



LSC TRANSPORTATION CONSULTANTS, INC.

1889 York Street
Denver, CO 80206
(303) 333-1105
FAX (303) 333-1107
E-mail: lsc@lscdenver.com

November 5, 2021

Mr. Sean Palmer
Century Communities
8390 E. Crescent Parkway, Suite 650
Greenwood Village, CO 80111

Re: Compark South
Parker, CO
LSC #211160

Dear Mr. Palmer:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic impact analysis for the proposed Compark South residential development in Parker, Colorado. As shown on Figure 1, the site is located west of S. Chamber Road and east of S. Peoria Street. The Town's TIS Standard Checklist is attached for reference.

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 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 about 33 single-family dwelling units and about 300 apartment dwelling units. Right-in/right-out and full movement access is proposed to Belford Avenue as shown in the conceptual site plan in Figure 2.

The existing land use to the north, south and east is residential and to the west is a mix of residential, office, commercial, recreation, etc.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **S. Peoria Street** is a north-south, two-lane arterial roadway west of the site which is being widened to four lanes. The intersection with Belford Avenue is signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the site is 45 mph.
- **S. Chambers Road** is a north-south, four-lane major arterial roadway east of the site. The intersection with Aventura Parkway is stop-sign controlled. The posted speed limit in the vicinity of the site is 45 mph. It is planned to be widened to six lanes by 2041.
- **Belford Avenue** is an east-west, four-lane collector roadway adjacent to the site. The intersection with S. Peoria Street is signalized with auxiliary turn lanes. The posted speed limit in the vicinity of the is 35 mph. Belford Avenue is being constructed from S. Peoria Street to S. Chambers Road by the applicant and others. The intersection with S. Chambers Road is planned to be signalized.

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 October, 2021 and are attached for reference.

2025 and 2041 Background Traffic

Figure 4 shows the estimated 2025 background traffic, lane geometry and traffic control and Figure 5 shows the estimated 2041 background traffic, lane geometry and traffic control.

The volumes in Figure 4 are based on the Updated 2025 Short Range Future Traffic Volume in Figure 9 of the 2021 *Chambers High Point TIS Addendum* by FHU (TIS Addendum) assuming connectivity west to S. Peoria Street. Also included are the trips for the home construction currently happening south of Intersections #2 and #3.

The volumes in Figure 5 are based on the 2040 Long Range Future Total Traffic volumes from Figure 10 of the TIS Addendum by FHU less site-generated trips from the previously assumed site.

Existing, 2025, and 2041 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 signalized and unsignalized intersections.

The intersections in Figures 3 through 5 were analyzed as appropriate to determine the existing, 2025 and 2041 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **S. Peoria Street/Belford Avenue:** This signalized intersection currently operates at an overall LOS "A" during the morning peak-hour and LOS "B" during the afternoon peak-

hour. By 2025, it is expected to operate at LOS “B” during both peak-hours and by 2041 it is expected to operate at LOS “C” during both peak-hours.

2. **Belford Avenue/W. Site Internal Road:** This future signalized intersection is expected to operate at an overall LOS “A” during the morning peak-hour and LOS “B” during the afternoon peak-hour through 2041.
3. **Belford Avenue/Middle Site Internal Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2041.
4. **Belford Avenue/E. Site Internal Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2041.
5. **Belford Avenue/RIRO Access Road:** This intersection was analyzed only in the total traffic scenarios.
6. **Belford Avenue/N. 6th Street:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2041.
7. **Belford Avenue/Internal Collector:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2025. By 2041, the intersection is expected to be signalized and operate at LOS “C” or better during both peak-hours.
8. **S. Chambers Road/Belford Avenue:** This future signalized intersection is expected to operate at an overall LOS “B” during both morning and afternoon peak-hours through 2025. By 2041, the morning peak-hour is expected to operate at LOS “B” and the afternoon peak-hour is expected to operate at LOS “D”.

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, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE) for the proposed land use.

The site is projected to generate about 2,333 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 35 vehicles would enter and about 108 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 116 vehicles would enter and about 68 vehicles would exit.

TRIP DISTRIBUTION

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

2025 AND 2041 TOTAL TRAFFIC

Figure 8 shows the 2025 total traffic which is the sum of the 2025 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 7). Figure 8 also shows the recommended 2025 lane geometry and traffic control.

Figure 9 shows the 2041 total traffic which is the sum of the 2041 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figure 7). Figure 9 also shows the recommended 2041 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8 and 9 were analyzed to determine the 2025 and 2041 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **S. Peoria Street/Belford Avenue:** This signalized intersection is expected to operate at an overall LOS "B" during both morning and afternoon peak-hours through 2025 and at LOS "C" through 2041.
2. **Belford Avenue/W. Site Internal Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2025. By 2041, this intersection is expected to be signalized and operate at an overall LOS "A" during the morning peak-hour and LOS "B" during the afternoon peak-hour through 2041.
3. **Belford Avenue/Middle Site Internal Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2041.
4. **Belford Avenue/E. Site Internal Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2041.
5. **Belford Avenue/RIRO Access Road:** All movements at this future stop-sign controlled intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2041.

6. **Belford Avenue/N. 6th Street:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2041.
7. **Belford Avenue/Internal Collector:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2025. By 2041, the intersection is expected to be signalized and operate at LOS “C” or better during both peak-hours.
8. **S. Chambers Road/Belford Avenue:** This future signalized intersection is expected to operate at an overall LOS “B” during both morning and afternoon peak-hours through 2025. By 2041, the morning peak-hour is expected to operate at LOS “B” and the afternoon peak-hour is expected to operate at LOS “D”.

QUEUING ANALYSIS

The 95th percentile queue lengths at the signalized intersections is shown in Table 3. Table 3 also shows the existing and proposed turn lane lengths.

RECOMMENDED IMPROVEMENTS

Table 4 summarizes the recommended improvements.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The site is projected to generate about 2,333 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 35 vehicles would enter and about 108 vehicles would exit the site. During the afternoon peak-hour, about 116 vehicles would enter and about 68 vehicles would exit.

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 2041 with the recommended improvements.
3. All of the signalized intersections are expected to operate at an overall LOS “D” or better through 2041 with the recommended improvements.

Conclusions

4. The impact of the proposed Compark South residential development can be accommodated by the existing and planned roadway network with the following recommended improvements.

Recommended Improvements

5. The recommended improvements are shown in Figures 8 and 9 and detailed in Tables 3 and 4.

* * * * *

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

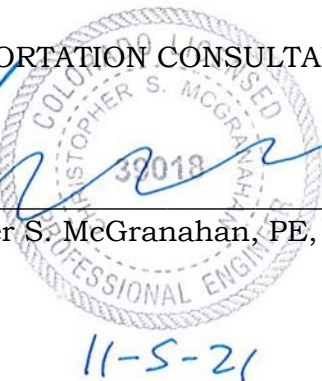
Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By

Christopher S. McGranahan, PE, PTOE
Principal

CSM/wc



Enclosures: Tables 1 - 4
Figures 1 - 9
TIS Standard Checklist
Traffic Count Reports
Figures 9 and 10 of the 2021 *Chambers High Point TIS Addendum* by FHU
Level of Service Definitions
Level of Service Reports
Queuing Reports

Table 1 (Page 1 of 2)
Intersection Levels of Service Analysis
Compark South
Parker, CO
LSC #211160; November, 2021

Intersection No. & Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic		2041 Background Traffic		2041 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1) <u>S. Peoria Street/Belford Avenue</u>	Signalized										
EB Left		D	D	D	D	D	D	E	D	E	D
EB Through		--	--	D	D	D	D	D	D	D	D
EB Right		C	B	A	B	A	B	A	B	A	B
WB Left		--	--	D	D	D	D	E	E	E	E
WB Through		--	--	E	D	D	D	E	D	E	D
WB Right		--	--	A	A	A	A	A	A	A	A
NB Left		A	A	E	D	E	D	D	D	D	D
NB Through		A	A	A	A	A	A	D	C	D	C
NB Right		--	--	A	A	A	A	B	A	B	A
SB Left		--	--	D	D	D	D	D	D	D	E
SB Through		A	A	A	A	A	A	B	C	B	C
SB Right		A	A	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		3.8	14.4	12.2	17.1	12.6	19.2	32.2	27.6	32.6	27.9
Entire Intersection LOS		A	B	B	B	B	B	C	C	C	C
2) <u>Belford Avenue/W. Site Internal Road</u>	TWSC										
NB Approach		--	--	--	--	A	B	--	--	--	--
WB Approach		--	--	--	--	A	A	--	--	--	--
Critical Movement Delay		--	--	--	--	9.5	10.1	--	--	--	--
	Signalized										
EB Left		--	--	--	--	--	--	A	B	A	B
EB Through/Right		--	--	--	--	--	--	A	B	A	B
WB Left		--	--	--	--	--	--	A	A	A	A
WB Through		--	--	--	--	--	--	A	A	A	A
WB Right		--	--	--	--	--	--	A	A	A	A
NB Approach		--	--	--	--	--	--	A	A	A	A
SB Left		--	--	--	--	--	--	D	D	D	D
SB Through		--	--	--	--	--	--	A	A	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	4.5	15.2	4.5	15.1
Entire Intersection LOS		--	--	--	--	--	--	A	B	A	B
3) <u>Belford Avenue/Middle Site Internal Road</u>	TWSC										
NB Approach		--	--	--	--	A	B	B	B	B	B
EB Left		--	--	--	--	--	--	A	A	A	A
WB Left or Approach		--	--	--	--	A	A	A	A	A	A
SB Left		--	--	--	--	--	--	C	C	C	C
SB Through/Right		--	--	--	--	--	--	B	B	B	B
Critical Movement Delay		--	--	--	--	9.8	10.3	17.9	15.9	19.3	17.5

Table 1 (Page 2 of 2)
Intersection Levels of Service Analysis
Compark South
Parker, CO
LSC #211160; November, 2021

Intersection Location	Traffic Control	Existing Traffic		2025 Background Traffic		2025 Total Traffic		2041 Background Traffic		2041 Total Traffic	
		Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service	Level of Service
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4) <u>Belford Avenue/E. Site Internal Road</u>	TWSC										
NB Approach		--	--	--	--	A	B	A	A	B	B
EB Left		--	--	--	--	--	--	A	A	A	A
WB Left or Approach		--	--	--	--	A	A	A	A	A	A
SB Left		--	--	--	--	--	--	B	B	B	B
SB Through/Right		--	--	--	--	--	--	A	A	A	A
Critical Movement Delay		--	--	--	--	9.9	10.6	11.8	11.4	13.0	11.9
5) <u>Belford Avenue/RIRO Access Road</u>	TWSC										
NB Right		--	--	--	--	A	A	--	--	A	B
Critical Movement Delay		--	--	--	--	9.1	9.0	--	--	9.7	11.3
6) <u>Belford Avenue/N. 6th Street</u>	TWSC										
NB Left		--	--	A	B	B	B	B	C	B	C
NB Through/Right		--	--	A	A	A	A	B	B	B	C
EB Left		--	--	A	A	A	A	A	A	A	A
WB Left		--	--	A	A	A	A	A	A	A	A
SB Left		--	--	A	B	B	B	B	C	C	C
SB Through/Right		--	--	A	A	A	A	B	B	B	B
Critical Movement Delay		--	--	9.8	10.8	10.6	12.6	13.8	21.4	15.0	23.8
7) <u>Belford Avenue/Internal Connector</u>	TWSC										
EB Left		--	--	A	A	A	A	--	--	--	--
SB Left		--	--	B	B	B	C	--	--	--	--
SB Right		--	--	A	A	A	A	--	--	--	--
Critical Movement Delay		--	--	12.7	13.7	14.1	17.7	--	--	--	--
	Signalized										
EB Left		--	--	--	--	--	--	A	A	A	A
EB Through		--	--	--	--	--	--	A	A	A	A
WB Through		--	--	--	--	--	--	C	B	C	B
WB Right		--	--	--	--	--	--	A	B	A	B
SB Left		--	--	--	--	--	--	E	E	E	E
SB Right		--	--	--	--	--	--	B	B	B	B
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	22.0	17.1	21.7	16.9
Entire Intersection LOS		--	--	--	--	--	--	C	B	C	B
8) <u>S. Chambers Road/Belford Avenue</u>	Signalized										
EB Left		--	--	D	D	D	D	E	E	E	D
EB Right		--	--	A	A	A	A	A	A	A	A
NB Left		--	--	D	D	D	D	D	E	D	E
NB Through		--	--	A	A	A	A	B	A	B	A
SB Through		--	--	A	B	A	B	B	D	B	D
SB Right		--	--	A	A	A	A	A	B	A	B
Entire Intersection Delay (sec /veh)		--	--	13.2	13.9	14.9	15.2	17.2	39.1	18.2	40.9
Entire Intersection LOS		--	--	B	B	B	B	B	D	B	D

