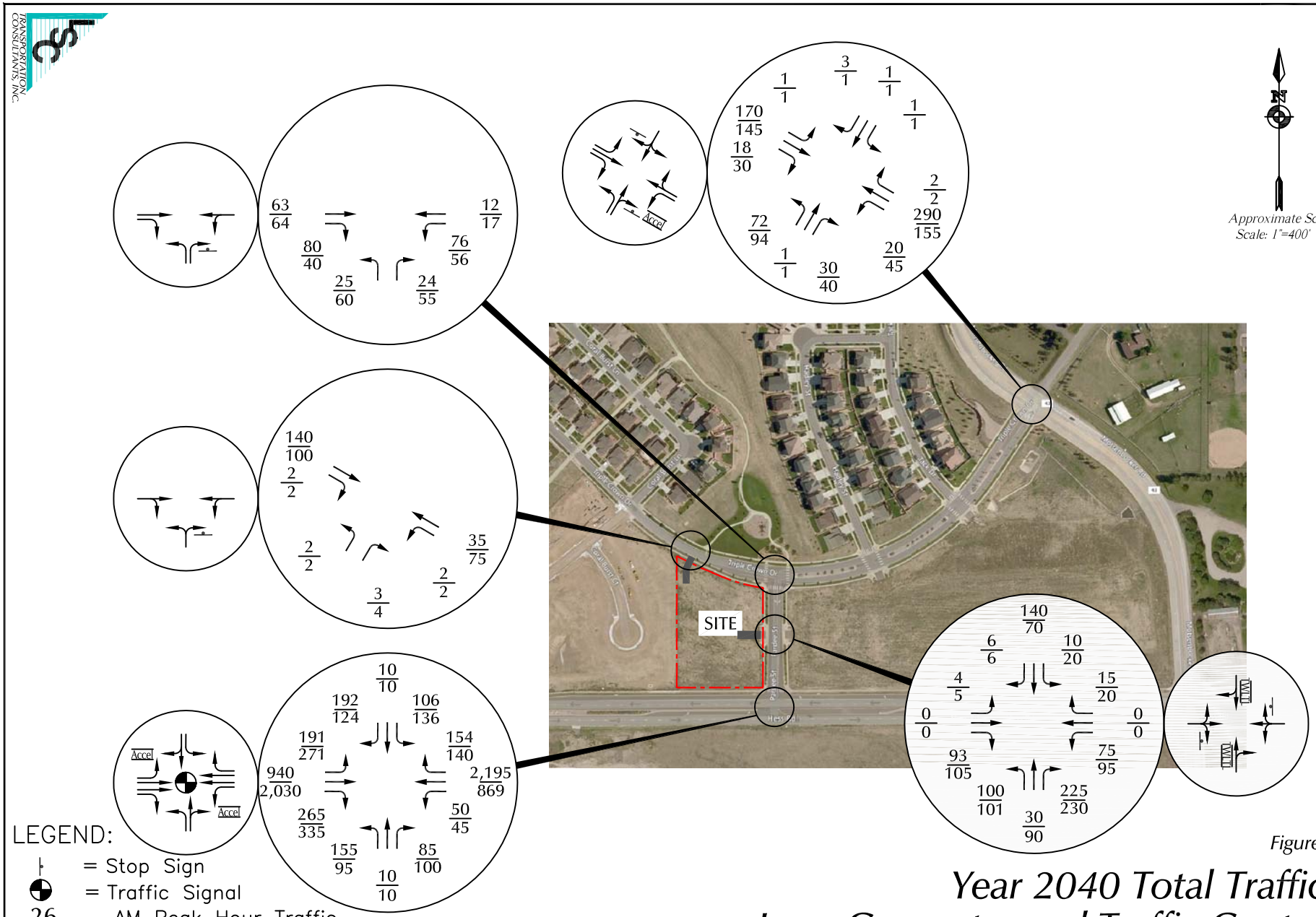


Figure 8

Year 2021 Total Traffic, Lane Geometry and Traffic Control

TLE Parker (LSC #190581)



LEGEND:

= Stop Sign

= Traffic Signal

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 9

Year 2040 Total Traffic, Lane Geometry and Traffic Control

TLE Parker (LSC #190581)

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MOTSENBOCKER RD
E/W STREET: TRIPLE CROWN DR
CITY: PARKER
COUNTY: DOUGLAS RD

File Name : MOTSTRIP
Site Code : 00000008
Start Date : 11/5/2019
Page No : 1

Groups Printed- VEHICLES

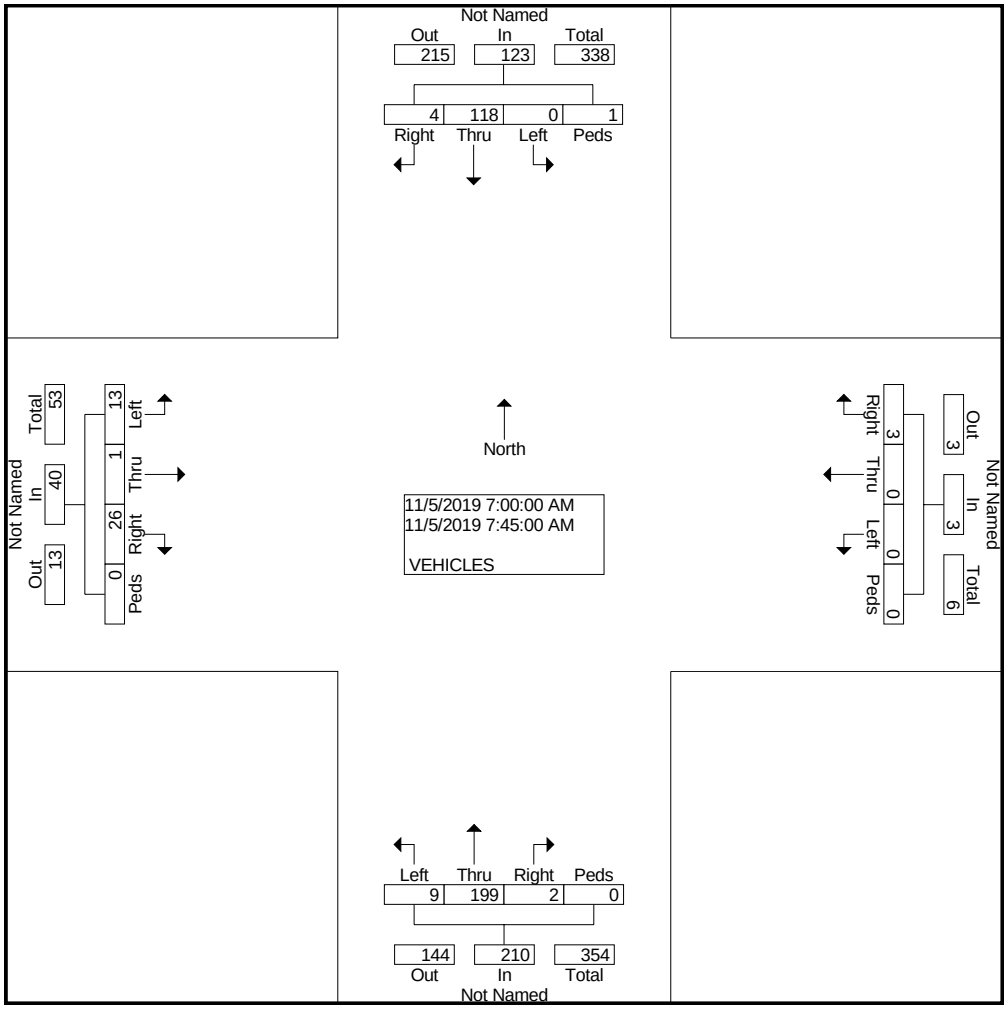
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	1	7	0	0	0	0	0	0	2	22	0	0	0	0	4	0	36
06:45 AM	0	10	1	1	2	0	0	0	0	33	0	0	2	0	6	0	55
Total	1	17	1	1	2	0	0	0	2	55	0	0	2	0	10	0	91
07:00 AM	0	11	2	0	0	0	1	0	2	25	0	0	1	0	2	0	44
07:15 AM	0	28	1	0	0	0	1	0	2	40	0	0	4	1	16	0	93
07:30 AM	0	35	0	1	0	0	1	0	2	57	0	0	4	0	7	0	107
07:45 AM	0	44	1	0	0	0	0	0	3	77	2	0	4	0	1	0	132
Total	0	118	4	1	0	0	3	0	9	199	2	0	13	1	26	0	376
08:00 AM	0	31	4	0	1	0	1	0	3	32	2	0	1	0	5	0	80
08:15 AM	0	30	2	0	2	0	0	0	2	34	0	0	0	0	8	0	78
Total	0	61	6	0	3	0	1	0	5	66	2	0	1	0	13	0	158
04:00 PM	1	50	5	0	1	1	0	0	6	43	0	0	2	0	0	0	109
04:15 PM	0	41	2	1	1	0	2	0	5	24	0	0	3	0	6	0	85
04:30 PM	2	25	3	0	1	0	1	0	2	33	1	0	3	0	5	0	76
04:45 PM	1	17	4	0	0	0	0	0	2	28	1	0	2	0	2	0	57
Total	4	133	14	1	3	1	3	0	15	128	2	0	10	0	13	0	327
05:00 PM	0	34	1	0	0	1	0	0	2	19	1	0	1	0	6	0	65
05:15 PM	0	20	4	0	1	0	1	0	2	31	0	0	4	0	9	0	72
05:30 PM	0	28	5	0	0	0	0	0	4	27	0	0	2	0	9	0	75
05:45 PM	0	23	3	0	0	0	0	0	6	19	0	0	0	0	7	0	58
Total	0	105	13	0	1	1	1	0	14	96	1	0	7	0	31	0	270
Grand Total	5	434	38	3	9	2	8	0	45	544	7	0	33	1	93	0	1222
Apprch %	1.0	90.4	7.9	0.6	47.4	10.5	42.1	0.0	7.6	91.3	1.2	0.0	26.0	0.8	73.2	0.0	
Total %	0.4	35.5	3.1	0.2	0.7	0.2	0.7	0.0	3.7	44.5	0.6	0.0	2.7	0.1	7.6	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MOTSENBOCKER RD
E/W STREET: TRIPLE CROWN DR
CITY: PARKER
COUNTY: DOUGLAS RD

File Name : MOTSTRIP
Site Code : 00000008
Start Date : 11/5/2019

	Southbound					Westbound					Northbound					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	Int. Total
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	0	118	4	1	123	0	0	3	0	3	9	199	2	0	210	13	1	26	0	40	376
Percent	0.0	95.9	3.3	0.8		0.0	0.0	100.0	0.0		4.3	94.8	1.0	0.0		32.5	2.5	65.0	0.0		
07:45 Volume	0	44	1	0	45	0	0	0	0	0	3	77	2	0	82	4	0	1	0	5	132
Peak Factor																					0.712
High Int.	07:45 AM					07:00 AM					07:45 AM					07:15 AM					
Volume	0	44	1	0	45	0	0	1	0	1	3	77	2	0	82	4	1	16	0	21	
Peak Factor					0.683					0.750					0.640					0.476	



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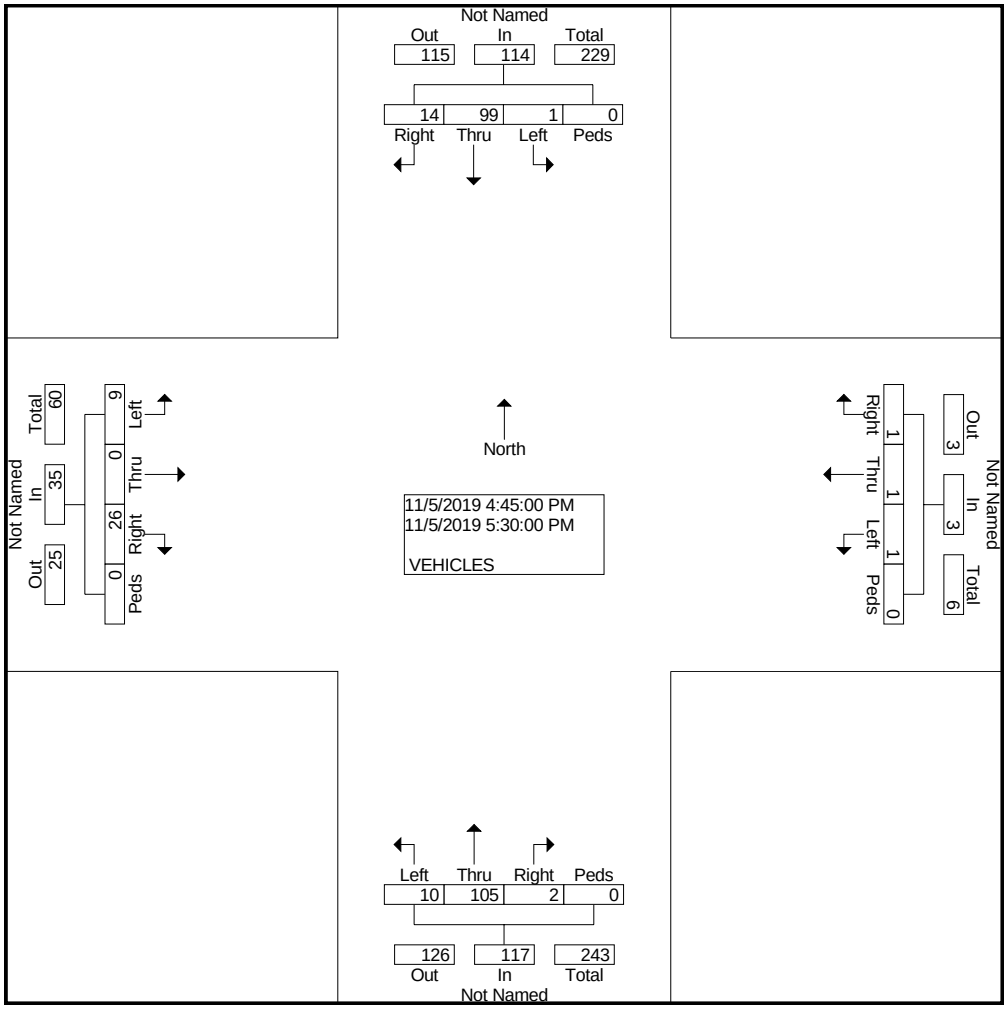
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MOTSENBOCKER RD
E/W STREET: TRIPLE CROWN DR
CITY: PARKER
COUNTY: DOUGLAS RD

File Name : MOTSTRIP
Site Code : 00000008
Start Date : 11/5/2019
Page No : 2

	Southbound					Westbound					Northbound					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	Int. Total
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	1	99	14	0	114	1	1	1	0	3	10	105	2	0	117	9	0	26	0	35	269
Percent	0.9	86.8	12.3	0.0		33.3	33.3	33.3	0.0		8.5	89.7	1.7	0.0		25.7	0.0	74.3	0.0		
05:30 Volume	0	28	5	0	33	0	0	0	0	0	4	27	0	0	31	2	0	9	0	11	75
Peak Factor																					0.897
High Int.	05:00 PM					05:15 PM					05:15 PM					05:15 PM					
Volume	0	34	1	0	35	1	0	1	0	2	2	31	0	0	33	4	0	9	0	13	
Peak Factor					0.814					0.375					0.886					0.673	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PARDEE ST
E/W STREET: HESS RD
CITY: PARKER
COUNTY: DOUGLAS