Table 2
ESTIMATED TRAFFIC GENERATION
Compark South
Parker, CO
LSC #211160; November, 2021

Trip Generating Category	Quantity	Trip Generation Rates ⁽¹⁾					Vehicle - Trips Generated				
		Average	AM Peak Hour		PM Peak Hour		Average	AM Peak Hour		PM Peak - Hour	
		Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
Currently Proposed Land Use											
Single-Family Detached Housing ⁽²⁾	33 DU ⁽³⁾	9.43	0.182	0.518	0.592	0.348	311	6	17	20	11
Apartments ⁽⁴⁾	300 DU	6.74	0.096	0.304	0.321	0.189	2,022	29	91	96	57
Total =							2,333	35	108	116	68

Notes:

- (1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
- (2) ITE Land Use No. 210 - Single-Family Detached Housing
- (3) DU = Dwelling Units
- (4) ITE Land Use No. 220 - Multifamily Housing (Low-Rise)

Table 3
95th Percentile Queue Lengths
Compark South
Parker, CO
LSC #211160; November, 2021

Intersection No. & Location	Turn Lane Lengths		2025 Total		2040 Total	
	Existing (feet)	Proposed (feet)	AM Peak (feet)	PM Peak (feet)	Am Peak (feet)	Pm Peak (feet)
1) <u>S. Peoria Street/Belford Avenue</u>						
EB Left	2 @ 300	2 @ 300	35	155	58	303
EB Through	--	--	11	14	11	71
EB Right	Continuous	Continuous	0	47	0	91
WB Left	--	2 @ 200	70	49	66	184
WB Through	--	--	27	24	94	20
WB Right	--	200	0	0	0	0
NB Left	280	2 @ 225	78	14	134	22
NB Through	--	--	138	86	908	199
NB Right	--	200	0	0	196	7
SB Left	--	1 @ 115 1 @ 185	35	71	353	201
SB Through	--	--	67	160	181	590
SB Right	Continuous	Continuous	0	0	0	0
2) <u>Belford Avenue/W. Site Internal Road</u>						
EB Left	--	150	--	--	m77	m55
EB Through	--	--	--	--	m72	218
WB Left	--	100	--	--	m2	9
WB Through	--	--	--	--	24	38
WB Right	--	100	--	--	0	0
NB Approach	--	--	--	--	6	0
SB Left	--	230	--	--	68	228
SB Through	--	--	--	--	0	0
7) <u>Belford Avenue/Internal Connector</u>						
EB Left	--	100	--	--	20	m17
EB Through	--	--	--	--	69	117
WB Through	--	--	--	--	344	235
WB Right	--	100	--	--	m60	m81
SB Left	--	280	--	--	257	279
SB Right	--	--	--	--	31	29
8) <u>S. Chambers Road/Belford Avenue</u>						
EB Left	--	2 @ 325	133	145	218	323
EB Right	--	Continuous	0	0	0	0
NB Left	--	2 @ 235	97	105	183	154
NB Through	--	--	88	75	710	70
SB Through	--	--	73	305	117	959
SB Right	--	275	31	43	229	260

Notes:

m = metered by adjacent signals

= May need to be lengthened with future commercial development.

Table 4
Recommended Improvements
Compark South
Parker, CO
LSC #211160; November, 2021

Inter-
section

No.	Intersection Location	Recommended Improvements by 2025	Responsibility	Recommended Improvements by 2041	Responsibility
	Belford Avenue	Two-lane construction west to S. Peoria Street	Applicant	Widen to four lane section	Others
#1	S. Peoria Street/Belford Avenue	WB LT = 200'	Others	WB LT = add second lane - 2 @ 200'	Others
		WB RT = 200'	Others	Minor Traffic Signal Modifications	Others
		NB LT = 2 @ 225'	Others	SB LT = Potentially lengthen to 2 @ 350'	Others
		NB RT = 200'	Others		
		SB LT = 2 @ 200'	Others		
		Traffic Signal Modifications	Others		
#2	Belford Avenue/W. Site Internal Road	None		EB LT = 100' + 120' transition taper	Others
				WB LT = 100' + 120' transition taper	Others
				WB RT = 100' + 120' transition taper	Others
				SB LT = 230' + 50' transition taper	Others
				Traffic Signal Control	Others
#3	Belford Avenue/Middle Site Internal Road	None		EB LT = 100' + 120' transition taper	Others
				WB LT = 100' + 120' transition taper	Others
				SB LT = 100' + 50' transition taper	Others
#4	Belford Avenue/E. Site Internal Road	None		EB LT = 100' + 120' transition taper	Others
				WB LT = 100' + 120' transition taper	Others
				SB LT = 100' + 50' transition taper	Others
#5	Belford Avenue/RIRO Access Road	None		None	
#6	Belford Avenue/N. 6th Street	EB LT = 100' + 120' transition taper	Others	None	
		WB LT = 100' + 120' transition taper	Others		
		WB RT = 100' + 120' transition taper	Others		
		SB LT = 100' + 50' transition taper	Others		
#7	Belford Avenue/Internal Connector	EB LT = 100' + 120' transition taper	Others	None	
		WB RT = 100' + 120' transition taper	Others		
		SB LT = 275' + 50' transition taper	Others		
		Traffic Signal Control	Others		
#8	S. Chambers Road/Belford Avenue	EB LT = 2 @ 325'	Others	None	
		EB RT = Continuous Lane	Others		
		NB LT = 2 @ 235' + 13.5:1 transition taper	Others		
		SB RT = 275' + 160' transition taper	Others		
		Traffic Signal Control	Others		



Figure 1

Vicinity Map

Compark Village South (LSC #211160)

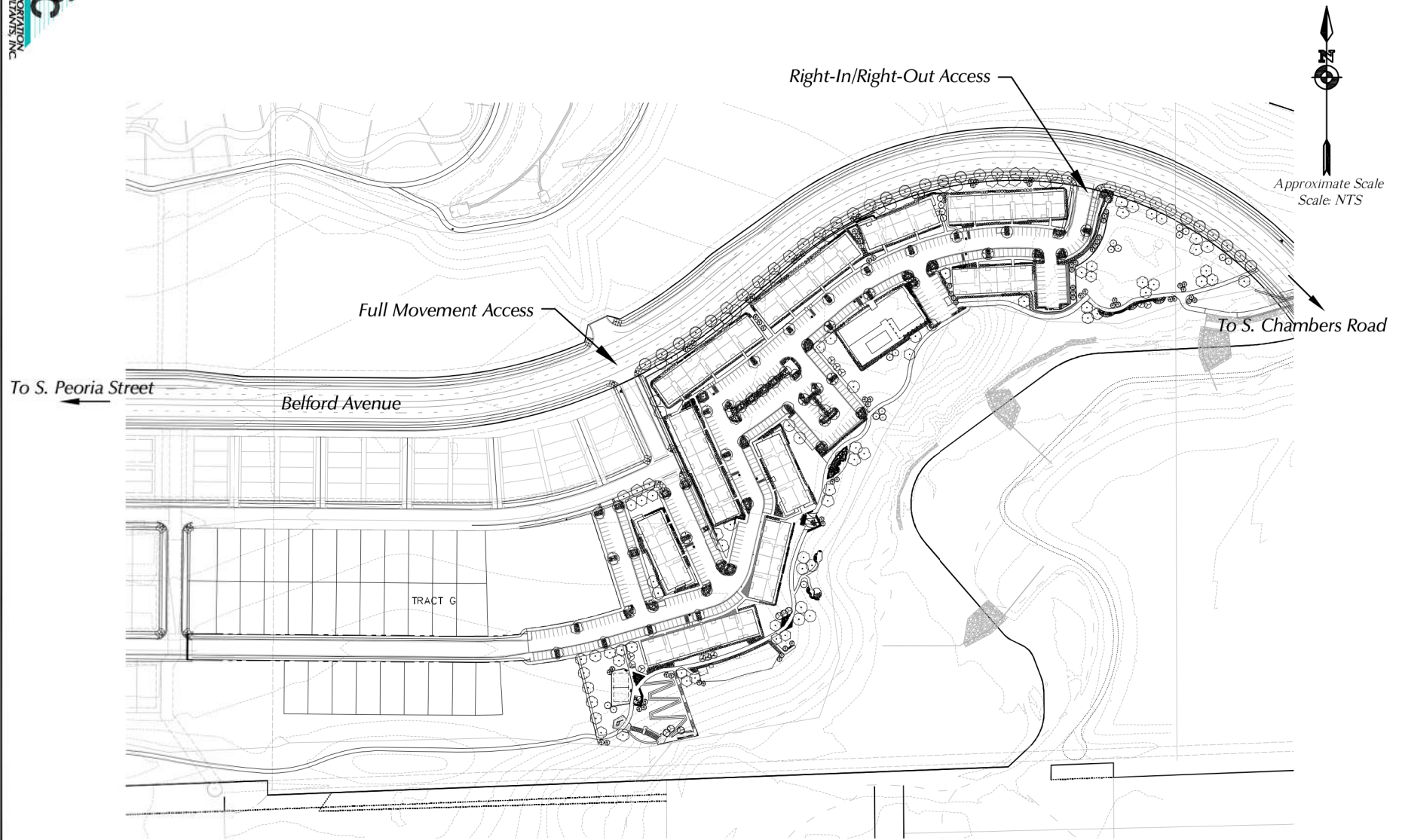


Figure 2

Site Plan

Compark Village South (LSC #211160)



LEGEND:

- = Stop Sign
- = Traffic Signal
- = Speed Limit
- $\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$
- 1,000 = Average Daily Traffic