File Name : PARDHESS
Site Code : 00000022
Start Date : 11/5/2019
Page No : 1

Groups Printed- VEHICLES

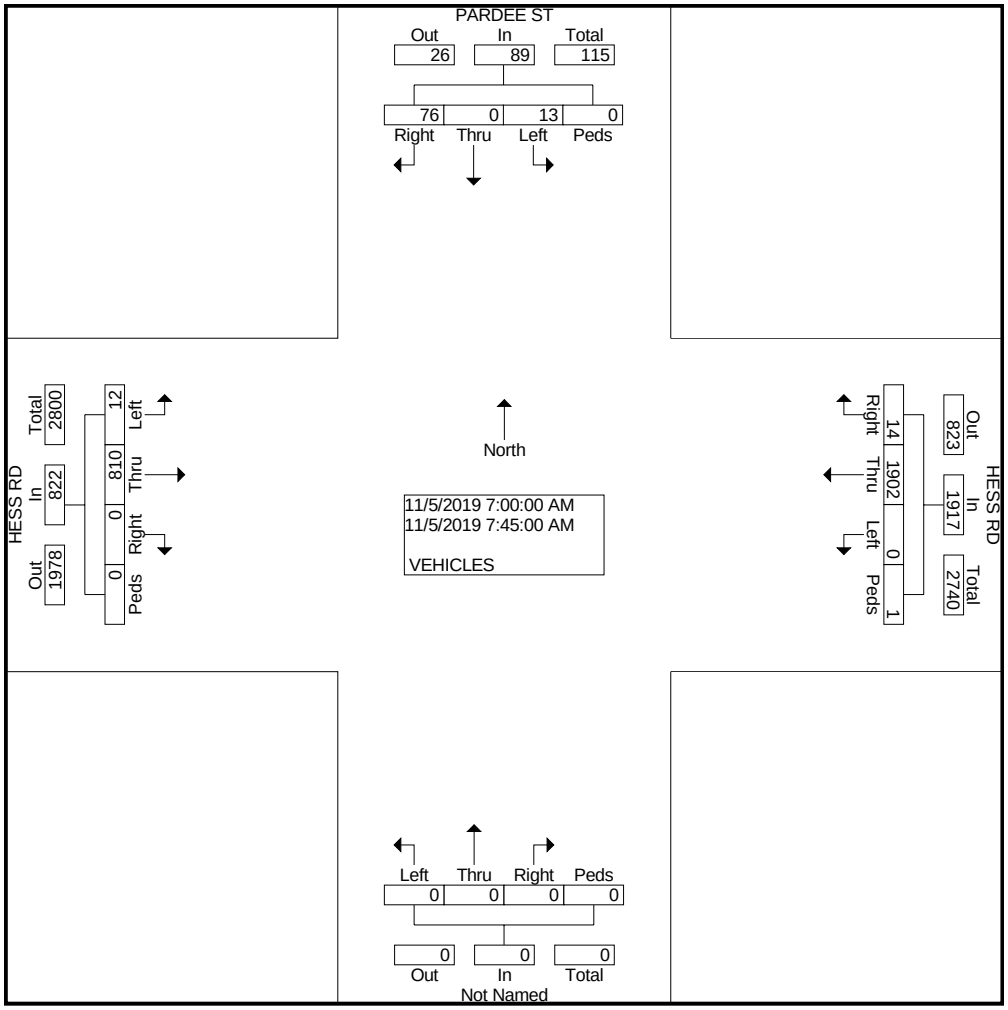
	PARDEE ST Southbound				HESS RD Westbound				Northbound				HESS RD Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	5	0	17	0	0	391	1	1	0	0	0	0	4	138	0	0	557
06:45 AM	1	0	8	0	0	366	1	0	0	0	0	0	1	168	0	0	545
Total	6	0	25	0	0	757	2	1	0	0	0	0	5	306	0	0	1102
07:00 AM	7	0	16	0	0	420	1	0	0	0	0	0	2	181	0	0	627
07:15 AM	2	0	13	0	0	497	2	0	0	0	0	0	3	207	0	0	724
07:30 AM	1	0	21	0	0	484	2	1	0	0	0	0	5	225	0	0	739
07:45 AM	3	0	26	0	0	501	9	0	0	0	0	0	2	197	0	0	738
Total	13	0	76	0	0	1902	14	1	0	0	0	0	12	810	0	0	2828
08:00 AM	1	0	23	0	0	427	1	0	0	0	0	0	1	133	0	0	586
08:15 AM	0	0	23	0	0	322	0	1	0	0	0	0	17	169	0	0	532
Total	1	0	46	0	0	749	1	1	0	0	0	0	18	302	0	0	1118
04:00 PM	1	0	5	0	0	190	6	1	0	0	0	0	16	320	0	0	539
04:15 PM	3	0	4	0	0	173	1	0	0	0	0	0	7	411	0	0	599
04:30 PM	1	0	4	0	0	196	9	0	0	0	0	0	12	406	0	0	628
04:45 PM	2	0	4	0	0	184	4	0	0	0	0	0	9	440	0	0	643
Total	7	0	17	0	0	743	20	1	0	0	0	0	44	1577	0	0	2409
05:00 PM	3	0	4	0	0	195	6	0	0	0	0	0	8	412	0	0	628
05:15 PM	5	0	2	0	0	171	6	0	0	0	0	0	10	437	0	0	631
05:30 PM	2	0	5	0	0	201	4	0	0	0	0	0	10	468	0	0	690
05:45 PM	1	0	3	0	0	151	9	0	0	0	0	0	16	408	0	0	588
Total	11	0	14	0	0	718	25	0	0	0	0	0	44	1725	0	0	2537
Grand Total	38	0	178	0	0	4869	62	4	0	0	0	0	123	4720	0	0	9994
Apprch %	17.6	0.0	82.4	0.0	0.0	98.7	1.3	0.1	0.0	0.0	0.0	0.0	2.5	97.5	0.0	0.0	
Total %	0.4	0.0	1.8	0.0	0.0	48.7	0.6	0.0	0.0	0.0	0.0	0.0	1.2	47.2	0.0	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PARDEE ST
E/W STREET: HESS RD
CITY: PARKER
COUNTY: DOUGLAS

File Name : PARDHESS
Site Code : 00000022
Start Date : 11/5/2019
Page No : 2

	PARDEE ST Southbound					HESS RD Westbound					Northbound					HESS RD 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	Int. Total
Peak Hour From 06:30 AM to 05:45 PM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	13	0	76	0	89	0	1902	14	1	1917	0	0	0	0	0	12	810	0	0	822	2828
Percent	14.6	0.0	85.4	0.0		0.0	99.2	0.7	0.1		0.0	0.0	0.0	0.0		1.5	98.5	0.0	0.0		
07:30 Volume	1	0	21	0	22	0	484	2	1	487	0	0	0	0	0	5	225	0	0	230	739
Peak Factor																					0.957
High Int.	07:45 AM					07:45 AM					6:15:00 AM					07:30 AM					
Volume	3	0	26	0	29	0	501	9	0	510	0	0	0	0	0	5	225	0	0	230	
Peak Factor					0.767					0.940										0.893	



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1889 YORK STREET
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N/S STREET: PARDEE ST
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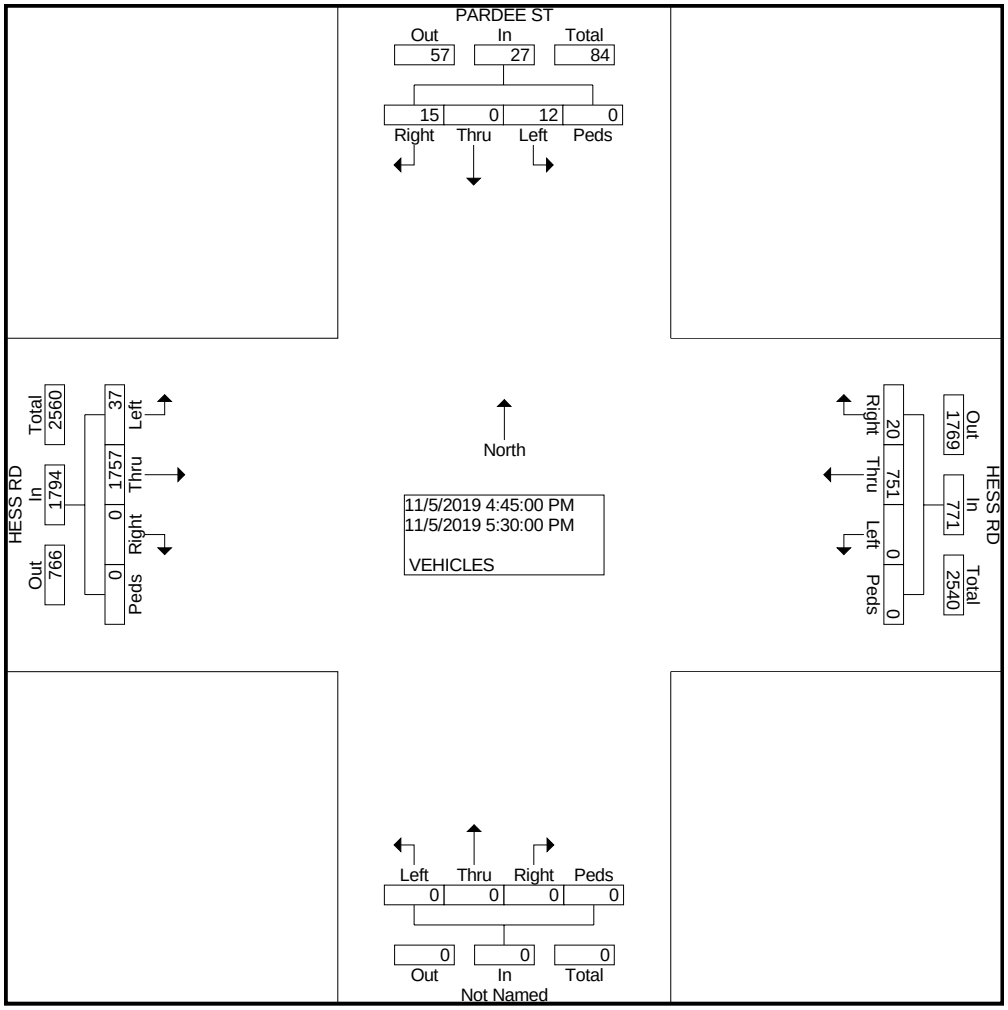
File Name : PARDHESS
Site Code : 00000022
Start Date : 11/5/2019
Page No : 2

	PARDEE ST Southbound					HESS RD Westbound					Northbound					HESS RD 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	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	12	0	15	0	27	0	751	20	0	771	0	0	0	0	0	37	1757	0	0	1794	2592
Percent	44.4	0.0	55.6	0.0		0.0	97.4	2.6	0.0		0.0	0.0	0.0	0.0		2.1	97.9	0.0	0.0		
05:30 Volume	2	0	5	0	7	0	201	4	0	205	0	0	0	0	0	10	468	0	0	478	690
Peak Factor																					0.939
High Int.	05:00 PM					05:30 PM										05:30 PM					
Volume	3	0	4	0	7	0	201	4	0	205	0	0	0	0	0	10	468	0	0	478	
Peak Factor					0.964					0.940										0.938	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PARDEE ST
E/W STREET: TRIPLE CROWN DR
CITY: PARKER
COUNTY: DOUGLAS

File Name : PARDTRIP
Site Code : 00000015
Start Date : 11/5/2019
Page No : 1

Groups Printed- VEHICLES

	Southbound				TRIPLE CROWN DR Westbound				PARDEE ST Northbound				TRIPLE CROWN DR Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	6	1	0	0	2	0	3	0	0	3	16	0	31
06:45 AM	0	0	0	0	0	3	0	3	2	0	0	0	0	5	9	0	22
Total	0	0	0	0	6	4	0	3	4	0	3	0	0	8	25	0	53
07:00 AM	0	0	0	0	10	2	0	0	3	0	0	0	0	6	13	0	34
07:15 AM	0	0	0	0	4	3	0	0	3	0	2	0	0	9	11	0	32
07:30 AM	0	0	0	0	5	1	0	0	5	0	2	0	0	10	17	0	40
07:45 AM	0	0	0	0	11	1	0	0	10	0	1	0	0	5	18	0	46
Total	0	0	0	0	30	7	0	0	21	0	5	0	0	30	59	0	152
08:00 AM	0	0	0	0	11	4	0	0	1	0	1	0	0	4	13	0	34
08:15 AM	0	0	0	0	8	1	0	0	9	0	8	0	0	5	15	0	46
Total	0	0	0	0	19	5	0	0	10	0	9	0	0	9	28	0	80
04:00 PM	0	0	0	0	2	8	0	0	18	0	4	0	0	2	4	0	38
04:15 PM	0	0	0	0	3	1	0	0	7	0	1	0	0	5	4	0	21
04:30 PM	0	0	0	0	2	2	0	0	16	0	5	0	0	5	3	0	33
04:45 PM	0	0	0	0	1	3	0	0	9	0	4	0	0	2	5	0	24
Total	0	0	0	0	8	14	0	0	50	0	14	0	0	14	16	0	116
05:00 PM	0	0	0	0	1	1	0	0	13	0	1	0	0	7	6	0	29
05:15 PM	0	0	0	0	0	5	0	4	13	0	3	0	0	6	7	0	38
05:30 PM	0	0	0	0	1	5	0	0	11	0	3	0	0	6	6	1	33
05:45 PM	0	0	0	0	1	2	0	0	22	0	3	0	0	5	3	0	36
Total	0	0	0	0	3	13	0	4	59	0	10	0	0	24	22	1	136
Grand Total	0	0	0	0	66	43	0	7	144	0	41	0	0	85	150	1	537
Apprch %	0.0	0.0	0.0	0.0	56.9	37.1	0.0	6.0	77.8	0.0	22.2	0.0	0.0	36.0	63.6	0.4	
Total %	0.0	0.0	0.0	0.0	12.3	8.0	0.0	1.3	26.8	0.0	7.6	0.0	0.0	15.8	27.9	0.2	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PARDEE ST
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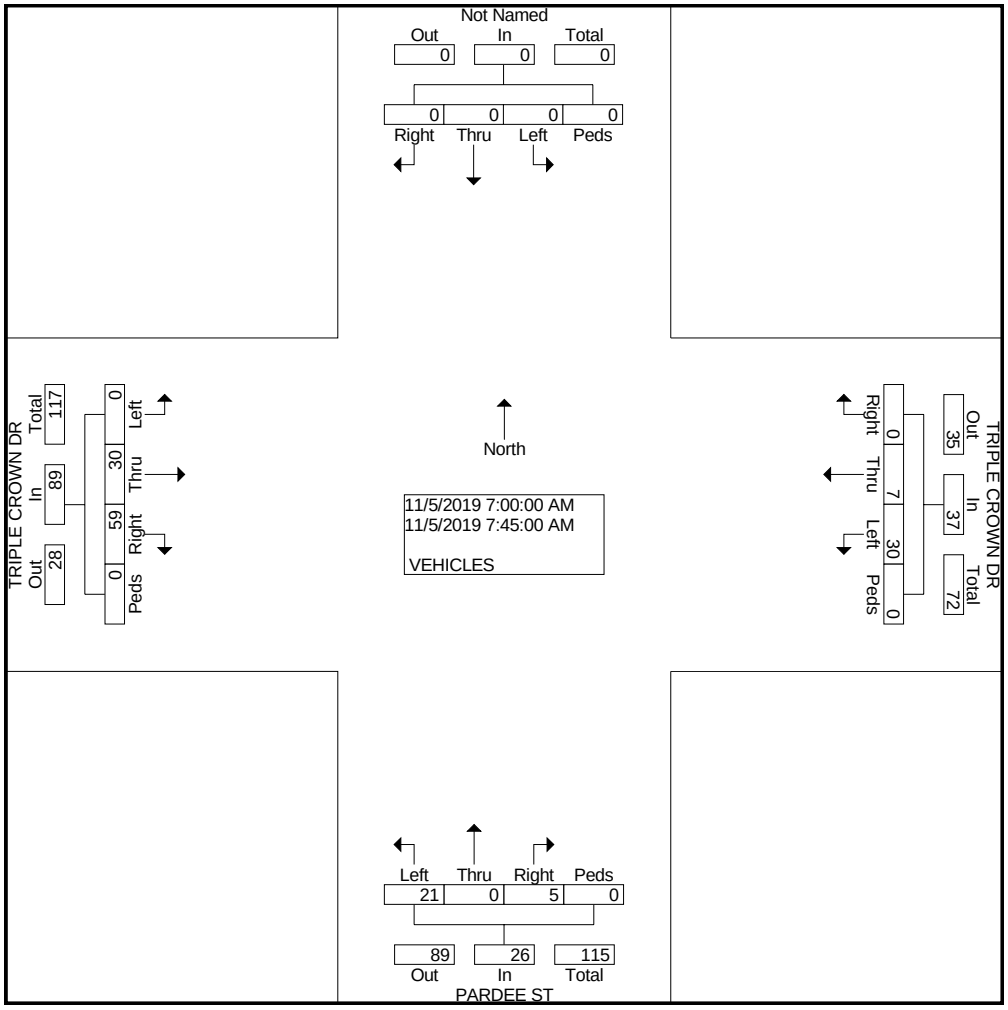
CITY: PARKER
COUNTY: DOUGLAS

File Name : PARDTRIP
Site Code : 00000015
Start Date : 11/5/2019
Page No : 2

	Southbound					TRIPLE CROWN DR Westbound					PARDEE ST Northbound					TRIPLE CROWN DR 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	Int. Total
Peak Hour From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	0	0	0	0	0	30	7	0	0	37	21	0	5	0	26	0	30	59	0	89	152
Percent	0.0	0.0	0.0	0.0		81.1	18.9	0.0	0.0		80.8	0.0	19.2	0.0		0.0	33.7	66.3	0.0		
07:45 Volume	0	0	0	0	0	11	1	0	0	12	10	0	1	0	11	0	5	18	0	23	46
Peak Factor																					0.826
High Int.						07:00 AM					07:45 AM					07:30 AM					
Volume	0	0	0	0	0	10	2	0	0	12	10	0	1	0	11	0	10	17	0	27	
Peak Factor										0.771					0.591					0.824	



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DENVER.COLORADO
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N/S STREET: PARDEE ST
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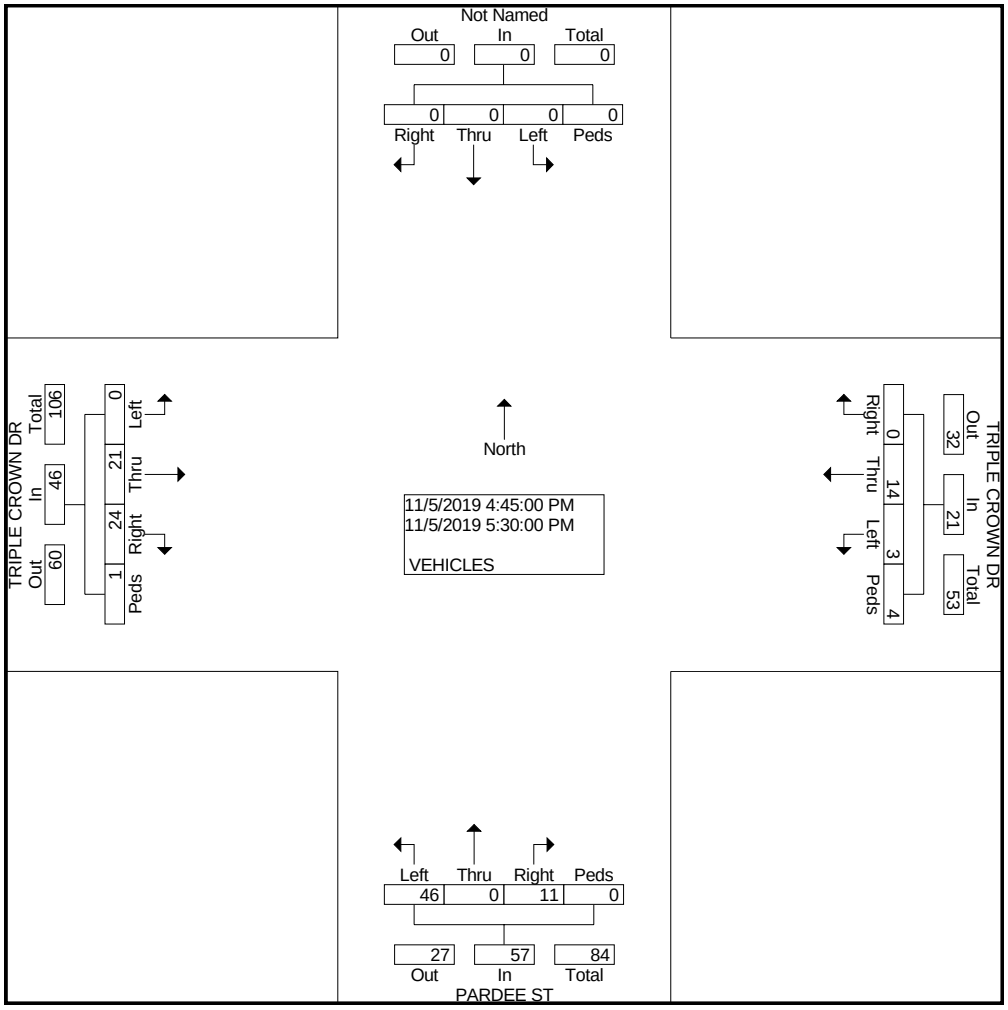
File Name : PARDTRIP
Site Code : 00000015
Start Date : 11/5/2019
Page No : 2