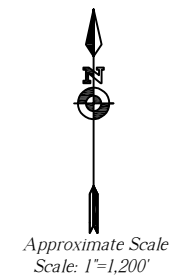
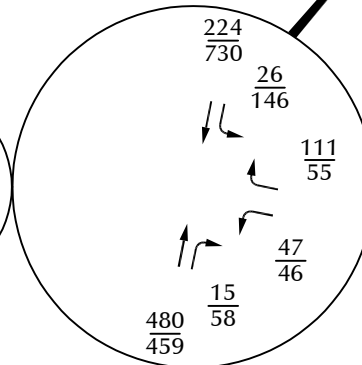
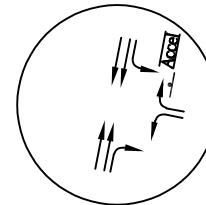
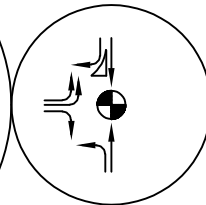
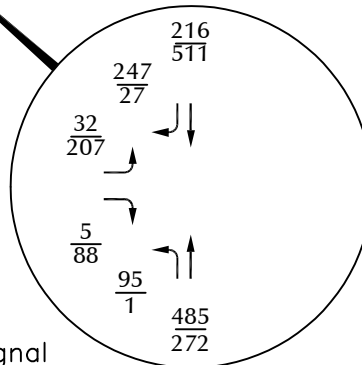
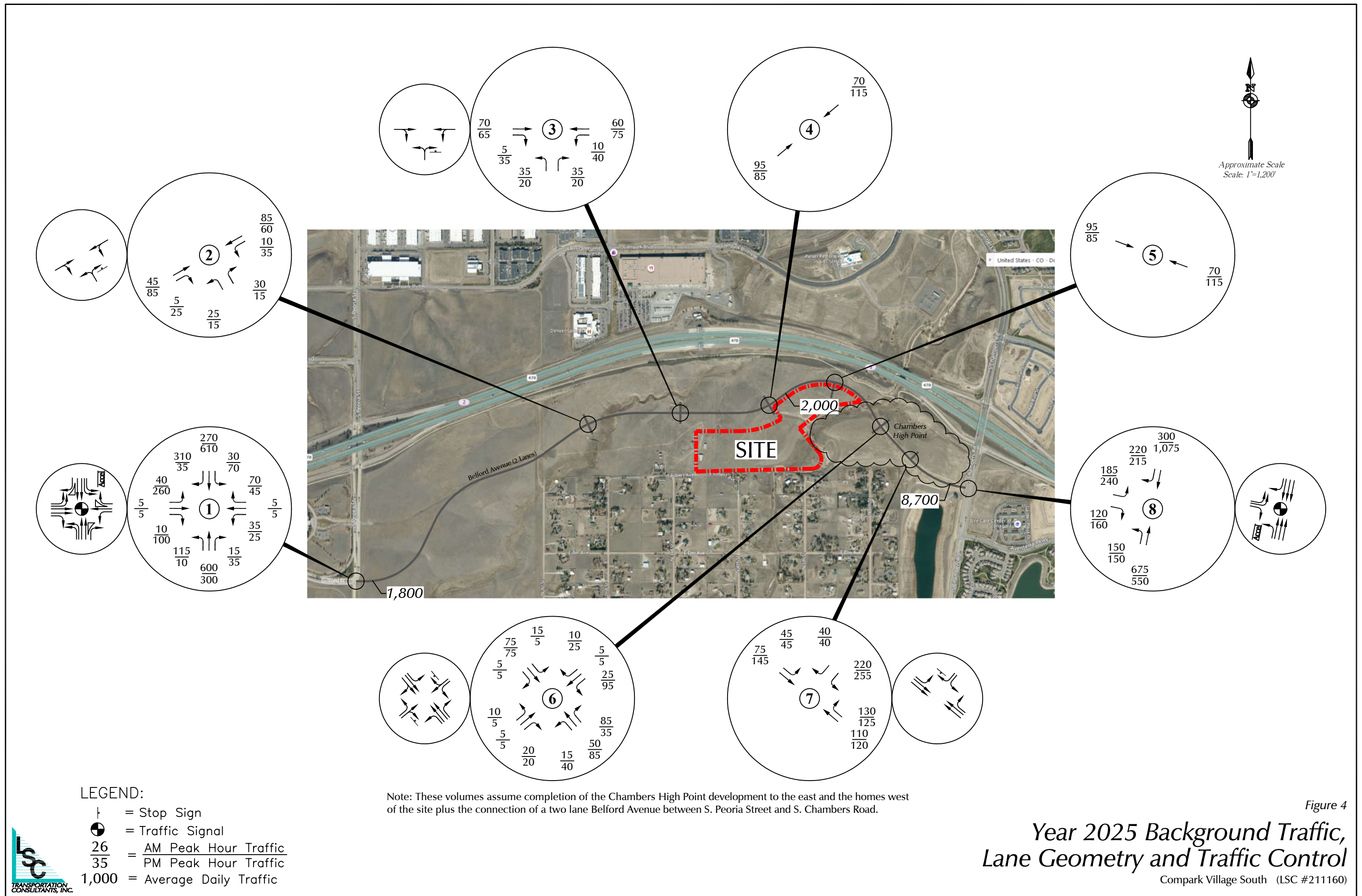
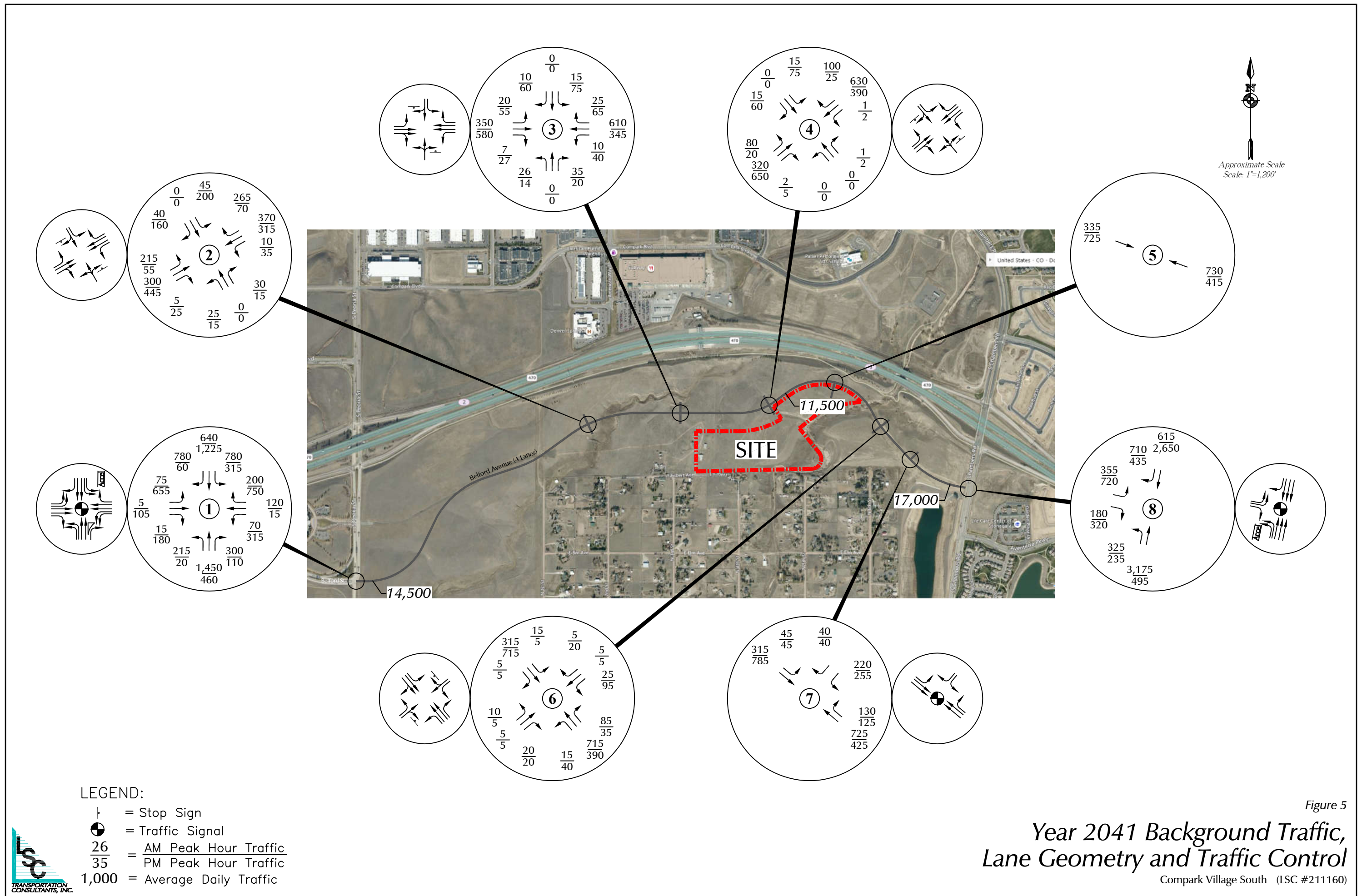
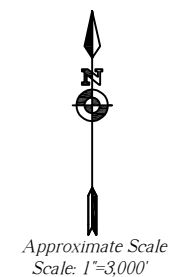


Figure 3
**Existing Traffic, Lane
Geometry and Traffic Control**
Compark Village South (LSC #211160)





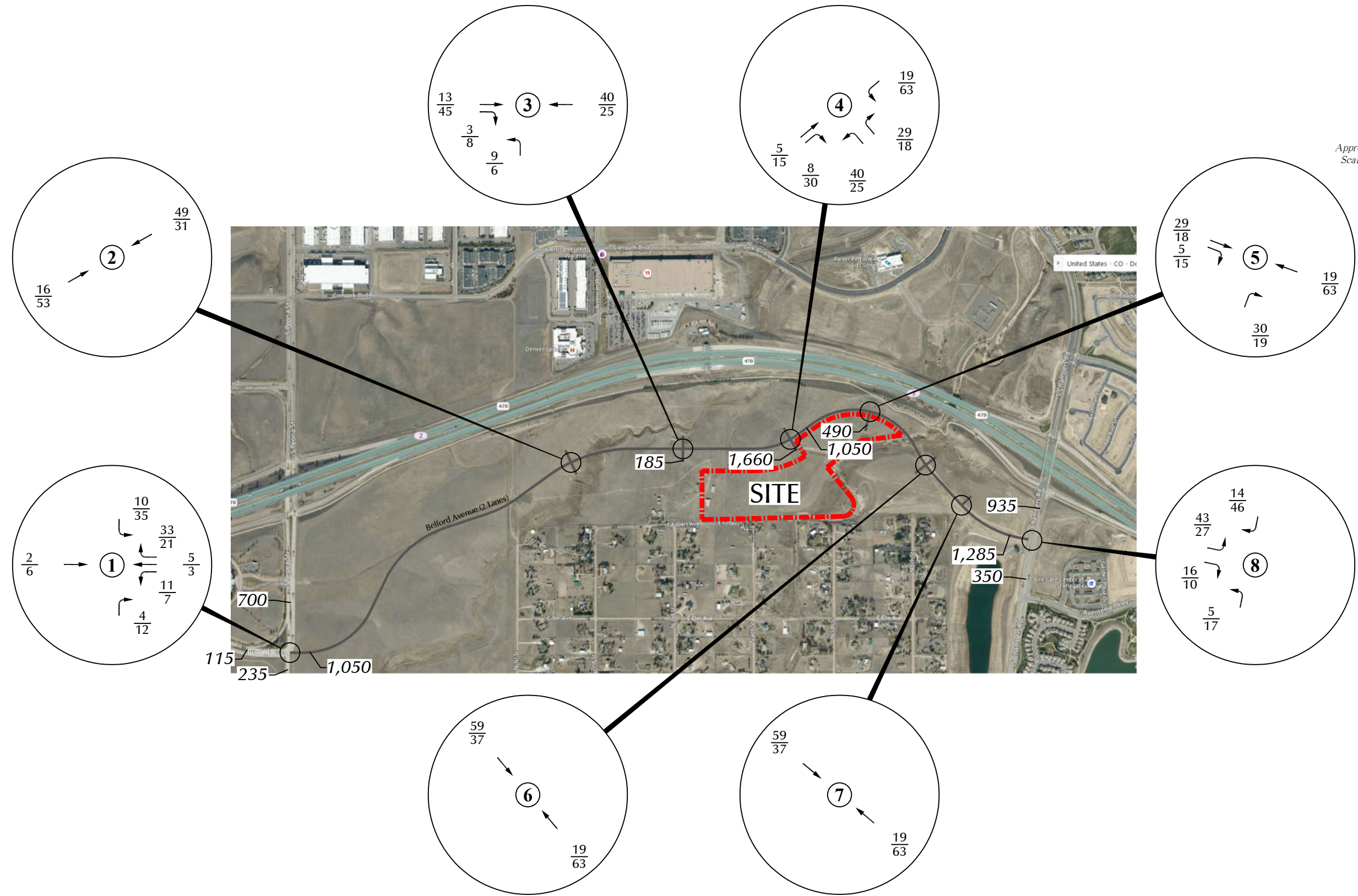


LEGEND:

← 65% → = Percent Directional Distribution

Figure 6
*Directional Distribution
of Site-Generated Traffic*

Compark Village South (LSC #211160)