	Southbound					TRIPLE CROWN DR Westbound					PARDEE ST Northbound					TRIPLE CROWN DR 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	Int. Total
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	0	0	0	0	0	3	14	0	4	21	46	0	11	0	57	0	21	24	1	46	124
Percent	0.0	0.0	0.0	0.0		14.3	66.7	0.0	19.0		80.7	0.0	19.3	0.0		0.0	45.7	52.2	2.2		
05:15 Volume	0	0	0	0	0	0	5	0	4	9	13	0	3	0	16	0	6	7	0	13	38
Peak Factor																					0.816
High Int.						05:15 PM					05:15 PM					05:00 PM					
Volume	0	0	0	0	0	0	5	0	4	9	13	0	3	0	16	0	7	6	0	13	
Peak Factor										0.583					0.891					0.885	



LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	Average Vehicle Delay sec/vehicle	Operational Characteristics
A	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	810	1902	14	13	76
Future Vol, veh/h	12	810	1902	14	13	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	844	1981	15	14	79

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	1996	0	-	0	2429	-			
Stage 1	-	-	-	-	1981	-			
Stage 2	-	-	-	-	448	-			
Critical Hdwy	4.14	-	-	-	6.84	-			
Critical Hdwy Stg 1	-	-	-	-	5.84	-			
Critical Hdwy Stg 2	-	-	-	-	5.84	-			
Follow-up Hdwy	2.22	-	-	-	3.52	-			
Pot Cap-1 Maneuver	284	-	-	-	27	0			
Stage 1	-	-	-	-	93	0			
Stage 2	-	-	-	-	611	0			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	284	-	-	-	26	-			
Mov Cap-2 Maneuver	-	-	-	-	26	-			
Stage 1	-	-	-	-	89	-			
Stage 2	-	-	-	-	611	-			

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	245.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	284	-	-	-	26	-
HCM Lane V/C Ratio	0.044	-	-	-	0.521	-
HCM Control Delay (s)	18.3	-	-	-	245.6	0
HCM Lane LOS	C	-	-	-	F	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6	-

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	59	30	7	21	5
Future Vol, veh/h	30	59	30	7	21	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	71	36	8	25	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	116	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1484	-	880	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1484	-	859	1037
Mov Cap-2 Maneuver	-	-	-	-	859	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.1	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	859	1037	-	-	1484	-
HCM Lane V/C Ratio	0.029	0.006	-	-	0.024	-
HCM Control Delay (s)	9.3	8.5	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	118	4	9	199	2	13	1	26	0	0	3
Future Vol, veh/h	0	118	4	9	199	2	13	1	26	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	166	6	13	280	3	18	1	37	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	283	0	0	172	0	0	476	475	-	478	480	282
Stage 1	-	-	-	-	-	-	166	166	-	308	308	-
Stage 2	-	-	-	-	-	-	310	309	-	170	172	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1279	-	-	1405	-	-	499	488	0	498	485	757
Stage 1	-	-	-	-	-	-	836	761	0	702	660	-
Stage 2	-	-	-	-	-	-	700	660	0	832	756	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1279	-	-	1405	-	-	493	484	-	494	481	757
Mov Cap-2 Maneuver	-	-	-	-	-	-	493	484	-	494	481	-
Stage 1	-	-	-	-	-	-	836	761	-	702	654	-
Stage 2	-	-	-	-	-	-	690	654	-	830	756	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.3		9.8
HCM LOS			-	A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	493	-	1405	-	-	1279	-	-	757
HCM Lane V/C Ratio	0.037	-	0.009	-	-	-	-	-	0.006
HCM Control Delay (s)	12.6	-	7.6	-	-	0	-	-	9.8
HCM Lane LOS	B	-	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	1757	751	20	12	15
Future Vol, veh/h	37	1757	751	20	12	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	1869	799	21	13	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	820	0	-	0	1812	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	1013	-
Critical Hdwy	4.14	-	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	-
Pot Cap-1 Maneuver	805	-	-	-	70	0
Stage 1	-	-	-	-	403	0
Stage 2	-	-	-	-	312	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	805	-	-	-	67	-
Mov Cap-2 Maneuver	-	-	-	-	67	-
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	312	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	71
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	805	-	-	-	67	-
HCM Lane V/C Ratio	0.049	-	-	-	0.191	-
HCM Control Delay (s)	9.7	-	-	-	71	0
HCM Lane LOS	A	-	-	-	F	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	24	3	14	46	11
Future Vol, veh/h	21	24	3	14	46	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	29	4	17	56	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	51	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	958	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	955	1050
Mov Cap-2 Maneuver	-	-	-	-	955	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	955	1050	-	-	1550	-
HCM Lane V/C Ratio	0.059	0.013	-	-	0.002	-
HCM Control Delay (s)	9	8.5	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	99	14	10	105	2	9	0	26	1	1	1
Future Vol, veh/h	1	99	14	10	105	2	9	0	26	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	110	16	11	117	2	10	0	29	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	119	0	0	126	0	0	253	253	-	260	268	118
Stage 1	-	-	-	-	-	-	112	112	-	140	140	-
Stage 2	-	-	-	-	-	-	141	141	-	120	128	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1469	-	-	1460	-	-	700	650	0	693	638	934
Stage 1	-	-	-	-	-	-	893	803	0	863	781	-
Stage 2	-	-	-	-	-	-	862	780	0	884	790	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1469	-	-	1460	-	-	694	644	-	689	632	934
Mov Cap-2 Maneuver	-	-	-	-	-	-	694	644	-	689	632	-
Stage 1	-	-	-	-	-	-	892	802	-	862	775	-
Stage 2	-	-	-	-	-	-	853	774	-	883	789	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.6	10.3	9.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	694	-	1460	-	-	1469	-	-	731
HCM Lane V/C Ratio	0.014	-	0.008	-	-	0.001	-	-	0.005
HCM Control Delay (s)	10.3	0	7.5	-	-	7.5	-	-	9.9
HCM Lane LOS	B	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	860	2015	14	13	76
Future Vol, veh/h	12	860	2015	14	13	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	896	2099	15	14	79

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	2114	0	-	0	2573	-			
Stage 1	-	-	-	-	2099	-			
Stage 2	-	-	-	-	474	-			
Critical Hdwy	4.14	-	-	-	6.84	-			
Critical Hdwy Stg 1	-	-	-	-	5.84	-			
Critical Hdwy Stg 2	-	-	-	-	5.84	-			
Follow-up Hdwy	2.22	-	-	-	3.52	-			
Pot Cap-1 Maneuver	255	-	-	-	21	0			
Stage 1	-	-	-	-	80	0			
Stage 2	-	-	-	-	592	0			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	255	-	-	-	20	-			
Mov Cap-2 Maneuver	-	-	-	-	20	-			
Stage 1	-	-	-	-	76	-			
Stage 2	-	-	-	-	592	-			