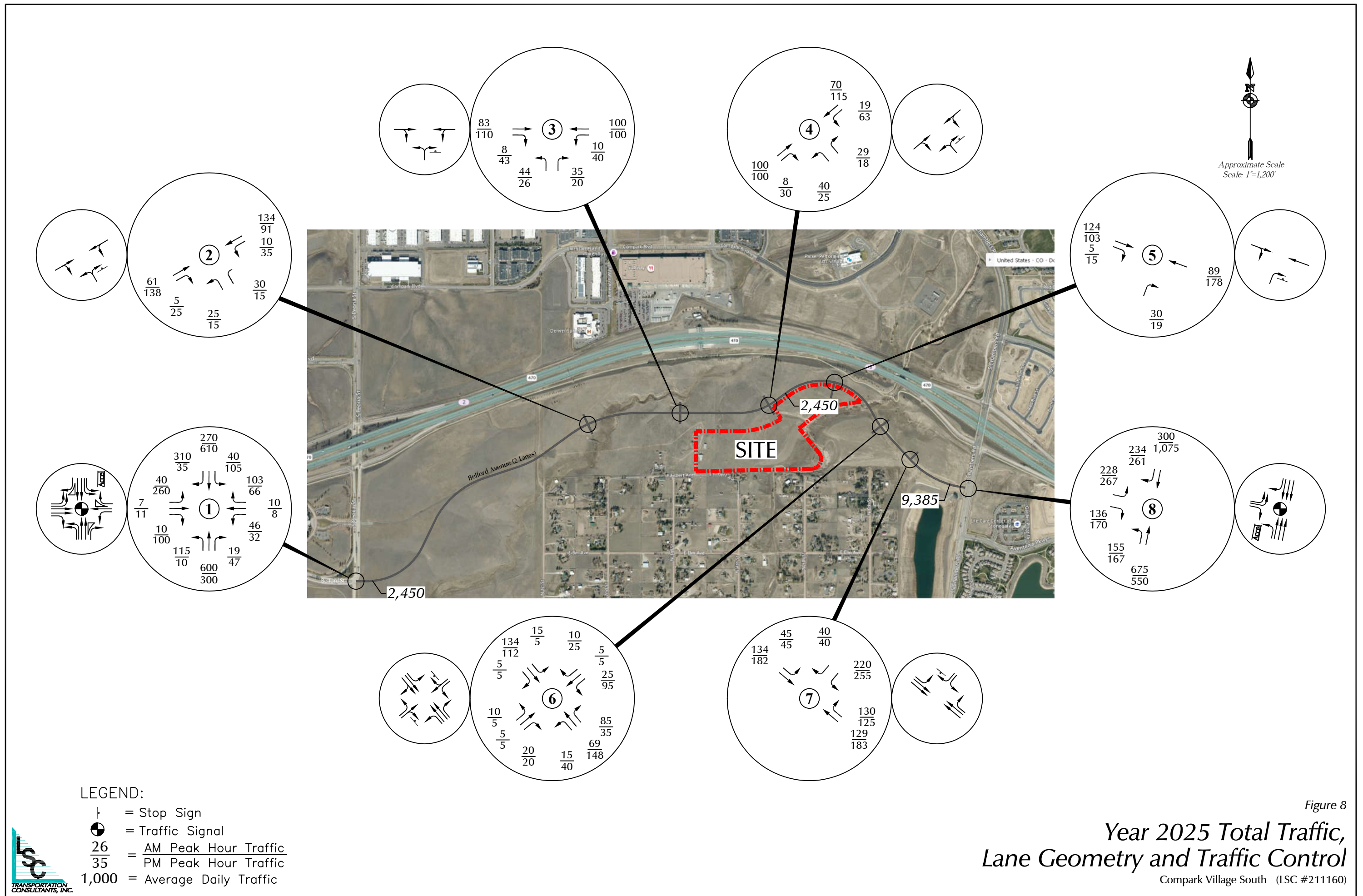
North Arrow
Approximate Scale
Scale: 1"=1,200'

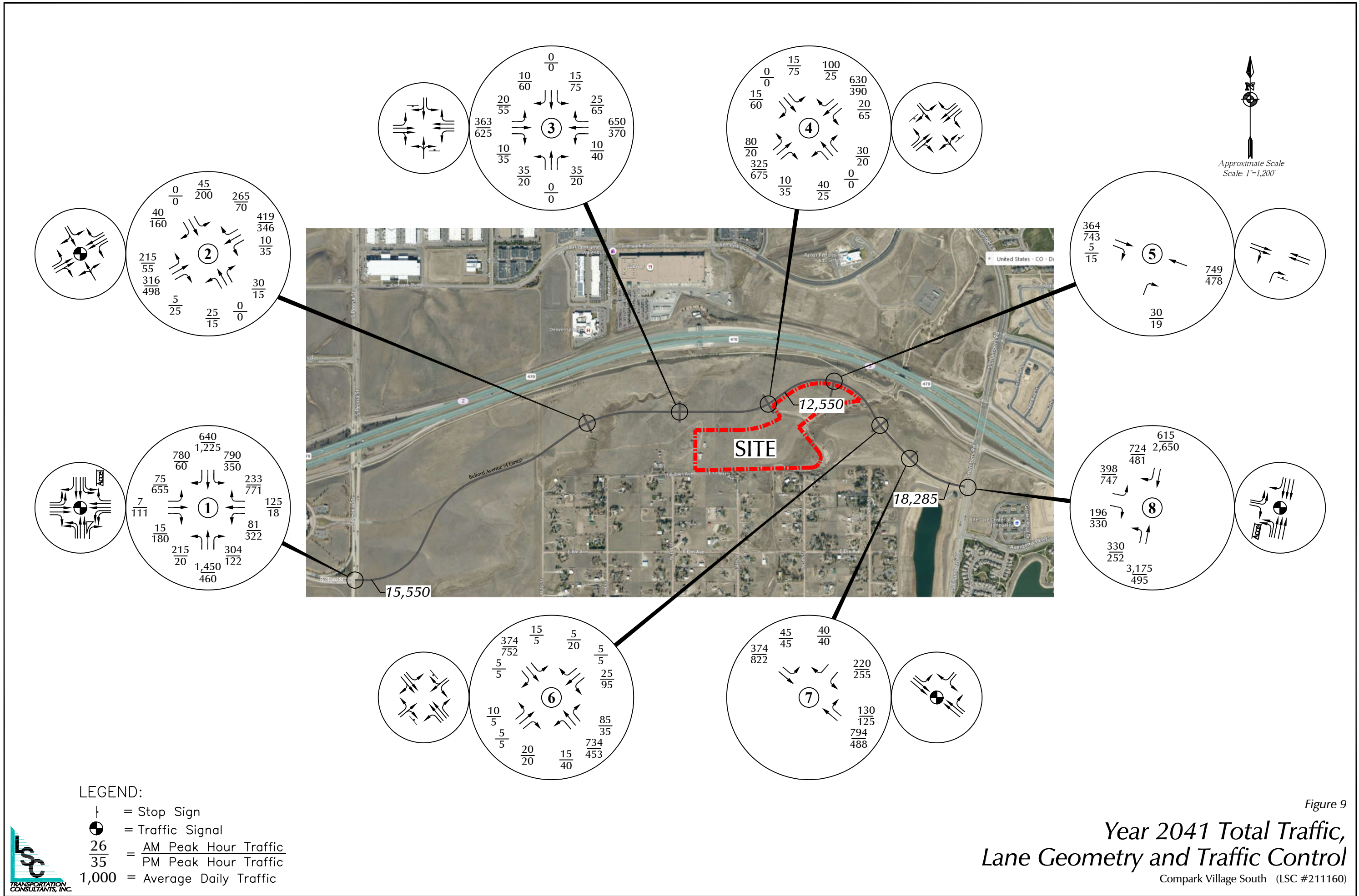
LEGEND:

$\frac{26}{35}$ = AM Peak Hour Traffic
 $\frac{35}{26}$ = PM Peak Hour Traffic
 1,000 = Average Daily Traffic



Figure 7
**Assignment of
 Site-Generated Traffic**
 Compark Village South (LSC #211160)







TIS Standard Checklist

Development: Compark South

Filing: _____

Consultant: LSC Transportation Consultants, Inc.

Date: November 5, 2021

Submittal Number: TIA #1

Reviewed By: _____

Required Discussions - To be completed by the Transportation Consultant Engineer:

REPORT SECTION	COMPLETED	N/A	COMMENTS
GENERAL	☐	☐	
Original & Revision Dates	☒	☐	
Dated, Checked, Sealed & Signed by P.E.	☒	☐	
INTRODUCTION	☐	☐	
Vicinity Map	☒	☐	Figure 1
Proposed Project Site Plan	☒	☐	Figure 2
Proposed Development Phasing	☐	☒	
Existing & Proposed Land Uses Surrounding Site	☒	☐	LAND USE AND ACCESS SECTION
EXISTING CONDITIONS	☐	☐	
Roadway Counts < One Year Old	☒	☐	Figure 3
Intersection Counts < Six Months Old	☒	☐	Figure 3
Existing LOS Summary (Table)	☒	☐	Table 1
PROPOSED CONDITIONS	☐	☐	
Trip Generation Summary (Table)	☒	☐	Table 2
Internal Trip Reduction Justification (< 10%)	☐	☒	
Pass-by Trip Reduction Justification (< 15%)	☐	☐	
Trip Distribution Assumptions	☒	☐	TRIP DISTRIBUTION
Site Trip Distribution (Figure)	☒	☐	Figure 6
Projected Site Traffic Volumes (Figure) - Each Phase	☒	☐	Figure 7

REPORT SECTION	COMPLETED	N/A	COMMENTS
FUTURE CONDITIONS	☐	☐	
Background Transportation Improvements	☒	☐	Figures 4 and 5
Background Growth Method & Assumptions	☒	☐	REPORT NARRATIVE and Figures 4 and 5
Background Traffic Volumes (Figure) - Each Phase	☒	☐	Figures 4 and 5
Total Traffic Volumes (Figure) - Each Phase	☒	☐	Figures 8 and 9
SITE CIRCULATION & DESIGN EVALUATION	☐	☐	
Level of Service Analysis - Each Phase (Figures/Table)	☒	☐	Table 1
Queuing Analysis - Vehicle Storage Lengths	☒	☐	Table 3
Traffic Signal Warrant Analysis	☐	☒	
Traffic Signal Progression	☐	☒	
Safety Analysis	☐	☒	
PROPOSED MITIGATION MEASURES	☐	☐	
Level of Service for Each Intersection Movement (Table)	☒	☐	Table 1
CONCLUSIONS/RECOMMENDATIONS	☐	☐	
Improvements/Lane Configurations (Figure)	☒	☐	Figures 8 and 9 and Table 4
Recommended Construction Phasing	☐	☒	
APPENDIX	☐	☐	
Traffic Count Data	☒	☐	
Traffic Analysis Software Output Reports (All Periods)	☒	☐	
Time-space Diagrams	☐	☒	

"I have reviewed the attached report with this checklist and all required items have been included except as noted above."

Signature of Professional Engineer

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: CHAMBERS ROAD
E/W STREET: AVENTERRA PARKWAY
CITY: PARKER
COUNTY: DOUGLAS

File Name : CHAMBAVENT
Site Code : 00000005
Start Date : 10/21/2021
Page No : 1

Groups Printed- VEHICLES

	CHAMBERS RD Southbound				Westbound				CHAMBERS RD Northbound				AVENTERRA PKWY Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
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	2	49	0	0	4	0	23	0	0	95	1	0	0	0	0	0	174
06:45 AM	2	50	0	0	13	3	18	0	1	97	1	0	0	0	0	0	185
Total	4	99	0	0	17	3	41	0	1	192	2	0	0	0	0	0	359
07:00 AM	2	43	0	0	12	0	16	0	0	97	1	0	0	0	0	0	171
07:15 AM	5	64	0	0	10	1	26	0	0	104	4	1	0	0	0	0	215
07:30 AM	10	46	0	0	10	0	30	1	0	151	5	0	0	0	0	0	253
07:45 AM	9	71	0	0	15	0	39	0	0	128	5	0	0	0	0	0	267
Total	26	224	0	0	47	1	111	1	0	480	15	1	0	0	0	0	906
04:00 PM	34	157	0	0	11	0	19	0	0	94	15	0	0	0	0	0	330
04:15 PM	30	170	0	0	10	1	16	0	0	86	8	0	0	0	0	0	321
04:30 PM	37	163	0	0	14	0	14	0	0	116	10	2	0	0	0	0	356
04:45 PM	31	193	0	0	8	0	8	0	0	112	12	2	0	0	0	0	366
Total	132	683	0	0	43	1	57	0	0	408	45	4	0	0	0	0	1373
05:00 PM	34	198	0	0	10	0	9	0	0	114	19	2	0	0	0	0	386
05:15 PM	44	176	0	0	14	1	24	0	0	117	17	0	0	0	0	0	393
05:30 PM	32	156	0	1	18	1	11	0	0	92	8	0	0	0	0	0	319
05:45 PM	27	166	0	0	10	0	10	0	0	92	11	2	0	0	0	0	318
Total	137	696	0	1	52	2	54	0	0	415	55	4	0	0	0	0	1416
Grand Total	299	1702	0	1	159	7	263	1	1	1495	117	9	0	0	0	0	4054
Apprch %	14.9	85.0	0.0	0.0	37.0	1.6	61.2	0.2	0.1	92.2	7.2	0.6	0.0	0.0	0.0	0.0	
Total %	7.4	42.0	0.0	0.0	3.9	0.2	6.5	0.0	0.0	36.9	2.9	0.2	0.0	0.0	0.0	0.0	