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	$ 357.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	255	-	-	-	20	-
HCM Lane V/C Ratio	0.049	-	-	-	0.677	-
HCM Control Delay (s)	19.8	-	-	-	$ 357.5	0
HCM Lane LOS	C	-	-	-	F	A
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	30	59	30	7	21	5
Future Vol, veh/h	30	59	30	7	21	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	71	36	8	25	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	116	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1484	-	880	1037
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1484	-	859	1037
Mov Cap-2 Maneuver	-	-	-	-	859	-
Stage 1	-	-	-	-	986	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.1	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	859	1037	-	-	1484	-
HCM Lane V/C Ratio	0.029	0.006	-	-	0.024	-
HCM Control Delay (s)	9.3	8.5	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	123	4	9	207	2	13	1	26	1	1	3
Future Vol, veh/h	1	123	4	9	207	2	13	1	26	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	173	6	13	292	3	18	1	37	1	1	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	179	0	0	497	496	-	499	501	294
Stage 1	-	-	-	-	-	-	175	175	-	320	320	-
Stage 2	-	-	-	-	-	-	322	321	-	179	181	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1266	-	-	1397	-	-	483	475	0	482	472	745
Stage 1	-	-	-	-	-	-	827	754	0	692	652	-
Stage 2	-	-	-	-	-	-	690	652	0	823	750	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1266	-	-	1397	-	-	475	470	-	477	467	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	475	470	-	477	467	-
Stage 1	-	-	-	-	-	-	826	753	-	691	646	-
Stage 2	-	-	-	-	-	-	678	646	-	821	749	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.3		11
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	475	-	1397	-	-	1266	-	-	605
HCM Lane V/C Ratio	0.039	-	0.009	-	-	0.001	-	-	0.012
HCM Control Delay (s)	12.9	-	7.6	-	-	7.8	-	-	11
HCM Lane LOS	B	-	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	37	1865	795	20	12	15
Future Vol, veh/h	37	1865	795	20	12	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	1984	846	21	13	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	867	0	-	0	1916	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	1070	-
Critical Hdwy	4.14	-	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	-
Pot Cap-1 Maneuver	772	-	-	-	59	0
Stage 1	-	-	-	-	381	0
Stage 2	-	-	-	-	291	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	772	-	-	-	56	-
Mov Cap-2 Maneuver	-	-	-	-	56	-
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	291	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	87.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	772	-	-	-	56	-
HCM Lane V/C Ratio	0.051	-	-	-	0.228	-
HCM Control Delay (s)	9.9	-	-	-	87.3	0
HCM Lane LOS	A	-	-	-	F	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	24	3	14	46	11
Future Vol, veh/h	21	24	3	14	46	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	29	4	17	56	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	51	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	958	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	955	1050
Mov Cap-2 Maneuver	-	-	-	-	955	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	995	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	955	1050	-	-	1550	-
HCM Lane V/C Ratio	0.059	0.013	-	-	0.002	-
HCM Control Delay (s)	9	8.5	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	103	14	10	109	2	9	1	26	1	1	1
Future Vol, veh/h	1	103	14	10	109	2	9	1	26	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	114	16	11	121	2	10	1	29	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	123	0	0	130	0	0	261	261	-	269	276	122
Stage 1	-	-	-	-	-	-	116	116	-	144	144	-
Stage 2	-	-	-	-	-	-	145	145	-	125	132	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1464	-	-	1455	-	-	692	644	0	684	632	929
Stage 1	-	-	-	-	-	-	889	800	0	859	778	-
Stage 2	-	-	-	-	-	-	858	777	0	879	787	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1455	-	-	686	638	-	679	626	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	686	638	-	679	626	-
Stage 1	-	-	-	-	-	-	888	799	-	858	772	-
Stage 2	-	-	-	-	-	-	849	771	-	877	786	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.6		10
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	686	-	1455	-	-	1464	-	- 723
HCM Lane V/C Ratio	0.015	-	0.008	-	-	0.001	-	- 0.005
HCM Control Delay (s)	10.3	-	7.5	-	-	7.5	-	- 10
HCM Lane LOS	B	-	A	-	-	A	-	- B
HCM 95th %tile Q(veh)	0	-	0	-	-	0	-	- 0

Intersection	
Int Delay, s/veh	28.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	855	1995	68	49	133
Future Vol, veh/h	58	855	1995	68	49	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	891	2078	71	51	139

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	2149	0	-	0	2644	-			
Stage 1	-	-	-	-	2078	-			
Stage 2	-	-	-	-	566	-			
Critical Hdwy	4.14	-	-	-	6.84	-			
Critical Hdwy Stg 1	-	-	-	-	5.84	-			
Critical Hdwy Stg 2	-	-	-	-	5.84	-			
Follow-up Hdwy	2.22	-	-	-	3.52	-			
Pot Cap-1 Maneuver	247	-	-	-	~ 19	0			
Stage 1	-	-	-	-	82	0			
Stage 2	-	-	-	-	532	0			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	247	-	-	-	~ 14	-			
Mov Cap-2 Maneuver	-	-	-	-	~ 14	-			
Stage 1	-	-	-	-	62	-			
Stage 2	-	-	-	-	532	-			

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	$ 1738.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	247	-	-	-	14	-
HCM Lane V/C Ratio	0.245	-	-	-	3.646	-
HCM Control Delay (s)	24.2	-	-	-	$ 1738.5	0
HCM Lane LOS	C	-	-	-	F	A
HCM 95th %tile Q(veh)	0.9	-	-	-	7.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	93	100	26	89	6
Future Vol, veh/h	4	93	100	26	89	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	101	109	28	97	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	347	101	104	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	650	954	1488	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	603	954	1488	-	-	-
Mov Cap-2 Maneuver	603	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1488	-	932	-	-
HCM Lane V/C Ratio	0.073	-	0.113	-	-
HCM Control Delay (s)	7.6	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	33	59	36	9	21	9
Future Vol, veh/h	33	59	36	9	21	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	71	43	11	25	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	137	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	97	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1479	-	856	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	927	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	831	1031
Mov Cap-2 Maneuver	-	-	-	-	831	-
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	831	1031	-	-	1479	-
HCM Lane V/C Ratio	0.03	0.011	-	-	0.029	-
HCM Control Delay (s)	9.5	8.5	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	89	2	2	28	2	3
Future Vol, veh/h	89	2	2	28	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	2	2	30	2	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	99	0	132	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1494	-	862	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1494	-	861	958
Mov Cap-2 Maneuver	-	-	-	-	861	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	917	-	-	1494	-
HCM Lane V/C Ratio	0.006	-	-	0.001	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	123	12	9	207	2	20	1	26	1	1	3
Future Vol, veh/h	1	123	12	9	207	2	20	1	26	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	71	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	173	17	13	292	3	28	1	37	1	1	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	295	0	0	190	0	0	497	496	-	504	512	294
Stage 1	-	-	-	-	-	-	175	175	-	320	320	-
Stage 2	-	-	-	-	-	-	322	321	-	184	192	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1266	-	-	1384	-	-	483	475	0	478	465	745
Stage 1	-	-	-	-	-	-	827	754	0	692	652	-
Stage 2	-	-	-	-	-	-	690	652	0	818	742	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1266	-	-	1384	-	-	475	470	-	473	460	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	475	470	-	473	460	-
Stage 1	-	-	-	-	-	-	826	753	-	691	646	-
Stage 2	-	-	-	-	-	-	678	646	-	816	741	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.3		11.1
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	475	-	1384	-	-	1266	-	-	601
HCM Lane V/C Ratio	0.059	-	0.009	-	-	0.001	-	-	0.012
HCM Control Delay (s)	13.1	-	7.6	-	-	7.8	-	-	11.1
HCM Lane LOS	B	-	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	13.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	98	1845	789	60	68	64
Future Vol, veh/h	98	1845	789	60	68	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	225	-	-	325	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	104	1963	839	64	72	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	903	0	-	0	2029	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	1190	-
Critical Hdwy	4.14	-	-	-	6.84	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	-
Pot Cap-1 Maneuver	749	-	-	-	~ 50	0
Stage 1	-	-	-	-	384	0
Stage 2	-	-	-	-	251	0
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	749	-	-	-	~ 43	-
Mov Cap-2 Maneuver	-	-	-	-	~ 43	-
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	251	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	$ 537.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	749	-	-	-	43	-
HCM Lane V/C Ratio	0.139	-	-	-	1.682	-
HCM Control Delay (s)	10.6	-	-	-	$ 537.1	0
HCM Lane LOS	B	-	-	-	F	A
HCM 95th %tile Q(veh)	0.5	-	-	-	7.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	105	101	57	27	6
Future Vol, veh/h	5	105	101	57	27	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	114	110	62	29	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	315	33	36	0	-	0
Stage 1	33	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	678	1041	1575	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	631	1041	1575	-	-	-
Mov Cap-2 Maneuver	660	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	766	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	4.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1575	-	1014	-	-
HCM Lane V/C Ratio	0.07	-	0.118	-	-
HCM Control Delay (s)	7.5	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	24	9	16	46	16
Future Vol, veh/h	25	24	9	16	46	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	29	11	20	56	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	59	0	72	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1545	-	932	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1545	-	925	1044
Mov Cap-2 Maneuver	-	-	-	-	925	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	925	1044	-	-	1545	-
HCM Lane V/C Ratio	0.061	0.019	-	-	0.007	-
HCM Control Delay (s)	9.1	8.5	-	-	7.3	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	45	2	2	60	2	4
Future Vol, veh/h	45	2	2	60	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	2	2	65	2	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	51	0	119	50
Stage 1	-	-	-	-	50	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1555	-	877	1018
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1555	-	876	1018
Mov Cap-2 Maneuver	-	-	-	-	876	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	966	-	-	1555	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	103	22	10	109	2	18	1	26	1	1	1
Future Vol, veh/h	1	103	22	10	109	2	18	1	26	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	114	24	11	121	2	20	1	29	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	123	0	0	138	0	0	261	261	-	273	284	122
Stage 1	-	-	-	-	-	-	116	116	-	144	144	-
Stage 2	-	-	-	-	-	-	145	145	-	129	140	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1464	-	-	1446	-	-	692	644	0	679	625	929
Stage 1	-	-	-	-	-	-	889	800	0	859	778	-
Stage 2	-	-	-	-	-	-	858	777	0	875	781	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1464	-	-	1446	-	-	686	638	-	674	619	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	686	638	-	674	619	-
Stage 1	-	-	-	-	-	-	888	799	-	858	772	-
Stage 2	-	-	-	-	-	-	849	771	-	873	780	-