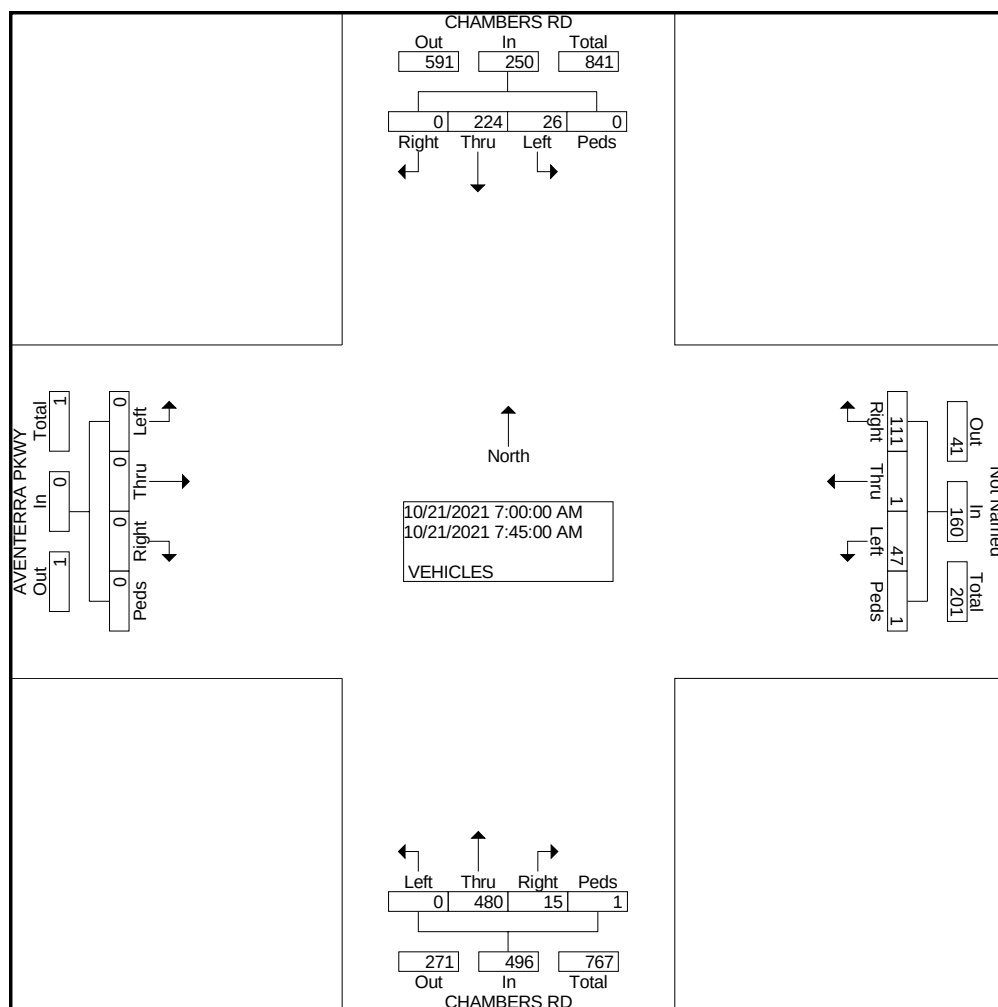
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: CHAMBERS ROAD
E/W STREET: AVENTERRA PARKWAY
CITY: PARKER
COUNTY: DOUGLAS

File Name : CHAMBAVENT
Site Code : 00000005
Start Date : 10/21/2021
Page No : 2

	CHAMBERS RD Southbound					Westbound					CHAMBERS RD Northbound					AVENTERRA PKWY 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 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	26	224	0	0	250	47	1	111	1	160	0	480	15	1	496	0	0	0	0	0	906
Percent	10.4	89.6	0.0	0.0		29.4	0.6	69.4	0.6		0.0	96.8	3.0	0.2		0.0	0.0	0.0	0.0		
07:45 Volume	9	71	0	0	80	15	0	39	0	54	0	128	5	0	133	0	0	0	0	0	267
Peak Factor																					0.848
High Int. Volume	07:45 AM					07:45 AM					07:30 AM					6:15:00 AM					
Peak Factor	9	71	0	0	80	15	0	39	0	54	0	151	5	0	156						
	0.78					0.74					0.79					5					
	1					1					5										



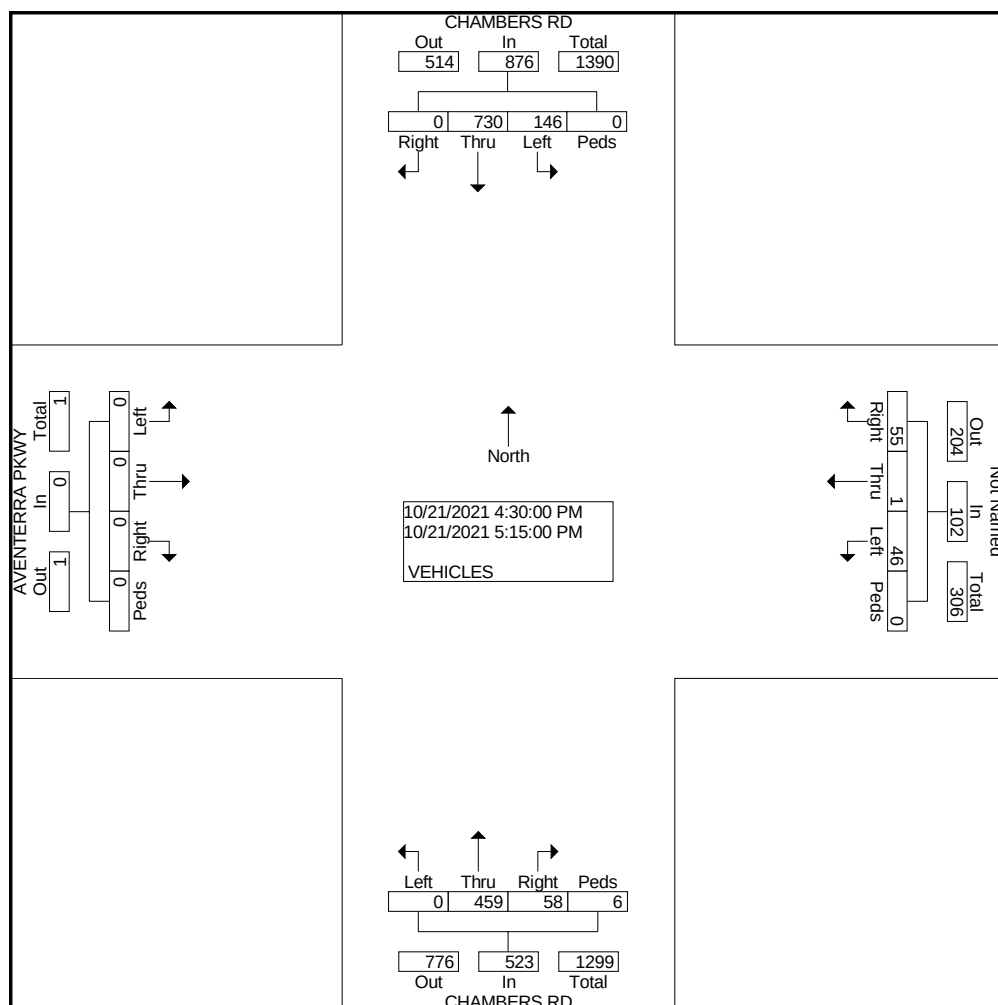
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: CHAMBERS ROAD
E/W STREET: AVENTERRA PARKWAY
CITY: PARKER
COUNTY: DOUGLAS

File Name : CHAMBAVENT
Site Code : 00000005
Start Date : 10/21/2021
Page No : 2

	CHAMBERS RD Southbound					Westbound					CHAMBERS RD Northbound					AVENTERRA PKWY 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	04:30 PM																				
Intersection	04:30 PM																				
Volume	146	730	0	0	876	46	1	55	0	102	0	459	58	6	523	0	0	0	0	0	1501
Percent	16.7	83.3	0.0	0.0		45.1	1.0	53.9	0.0		0.0	87.8	11.1	1.1		0.0	0.0	0.0	0.0		
05:15 Volume	44	176	0	0	220	14	1	24	0	39	0	117	17	0	134	0	0	0	0	0	393
Peak Factor																					0.955
High Int. Volume	05:00 PM					05:15 PM					05:00 PM										
Peak Factor	34	198	0	0	232	14	1	24	0	39	0	114	19	2	135						
	0.94					0.65					0.96					9					
	4					4					9										



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PEORIA STREET
E/W STREET: BELFORD AVENUE
CITY: PARKER
COUNTY: DOUGLAS

File Name : PEORIA.BELF
Site Code : 00000022
Start Date : 10/21/2021
Page No : 1

Groups Printed- VEHICLES

	PEORIA STREET Southbound				Westbound				PEORIA STREET Northbound				BELFORD AVENUE Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
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	22	32	0	0	0	0	0	6	52	0	0	5	0	1	0	118
06:45 AM	0	29	30	0	0	0	0	0	13	89	0	0	3	0	2	0	166
Total	0	51	62	0	0	0	0	0	19	141	0	0	8	0	3	0	284
07:00 AM	0	38	39	0	0	0	0	0	15	91	0	0	7	0	2	0	192
07:15 AM	0	52	47	0	0	0	0	0	23	111	0	0	6	0	2	0	241
07:30 AM	0	60	60	0	0	0	0	0	20	130	0	0	6	0	0	0	276
07:45 AM	0	66	101	0	0	0	0	0	37	153	0	0	13	0	1	0	371
Total	0	216	247	0	0	0	0	0	95	485	0	0	32	0	5	0	1080
08:00 AM	0	58	93	0	0	0	0	0	25	113	0	0	6	0	5	0	300
08:15 AM	0	57	85	0	0	0	0	0	25	149	0	0	7	0	1	0	324
Total	0	115	178	0	0	0	0	0	50	262	0	0	13	0	6	0	624
04:00 PM	0	118	7	0	0	0	0	0	1	54	0	0	39	0	14	0	233
04:15 PM	0	104	9	0	0	0	0	0	3	53	0	0	43	0	29	0	241
04:30 PM	0	127	2	0	0	0	0	0	0	72	0	0	53	0	22	0	276
04:45 PM	0	117	5	0	0	0	0	0	1	63	0	0	43	0	24	0	253
Total	0	466	23	0	0	0	0	0	5	242	0	0	178	0	89	0	1003
05:00 PM	0	152	7	0	0	0	0	0	0	69	0	0	65	0	24	0	317
05:15 PM	0	115	13	0	0	0	0	0	0	68	0	0	46	0	18	0	260
05:30 PM	0	105	5	0	0	0	0	0	0	82	0	0	38	0	15	0	245
05:45 PM	0	102	4	0	0	0	0	0	0	62	0	0	27	0	9	0	204
Total	0	474	29	0	0	0	0	0	0	281	0	0	176	0	66	0	1026
Grand Total	0	1322	539	0	0	0	0	0	169	1411	0	0	407	0	169	0	4017
Apprch %	0.0	71.0	29.0	0.0	0.0	0.0	0.0	0.0	10.7	89.3	0.0	0.0	70.7	0.0	29.3	0.0	
Total %	0.0	32.9	13.4	0.0	0.0	0.0	0.0	0.0	4.2	35.1	0.0	0.0	10.1	0.0	4.2	0.0	