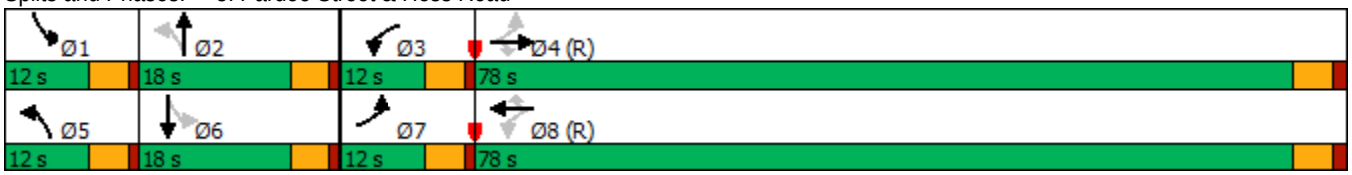
Approach	SE	NW	NE	SW
HCM Control Delay, s	0.1	0.6		10
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	686	-	1446	-	-	1464	-	- 718
HCM Lane V/C Ratio	0.029	-	0.008	-	-	0.001	-	- 0.005
HCM Control Delay (s)	10.4	-	7.5	-	-	7.5	-	- 10
HCM Lane LOS	B	-	A	-	-	A	-	- B
HCM 95th %tile Q(veh)	0.1	-	0	-	-	0	-	- 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	145	945	265	50	2215	100	155	10	70	10
Future Volume (vph)	145	945	265	50	2215	100	155	10	70	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	18.0	10.0	18.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	78.0	12.0	18.0	12.0	18.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	10.0%	15.0%	10.0%	15.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	2.5	2.5	2.5	2.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	91.7	82.8	82.8	87.1	78.2	78.2	20.8	13.2	20.1	10.8
Actuated g/C Ratio	0.76	0.69	0.69	0.73	0.65	0.65	0.17	0.11	0.17	0.09
v/c Ratio	0.68	0.41	0.24	0.12	1.01	0.10	0.84	0.39	0.32	0.62
Control Delay	41.1	9.5	1.5	4.6	43.6	2.3	78.5	17.2	43.9	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	9.5	1.5	4.6	43.6	2.3	78.5	17.2	43.9	26.9
LOS	D	A	A	A	D	A	E	B	D	C
Approach Delay		11.3			41.0			55.2		32.4
Approach LOS		B			D			E		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 31.8	Intersection LOS: C
Intersection Capacity Utilization 100.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Pardee Street & Hess Road



Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	15	30	225	10	140
Future Vol, veh/h	75	15	30	225	10	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	16	33	245	11	152

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	330	156	0	0	278	0
Stage 1	156	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	667	894	-	-	1285	-
Stage 1	875	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	661	894	-	-	1285	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	721	1285	-
HCM Lane V/C Ratio	-	-	0.136	0.008	-
HCM Control Delay (s)	-	-	10.8	7.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	80	70	10	25	20
Future Vol, veh/h	60	80	70	10	25	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	87	76	11	27	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	152	0	228	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	163	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1429	-	760	999
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	866	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1429	-	719	999
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	819	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.7	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	719	999	-	-	1429	-
HCM Lane V/C Ratio	0.038	0.022	-	-	0.053	-
HCM Control Delay (s)	10.2	8.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	170	10	20	290	2	65	1	30	1	1	3
Future Vol, veh/h	1	170	10	20	290	2	65	1	30	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	185	11	22	315	2	71	1	33	1	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	317	0	0	196	0	0	549	548	-	553	558	316
Stage 1	-	-	-	-	-	-	187	187	-	360	360	-
Stage 2	-	-	-	-	-	-	362	361	-	193	198	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1243	-	-	1377	-	-	446	444	0	444	438	724
Stage 1	-	-	-	-	-	-	815	745	0	658	626	-
Stage 2	-	-	-	-	-	-	657	626	0	809	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1243	-	-	1377	-	-	438	436	-	437	431	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	436	-	437	431	-
Stage 1	-	-	-	-	-	-	814	744	-	657	616	-
Stage 2	-	-	-	-	-	-	642	616	-	807	736	-

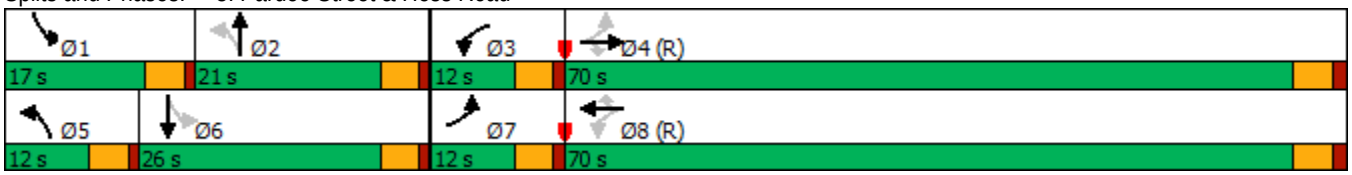
Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.5		11.4
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	438	-	1377	-	-	1243	-	-	571
HCM Lane V/C Ratio	0.161	-	0.016	-	-	0.001	-	-	0.01
HCM Control Delay (s)	14.8	-	7.7	-	-	7.9	-	-	11.4
HCM Lane LOS	B	-	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	-	0	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	210	2050	335	45	875	100	95	10	80	10
Future Volume (vph)	210	2050	335	45	875	100	95	10	80	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	9.5	23.0	23.0	9.5	22.5	9.5	22.5
Total Split (s)	12.0	70.0	70.0	12.0	70.0	70.0	12.0	21.0	17.0	26.0
Total Split (%)	10.0%	58.3%	58.3%	10.0%	58.3%	58.3%	10.0%	17.5%	14.2%	21.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	2.5	2.5	2.5	2.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	90.7	81.4	81.4	85.0	76.2	76.2	19.6	12.0	23.4	12.3
Actuated g/C Ratio	0.76	0.68	0.68	0.71	0.64	0.64	0.16	0.10	0.20	0.10
v/c Ratio	0.47	0.90	0.31	0.25	0.41	0.10	0.43	0.45	0.35	0.38
Control Delay	8.0	24.2	5.1	9.8	12.3	1.1	45.3	17.8	42.7	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	24.2	5.1	9.8	12.3	1.1	45.3	17.8	42.7	17.5
LOS	A	C	A	A	B	A	D	B	D	B
Approach Delay		20.4			11.1			30.5		29.7
Approach LOS		C			B			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Pardee Street & Hess Road



Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	95	20	90	230	20	70
Future Vol, veh/h	95	20	90	230	20	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	103	22	98	250	22	76

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	343	223	0	0	348	0
Stage 1	223	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	675	849	-	-	1211	-
Stage 1	831	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	662	849	-	-	1211	-
Mov Cap-2 Maneuver	693	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	716	1211	-
HCM Lane V/C Ratio	-	-	0.175	0.018	-
HCM Control Delay (s)	-	-	11.1	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	60	40	50	15	60	50
Future Vol, veh/h	60	40	50	15	60	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	43	54	16	65	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	108	0	189	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1483	-	800	999
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1483	-	770	999
Mov Cap-2 Maneuver	-	-	-	-	770	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	869	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	770	999	-	-	1483	-
HCM Lane V/C Ratio	0.085	0.054	-	-	0.037	-
HCM Control Delay (s)	10.1	8.8	-	-	7.5	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	145	22	45	155	2	85	1	40	1	1	1
Future Vol, veh/h	1	145	22	45	155	2	85	1	40	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	158	24	49	168	2	92	1	43	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	170	0	0	182	0	0	428	428	-	440	451	169
Stage 1	-	-	-	-	-	-	160	160	-	267	267	-
Stage 2	-	-	-	-	-	-	268	268	-	173	184	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1407	-	-	1393	-	-	537	519	0	527	504	875
Stage 1	-	-	-	-	-	-	842	766	0	738	688	-
Stage 2	-	-	-	-	-	-	738	687	0	829	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1407	-	-	1393	-	-	521	500	-	512	486	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	500	-	512	486	-
Stage 1	-	-	-	-	-	-	841	765	-	737	664	-
Stage 2	-	-	-	-	-	-	710	663	-	827	746	-

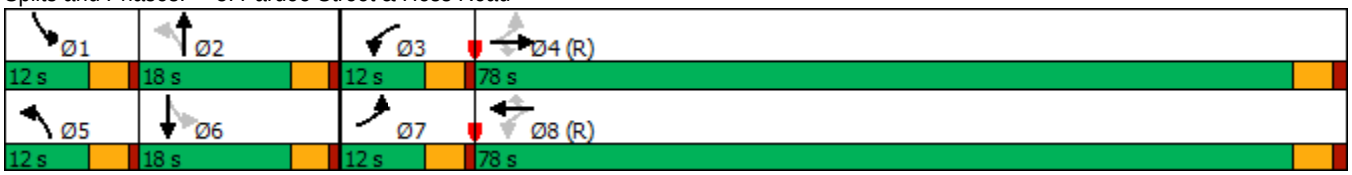
Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.7		11.2
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1
Capacity (veh/h)	521	-	1393	-	-	1407	-	-	582
HCM Lane V/C Ratio	0.177	-	0.035	-	-	0.001	-	-	0.006
HCM Control Delay (s)	13.4	-	7.7	-	-	7.6	-	-	11.2
HCM Lane LOS	B	-	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	-	0.1	-	-	0	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	191	940	265	50	2195	154	155	10	106	10
Future Volume (vph)	191	940	265	50	2195	154	155	10	106	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	20.0	10.0	20.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	78.0	12.0	18.0	12.0	18.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	65.0%	10.0%	15.0%	10.0%	15.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	2.5	2.5	2.5	2.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	88.5	80.2	80.2	84.3	75.3	75.3	22.8	13.3	22.8	13.3
Actuated g/C Ratio	0.74	0.67	0.67	0.70	0.63	0.63	0.19	0.11	0.19	0.11
v/c Ratio	0.88	0.42	0.24	0.13	1.04	0.15	0.81	0.39	0.46	0.77
Control Delay	66.7	10.7	1.6	5.2	54.0	2.1	70.6	16.9	45.8	42.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	10.7	1.6	5.2	54.0	2.1	70.6	16.9	45.8	42.0
LOS	E	B	A	A	D	A	E	B	D	D
Approach Delay		16.6			49.7			50.2		43.3
Approach LOS		B			D			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 38.6	Intersection LOS: D
Intersection Capacity Utilization 105.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Pardee Street & Hess Road



Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	93	75	0	15	100	30	225	10	140	6
Future Vol, veh/h	4	0	93	75	0	15	100	30	225	10	140	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	101	82	0	16	109	33	245	11	152	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	560	674	156	602	555	156	159	0	0	278	0	0
Stage 1	178	178	-	374	374	-	-	-	-	-	-	-
Stage 2	382	496	-	228	181	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	440	376	890	413	441	894	1420	-	-	1285	-	-
Stage 1	824	752	-	648	619	-	-	-	-	-	-	-
Stage 2	643	545	-	775	750	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	398	338	890	338	396	894	1420	-	-	1285	-	-
Mov Cap-2 Maneuver	398	338	-	338	396	-	-	-	-	-	-	-
Stage 1	747	745	-	588	561	-	-	-	-	-	-	-
Stage 2	571	494	-	681	743	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	17.9	2.2	0.5
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	847	377	1285	-	-
HCM Lane V/C Ratio	0.077	-	-	0.124	0.259	0.008	-	-
HCM Control Delay (s)	7.7	-	-	9.9	17.9	7.8	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	1	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	63	80	76	12	25	24
Future Vol, veh/h	63	80	76	12	25	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	87	83	13	27	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	155	0	247	68
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1425	-	741	995
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1425	-	697	995
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	802	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.6	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	697	995	-	-	1425	-
HCM Lane V/C Ratio	0.039	0.026	-	-	0.058	-
HCM Control Delay (s)	10.4	8.7	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	140	2	2	35	2	3
Future Vol, veh/h	140	2	2	35	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	2	2	38	2	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	154	0	195	153
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1426	-	794	893
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1426	-	793	893
Mov Cap-2 Maneuver	-	-	-	-	793	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	979	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	850	-	-	1426	-
HCM Lane V/C Ratio	0.006	-	-	0.002	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	170	18	20	290	2	72	1	30	1	1	3
Future Vol, veh/h	1	170	18	20	290	2	72	1	30	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	185	20	22	315	2	78	1	33	1	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	317	0	0	205	0	0	549	548	-	558	567	316
Stage 1	-	-	-	-	-	-	187	187	-	360	360	-
Stage 2	-	-	-	-	-	-	362	361	-	198	207	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1243	-	-	1366	-	-	446	444	0	440	433	724
Stage 1	-	-	-	-	-	-	815	745	0	658	626	-
Stage 2	-	-	-	-	-	-	657	626	0	804	731	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1243	-	-	1366	-	-	438	436	-	433	426	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	436	-	433	426	-
Stage 1	-	-	-	-	-	-	814	744	-	657	616	-
Stage 2	-	-	-	-	-	-	642	616	-	802	730	-

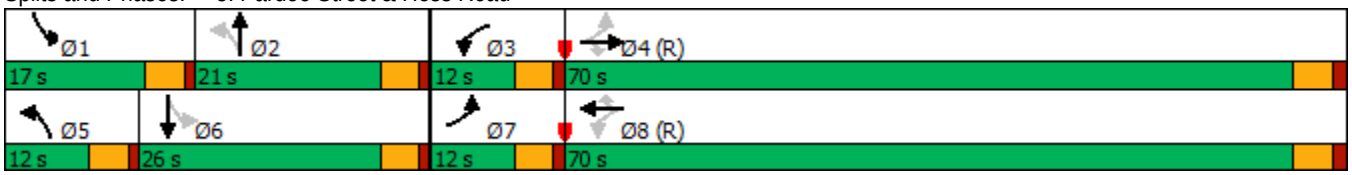
Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.5		11.4
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	438	-	1366	-	-	1243	-	- 568
HCM Lane V/C Ratio	0.179	-	0.016	-	-	0.001	-	- 0.01
HCM Control Delay (s)	15	-	7.7	-	-	7.9	-	- 11.4
HCM Lane LOS	C	-	A	-	-	A	-	- B
HCM 95th %tile Q(veh)	0.6	-	0	-	-	0	-	- 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	271	2030	335	45	869	140	95	10	136	10
Future Volume (vph)	271	2030	335	45	869	140	95	10	136	10
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	9.5	23.0	23.0	9.5	22.5	9.5	22.5
Total Split (s)	12.0	70.0	70.0	12.0	70.0	70.0	12.0	21.0	17.0	26.0
Total Split (%)	10.0%	58.3%	58.3%	10.0%	58.3%	58.3%	10.0%	17.5%	14.2%	21.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.5	1.5	1.0	1.5	1.5	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	2.5	3.0	3.0	2.5	3.0	3.0	2.5	2.5	2.5	2.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	89.2	79.8	79.8	82.0	73.1	73.1	19.1	9.6	25.6	13.8
Actuated g/C Ratio	0.74	0.66	0.66	0.68	0.61	0.61	0.16	0.08	0.21	0.12
v/c Ratio	0.59	0.91	0.32	0.25	0.42	0.14	0.47	0.51	0.55	0.47
Control Delay	10.6	25.7	5.2	9.8	13.8	2.3	45.8	20.3	47.5	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	25.7	5.2	9.8	13.8	2.3	45.8	20.3	47.5	15.0
LOS	B	C	A	A	B	A	D	C	D	B
Approach Delay		21.5			12.1			32.1		31.3
Approach LOS		C			B			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Pardee Street & Hess Road



Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	105	95	0	20	101	90	230	20	70	6
Future Vol, veh/h	5	0	105	95	0	20	101	90	230	20	70	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	114	103	0	22	110	98	250	22	76	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	578	692	80	624	570	223	83	0	0	348	0	0
Stage 1	124	124	-	443	443	-	-	-	-	-	-	-
Stage 2	454	568	-	181	127	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	438	369	980	406	438	849	1514	-	-	1211	-	-
Stage 1	880	793	-	606	579	-	-	-	-	-	-	-
Stage 2	597	506	-	821	791	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	391	329	980	329	389	849	1514	-	-	1211	-	-
Mov Cap-2 Maneuver	391	329	-	329	389	-	-	-	-	-	-	-
Stage 1	798	778	-	549	525	-	-	-	-	-	-	-
Stage 2	528	459	-	712	776	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	19.7	1.8	1.7
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1514	-	-	917	368	1211	-	-
HCM Lane V/C Ratio	0.073	-	-	0.13	0.34	0.018	-	-
HCM Control Delay (s)	7.6	-	-	9.5	19.7	8	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	1.5	0.1	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	40	56	17	60	55
Future Vol, veh/h	64	40	56	17	60	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	43	61	18	65	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	113	0	210	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1476	-	778	993
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1476	-	745	993
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	850	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.8	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	745	993	-	-	1476	-
HCM Lane V/C Ratio	0.088	0.06	-	-	0.041	-
HCM Control Delay (s)	10.3	8.9	-	-	7.5	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	2	2	75	2	4
Future Vol, veh/h	100	2	2	75	2	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	2	2	82	2	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	196	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	86	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1479	-	793	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	792	943
Mov Cap-2 Maneuver	-	-	-	-	792	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	936	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	887	-	-	1479	-
HCM Lane V/C Ratio	0.007	-	-	0.001	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	1	145	30	45	155	2	94	1	40	1	1	1
Future Vol, veh/h	1	145	30	45	155	2	94	1	40	1	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Free	-	-	None
Storage Length	220	-	150	260	-	-	65	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	158	33	49	168	2	102	1	43	1	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	170	0	0	191	0	0	428	428	-	444	460	169
Stage 1	-	-	-	-	-	-	160	160	-	267	267	-
Stage 2	-	-	-	-	-	-	268	268	-	177	193	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1407	-	-	1383	-	-	537	519	0	524	498	875
Stage 1	-	-	-	-	-	-	842	766	0	738	688	-
Stage 2	-	-	-	-	-	-	738	687	0	825	741	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1407	-	-	1383	-	-	521	500	-	509	480	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	521	500	-	509	480	-
Stage 1	-	-	-	-	-	-	841	765	-	737	664	-
Stage 2	-	-	-	-	-	-	710	663	-	823	740	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	1.7		11.3
HCM LOS			-	B

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SERSWLn1
Capacity (veh/h)	521	-	1383	-	-	1407	-	- 578
HCM Lane V/C Ratio	0.196	-	0.035	-	-	0.001	-	- 0.006
HCM Control Delay (s)	13.6	-	7.7	-	-	7.6	-	- 11.3
HCM Lane LOS	B	-	A	-	-	A	-	- B
HCM 95th %tile Q(veh)	0.7	-	0.1	-	-	0	-	- 0