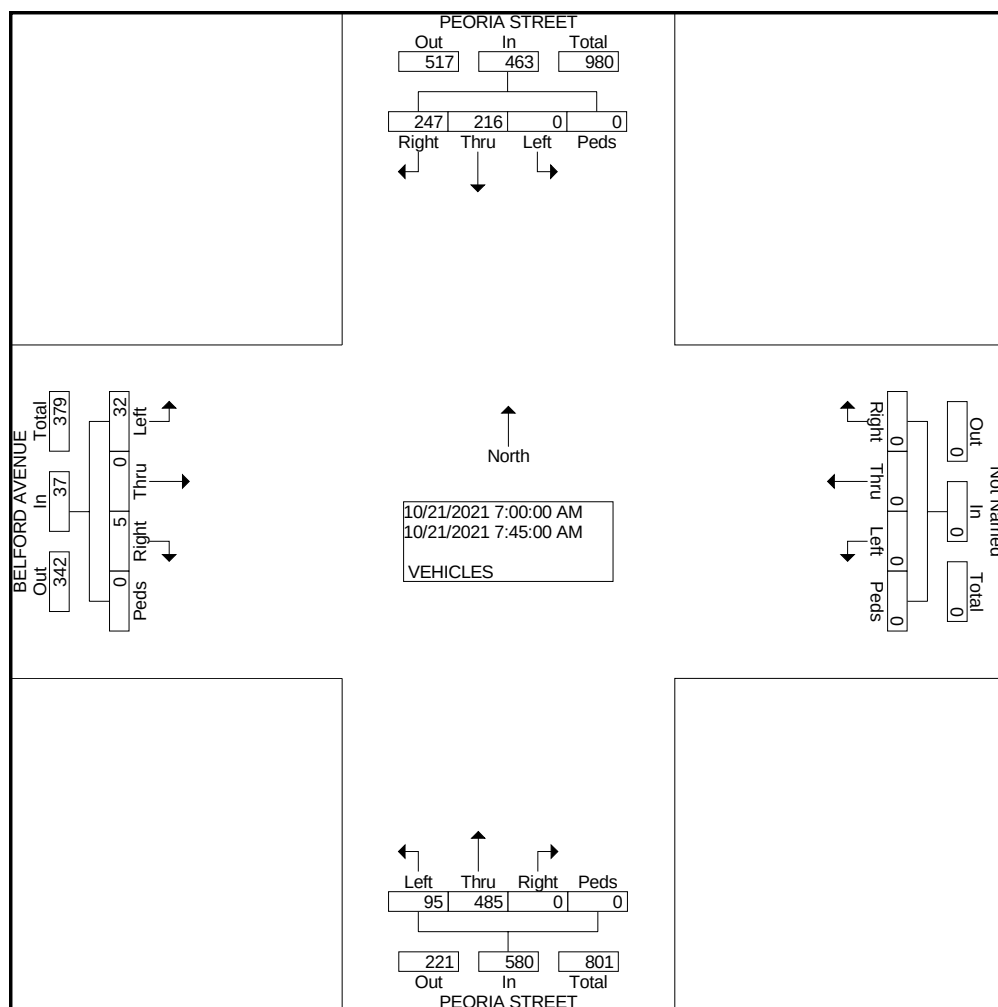
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PEORIA STREET
E/W STREET: BELFORD AVENUE
CITY: PARKER
COUNTY: DOUGLAS

File Name : PEORIA.BELF
Site Code : 00000022
Start Date : 10/21/2021
Page No : 2

	PEORIA STREET Southbound					Westbound					PEORIA STREET Northbound					BELFORD AVENUE 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	216	247	0	463	0	0	0	0	0	95	485	0	0	580	32	0	5	0	37	1080
Percent	0.0	46.7	53.3	0.0		0.0	0.0	0.0	0.0		16.4	83.6	0.0	0.0		86.5	0.0	13.5	0.0		
07:45																					
Volume	0	66	101	0	167	0	0	0	0	0	37	153	0	0	190	13	0	1	0	14	371
Peak Factor																					0.728
High Int.	07:45 AM										07:45 AM					07:45 AM					
Volume	0	66	101	0	167	0	0	0	0	0	37	153	0	0	190	13	0	1	0	14	
Peak Factor	0.693										0.763					0.661					



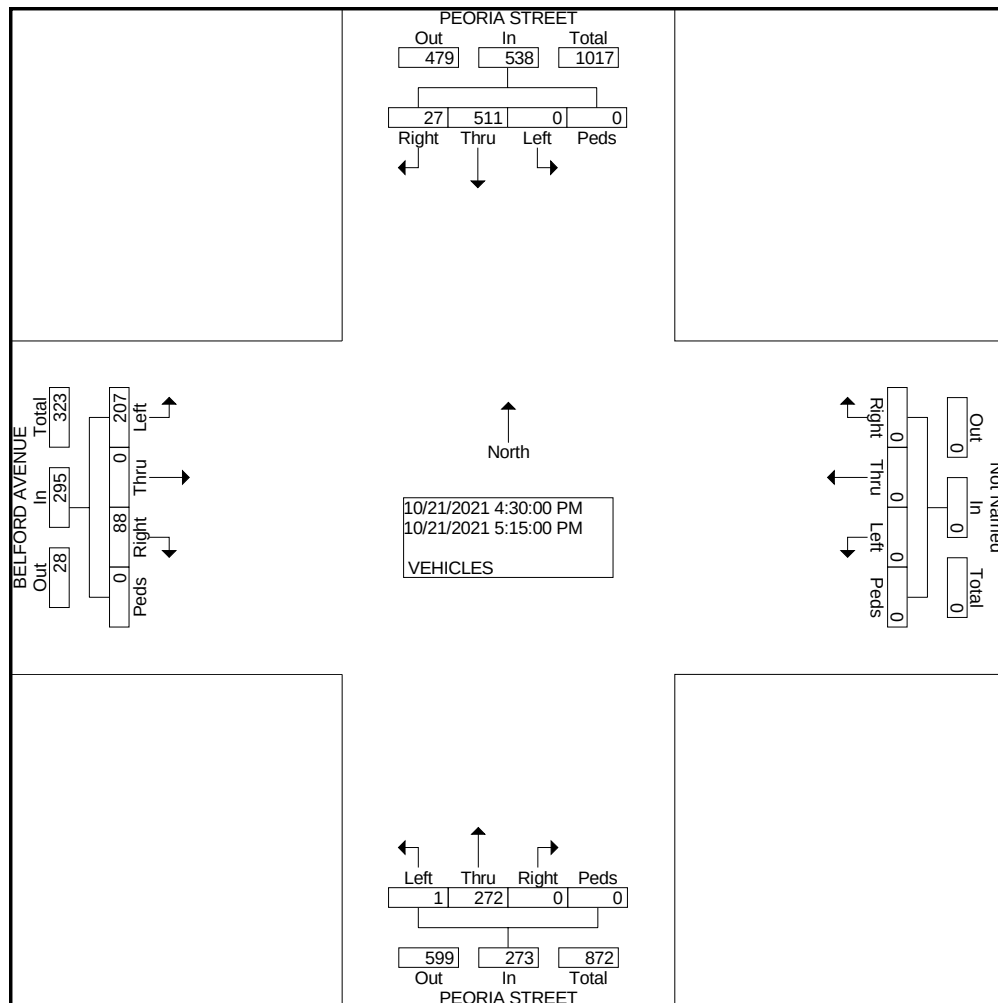
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: PEORIA STREET
E/W STREET: BELFORD AVENUE
CITY: PARKER
COUNTY: DOUGLAS

File Name : PEORIA.BELF
Site Code : 00000022
Start Date : 10/21/2021
Page No : 2

	PEORIA STREET Southbound					Westbound					PEORIA STREET Northbound					BELFORD AVENUE 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 04:30 PM to 05:15 PM - Peak 1 of 1	04:30 PM																				
Intersection	04:30 PM																				
Volume	0	511	27	0	538	0	0	0	0	0	1	272	0	0	273	207	0	88	0	295	1106
Percent	0.0	95.0	5.0	0.0		0.0	0.0	0.0	0.0		0.4	99.6	0.0	0.0		70.2	0.0	29.8	0.0		
05:00																					
Volume	0	152	7	0	159	0	0	0	0	0	0	69	0	0	69	65	0	24	0	89	317
Peak Factor																					0.872
High Int.	05:00 PM										04:30 PM					05:00 PM					
Volume	0	152	7	0	159	0	0	0	0	0	0	72	0	0	72	65	0	24	0	89	
Peak Factor																					0.829



Location: CHAMBERS ROAD N-O AVENTERRA PARKWAY
City: PARKER
County: DOUGLAS
Direction: NORTH/SOUTH

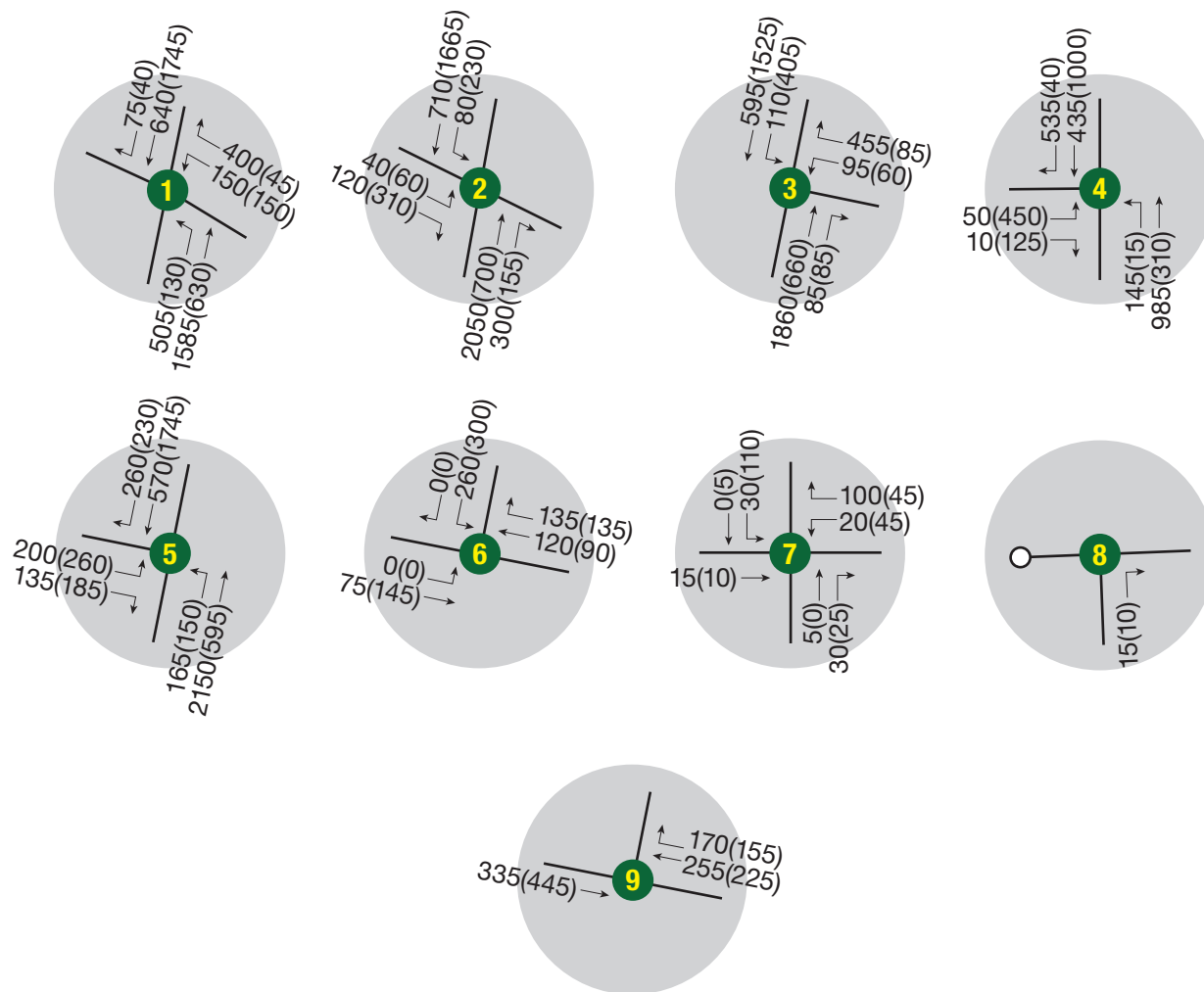
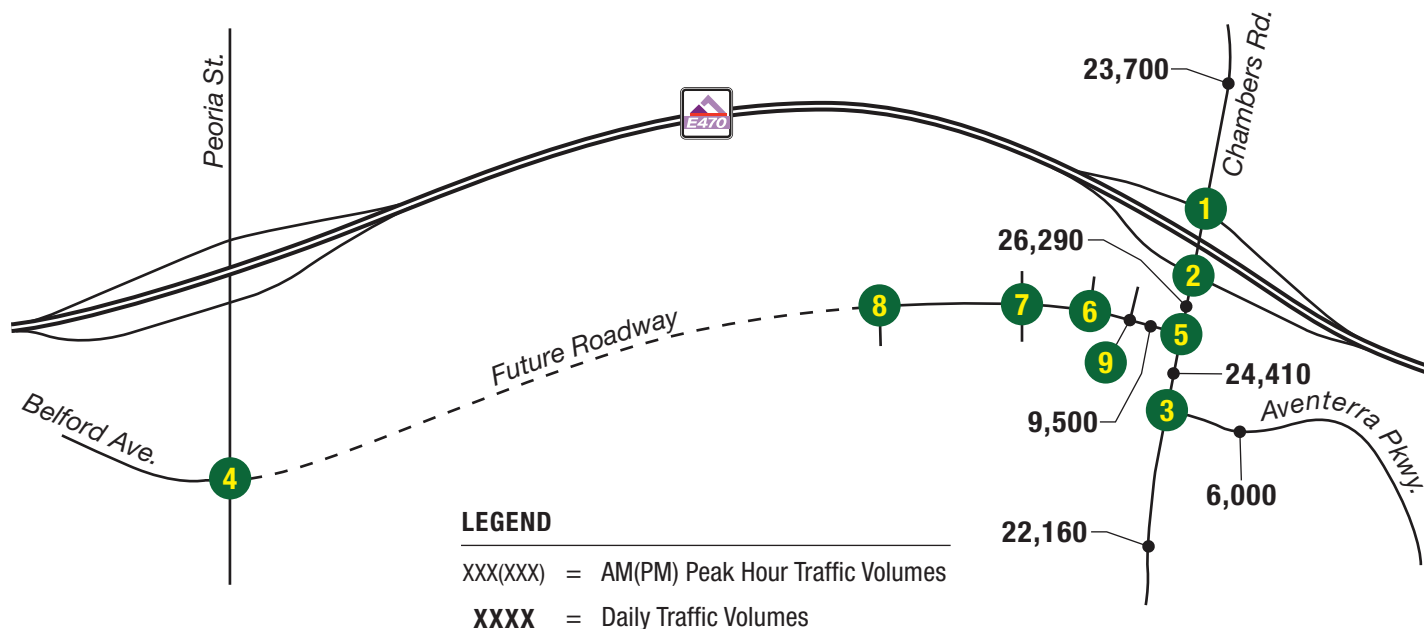
COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

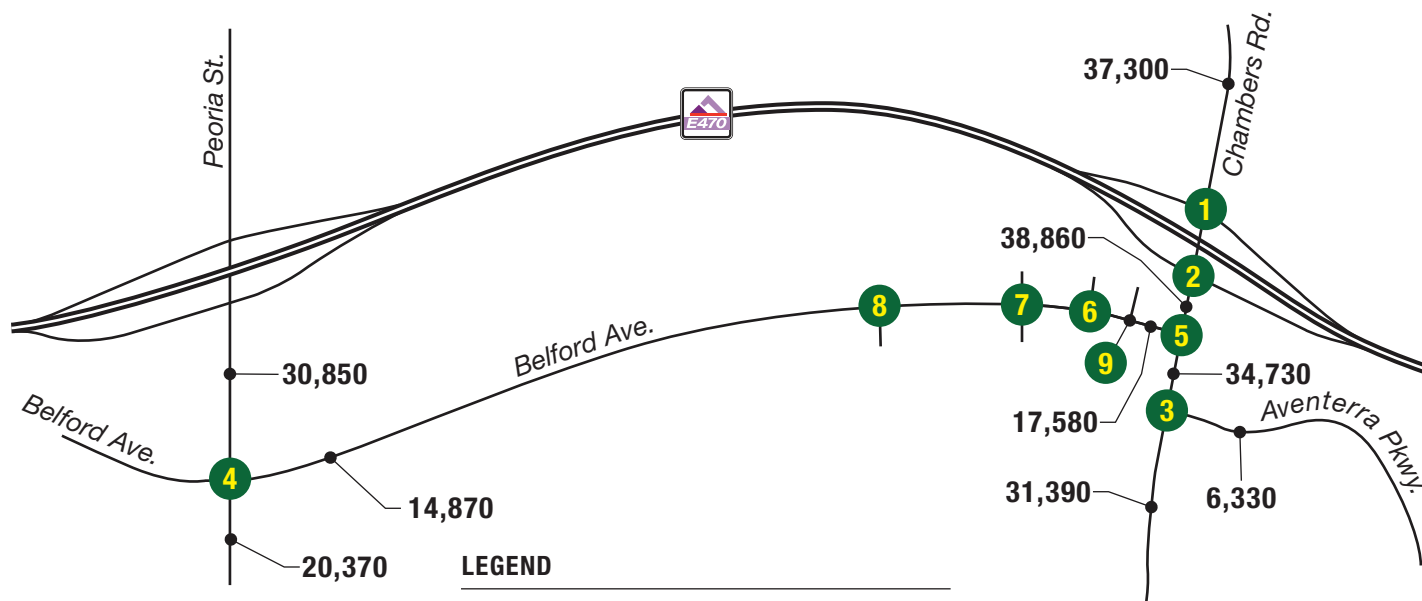
Site Code: 212020
Station ID: 212020

Start Time	21-Oct-21 Thu	NORTHBOU	SOUTHBOU							Total
12:00 AM		29	26							55
01:00		13	12							25
02:00		15	4							19
03:00		12	7							19
04:00		34	14							48
05:00		111	56							167
06:00		358	158							516
07:00		598	256							854
08:00		602	342							944
09:00		370	302							672
10:00		366	296							662
11:00		362	371							733
12:00 PM		404	384							788
01:00		359	330							689
02:00		358	422							780
03:00		438	567							1005
04:00		483	776							1259
05:00		481	796							1277
06:00		388	521							909
07:00		199	292							491
08:00		149	200							349
09:00		125	163							288
10:00		57	82							139
11:00		25	57							82
Total		6336	6434							12770
Percent		49.6%	50.4%							
AM Peak	-	08:00	11:00	-	-	-	-	-	-	08:00
Vol.	-	602	371	-	-	-	-	-	-	944
PM Peak	-	16:00	17:00	-	-	-	-	-	-	17:00
Vol.	-	483	796	-	-	-	-	-	-	1277
Grand Total		6336	6434							12770
Percent		49.6%	50.4%							
ADT		ADT 12,770	AADT 12,770							

Site Code: 212003
Station ID: 212003

Start Time	21-Oct-21	NORTHBOU	SOUTHBOU							Total
12:00 AM		39	36							75
01:00		26	16							42
02:00		36	12							48
03:00		13	12							25
04:00		40	21							61
05:00		102	56							158
06:00		222	166							388
07:00		427	434							861
08:00		420	438							858
09:00		287	291							578
10:00		232	337							569
11:00		250	340							590
12:00 PM		292	296							588
01:00		221	247							468
02:00		263	249							512
03:00		326	342							668
04:00		431	378							809
05:00		466	343							809
06:00		277	282							559
07:00		168	186							354
08:00		70	120							190
09:00		52	92							144
10:00		26	50							76
11:00		6	31							37
Total		4692	4775							9467
Percent		49.6%	50.4%							
AM Peak	-	07:00	08:00	-	-	-	-	-	-	07:00
Vol.	-	427	438	-	-	-	-	-	-	861
PM Peak	-	17:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	466	378	-	-	-	-	-	-	809
Grand Total		4692	4775							9467
Percent		49.6%	50.4%							
ADT		ADT 9,467	AADT 9,467							

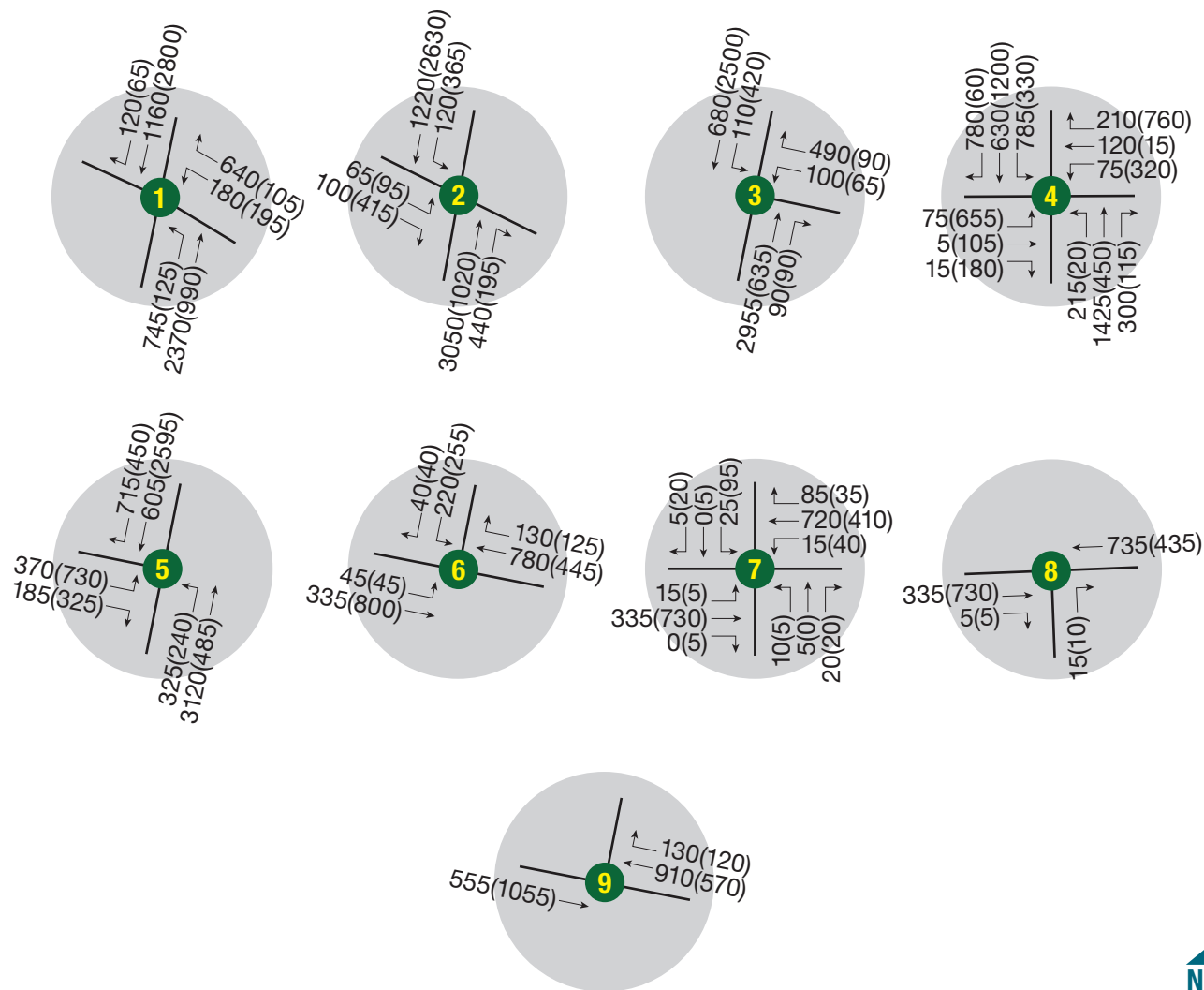




LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes



LEVEL OF SERVICE DEFINITIONS

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

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

<u>LOS</u>	<u>Average Vehicle Delay</u> sec/vehicle	<u>Operational Characteristics</u>
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. <u>The delay could be up to 15 seconds.</u> 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. <u>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.</u>
D	25 to 35 seconds	<u>This is the point at which a traffic signal may be warranted for this intersection.</u> 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. <u>There is a high probability that this intersection will meet traffic signal warrants.</u> 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. <u>The only remedy for these long delays is installing a traffic signal or restricting the accesses.</u> 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.

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

Existing
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←	→	←	↑	↑	↗
Traffic Volume (vph)	40	5	115	600	270	310
Future Volume (vph)	40	5	115	600	270	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	150	200			150
Storage Lanes	2	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.544			
Satd. Flow (perm)	3433	1583	1013	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		5				242
Link Speed (mph)	35			45	45	
Link Distance (ft)	882			702	643	
Travel Time (s)	17.2			10.6	9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	5	125	652	293	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	5	125	652	293	337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Perm	pm+pt	NA	NA	Free
Protected Phases			5	2	6	
Permitted Phases	4	4	2			Free

Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

Existing
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	10.0	24.0	24.0	
Total Split (s)	20.0	20.0	15.0	100.0	85.0	
Total Split (%)	16.7%	16.7%	12.5%	83.3%	70.8%	
Maximum Green (s)	15.0	15.0	10.0	94.0	79.0	
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	2.0	2.0	
Lost Time Adjust (s)	-1.5	-1.0	0.0	-2.0	-2.0	
Total Lost Time (s)	3.5	4.0	5.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effect Green (s)	8.5	8.0	105.1	106.9	94.4	120.0
Actuated g/C Ratio	0.07	0.07	0.88	0.89	0.79	1.00
v/c Ratio	0.18	0.05	0.13	0.39	0.20	0.21
Control Delay	53.7	31.4	1.6	2.3	4.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	31.4	1.6	2.3	4.1	0.3
LOS	D	C	A	A	A	A
Approach Delay	51.4			2.2	2.1	
Approach LOS	D			A	A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 3.8
Intersection LOS: A
Intersection Capacity Utilization 42.4%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

Existing
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←	→	←	↑	↑	↗
Traffic Volume (vph)	207	88	1	272	511	27
Future Volume (vph)	207	88	1	272	511	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	150	200			150
Storage Lanes	2	0	1			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.396			
Satd. Flow (perm)	3433	1583	738	1863	1863	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		96				11
Link Speed (mph)	35			45	45	
Link Distance (ft)	882			702	643	
Travel Time (s)	17.2			10.6	9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	96	1	296	555	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	96	1	296	555	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Free
Protected Phases	7		5	2	6	
Permitted Phases		4	2			Free

Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

Existing
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	7	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.0	23.0	10.0	24.0	24.0	
Total Split (s)	30.0	30.0	12.0	90.0	78.0	
Total Split (%)	25.0%	25.0%	10.0%	75.0%	65.0%	
Maximum Green (s)	25.0	25.0	7.0	84.0	72.0	
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	
All-Red Time (s)	1.5	1.5	1.5	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max	
Walk Time (s)		4.0		4.0	4.0	
Flash Dont Walk (s)		11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0		0	0	
Act Effect Green (s)	14.2	14.2	97.8	97.8	95.7	120.0
Actuated g/C Ratio	0.12	0.12	0.82	0.82	0.80	1.00
v/c Ratio	0.55	0.35	0.00	0.19	0.37	0.02
Control Delay	54.9	12.8	3.0	3.0	5.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	12.8	3.0	3.0	5.1	0.0
LOS	D	B	A	A	A	A
Approach Delay	42.3			3.0	4.9	
Approach LOS	D			A	A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 39.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2025 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	5	5	20	5	50	115	600	15	50	270	310
Future Volume (vph)	40	5	5	20	5	50	115	600	15	50	270	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	1863	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	1863	1863	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			164			109			337
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	5	5	22	5	54	125	652	16	54	293	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	5	5	22	5	54	125	652	16	54	293	337
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		Free			2			Free

Synchro 10 Report

Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

2025 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	12.0	23.0	23.0	12.0	23.0		12.0	73.0	73.0	12.0	73.0	
Total Split (%)	10.0%	19.2%	19.2%	10.0%	19.2%		10.0%	60.8%	60.8%	10.0%	60.8%	
Maximum Green (s)	7.0	18.0	18.0	7.0	18.0		7.0	67.0	67.0	7.0	67.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.5	-1.0	-1.0	-1.0	-1.5		0.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.5	4.0	4.0	4.0	3.5		5.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	10.2	7.0	7.0	9.0	7.4	120.0	9.7	92.6	92.6	9.3	87.3	120.0
Actuated g/C Ratio	0.08	0.06	0.06	0.08	0.06	1.00	0.08	0.77	0.77	0.08	0.73	1.00
v/c Ratio	0.15	0.02	0.02	0.16	0.04	0.03	0.45	0.24	0.01	0.20	0.11	0.21
Control Delay	51.2	53.2	0.2	50.2	56.0	0.0	57.3	5.9	0.0	53.2	6.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	53.2	0.2	50.2	56.0	0.0	57.3	5.9	0.0	53.2	6.4	0.3
LOS	D	D	A	D	E	A	E	A	A	D	A	A
Approach Delay		46.6			17.1			13.9			7.1	
Approach LOS		D			B			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 12.2

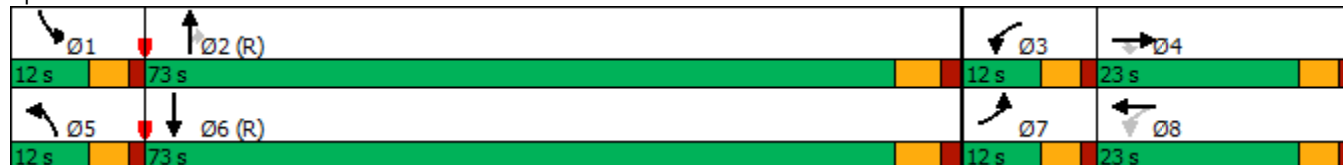
Intersection LOS: B

Intersection Capacity Utilization 38.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	50	5	15	40	85	10	5	20	25	5	10
Future Vol, veh/h	15	50	5	15	40	85	10	5	20	25	5	10
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	16	54	5	16	43	92	11	5	22	27	5	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	135	0	0	59	0	0	145	256	30	137	166	22
Stage 1	-	-	-	-	-	-	89	89	-	75	75	-
Stage 2	-	-	-	-	-	-	56	167	-	62	91	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1447	-	-	1543	-	-	810	647	1038	820	726	1050
Stage 1	-	-	-	-	-	-	908	820	-	926	832	-
Stage 2	-	-	-	-	-	-	949	759	-	942	819	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1447	-	-	1543	-	-	784	633	1038	785	711	1050
Mov Cap-2 Maneuver	-	-	-	-	-	-	784	633	-	785	711	-
Stage 1	-	-	-	-	-	-	898	811	-	916	824	-
Stage 2	-	-	-	-	-	-	923	751	-	906	810	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.8			9.2			9.5		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	784 920		1447	-	-	1543	-	-	785	906		
HCM Lane V/C Ratio	0.014 0.03		0.011	-	-	0.011	-	-	0.035	0.018		
HCM Control Delay (s)	9.7 9		7.5	-	-	7.4	-	-	9.8	9		
HCM Lane LOS	A A		A	-	-	A	-	-	A	A		
HCM 95th %tile Q(veh)	0 0.1		0	-	-	0	-	-	0.1	0.1		

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	50	100	130	220	40
Future Vol, veh/h	45	50	100	130	220	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	100	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	54	109	141	239	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	250	0	-	0	234	55
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1313	-	-	-	734	1000
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1313	-	-	-	707	1000
Mov Cap-2 Maneuver	-	-	-	-	707	-
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	887	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.7	0		12.1		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1313	-	-	-	707	1000
HCM Lane V/C Ratio	0.037	-	-	-	0.338	0.043
HCM Control Delay (s)	7.8	-	-	-	12.7	8.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5	0.1

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Background
AM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	170	110	145	675	300	215
Future Volume (vph)	170	110	145	675	300	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		120				234
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	120	158	734	326	234
Shared Lane Traffic (%)						
Lane Group Flow (vph)	185	120	158	734	326	234
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Background
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		25.0	95.0	70.0	70.0
Total Split (%)	20.8%		20.8%	79.2%	58.3%	58.3%
Maximum Green (s)	20.0		20.0	89.0	64.0	64.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	12.8	120.0	12.4	99.2	83.4	83.4
Actuated g/C Ratio	0.11	1.00	0.10	0.83	0.70	0.70
v/c Ratio	0.51	0.08	0.45	0.25	0.13	0.20
Control Delay	54.5	0.1	54.2	2.6	6.8	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	0.1	54.2	2.6	6.8	1.4
LOS	D	A	D	A	A	A
Approach Delay	33.1			11.8	4.6	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 13.2

Intersection LOS: B

Intersection Capacity Utilization 30.2%

ICU Level of Service A

Analysis Period (min) 15

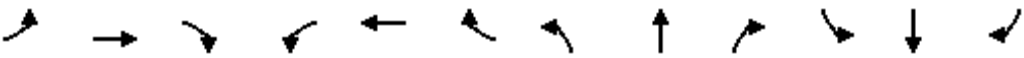
Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

2025 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	5	100	20	5	50	10	300	25	35	610	35
Future Volume (vph)	260	5	100	20	5	50	10	300	25	35	610	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	1863	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	1863	1863	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			164			109			164
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	5	109	22	5	54	11	326	27	38	663	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	283	5	109	22	5	54	11	326	27	38	663	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		Free			2			Free

Synchro 10 Report

Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

2025 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0		12.0	68.0	68.0	12.0	68.0	
Total Split (%)	16.7%	16.7%	16.7%	16.7%	16.7%		10.0%	56.7%	56.7%	10.0%	56.7%	
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0		7.0	62.0	62.0	7.0	62.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.5		-1.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	3.5		4.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		4.0	4.0		4.0			4.0	4.0		4.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	16.4	11.1	11.1	9.5	7.4	120.0	6.9	85.8	85.8	8.8	90.9	120.0
Actuated g/C Ratio	0.14	0.09	0.09	0.08	0.06	1.00	0.06	0.72	0.72	0.07	0.76	1.00
v/c Ratio	0.60	0.02	0.43	0.16	0.04	0.03	0.06	0.13	0.02	0.15	0.25	0.02
Control Delay	54.3	49.4	13.0	44.7	54.2	0.0	53.8	7.1	0.0	53.1	5.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	49.4	13.0	44.7	54.2	0.0	53.8	7.1	0.0	53.1	5.8	0.0
LOS	D	D	B	D	D	A	D	A	A	D	A	A
Approach Delay		42.9			15.5			8.0			7.9	
Approach LOS		D			B			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 37.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	55	5	40	45	35	5	5	20	95	5	25
Future Vol, veh/h	5	55	5	40	45	35	5	5	20	95	5	25
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	60	5	43	49	38	5	5	22	103	5	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	87	0	0	65	0	0	186	246	33	178	210	25
Stage 1	-	-	-	-	-	-	73	73	-	135	135	-
Stage 2	-	-	-	-	-	-	113	173	-	43	75	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1507	-	-	1535	-	-	758	655	1033	768	686	1045
Stage 1	-	-	-	-	-	-	928	833	-	854	784	-
Stage 2	-	-	-	-	-	-	880	755	-	966	832	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1507	-	-	1535	-	-	716	635	1033	729	665	1045
Mov Cap-2 Maneuver	-	-	-	-	-	-	716	635	-	729	665	-
Stage 1	-	-	-	-	-	-	925	831	-	851	762	-
Stage 2	-	-	-	-	-	-	827	734	-	936	830	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			2.5			9.2			10.3		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	716	918	1507	-	-	1535	-	-	729	954		
HCM Lane V/C Ratio	0.008	0.03	0.004	-	-	0.028	-	-	0.142	0.034		
HCM Control Delay (s)	10.1	9	7.4	-	-	7.4	-	-	10.8	8.9		
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A		
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.5	0.1		

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	125	80	125	255	40
Future Vol, veh/h	45	125	80	125	255	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	100	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	136	87	136	277	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	223	0	-	0	253	44
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1343	-	-	-	714	1017
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	846	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1343	-	-	-	688	1017
Mov Cap-2 Maneuver	-	-	-	-	688	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	846	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.1	0		13		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1343	-	-	-	688	1017
HCM Lane V/C Ratio	0.036	-	-	-	0.403	0.043
HCM Control Delay (s)	7.8	-	-	-	13.7	8.7
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	1.9	0.1

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Background
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	230	150	135	550	1075	190
Future Volume (vph)	230	150	135	550	1075	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		163				190
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	242	163	147	598	1132	207
Shared Lane Traffic (%)						
Lane Group Flow (vph)	242	163	147	598	1132	207
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings

8: S. Chambers Road & Belford Avenue

2025 Background
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		17.0	95.0	78.0	78.0
Total Split (%)	20.8%		14.2%	79.2%	65.0%	65.0%
Maximum Green (s)	20.0		12.0	89.0	72.0	72.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	15.7	120.0	12.0	97.3	81.8	81.8
Actuated g/C Ratio	0.13	1.00	0.10	0.81	0.68	0.68
v/c Ratio	0.54	0.10	0.43	0.21	0.47	0.18
Control Delay	52.8	0.1	54.3	3.0	10.3	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	0.1	54.3	3.0	10.3	1.9
LOS	D	A	D	A	B	A
Approach Delay	31.6			13.1	9.0	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 50.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2025 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	7	10	46	10	103	115	600	19	40	270	310
Future Volume (vph)	40	7	10	46	10	103	115	600	19	40	270	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	1863	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	1863	1863	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			164			109			337
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	8	11	50	11	112	125	652	21	43	293	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	8	11	50	11	112	125	652	21	43	293	337
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		Free			2			Free

Synchro 10 Report

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2025 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	13.0	24.0	24.0	13.0	24.0		12.0	71.0	71.0	12.0	71.0	
Total Split (%)	10.8%	20.0%	20.0%	10.8%	20.0%		10.0%	59.2%	59.2%	10.0%	59.2%	
Maximum Green (s)	8.0	19.0	19.0	8.0	19.0		7.0	65.0	65.0	7.0	65.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.5	-1.0	-1.0	-1.0	-1.7		0.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.5	4.0	4.0	4.0	3.3		5.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	11.1	7.1	7.1	10.1	8.0	120.0	9.7	91.9	91.9	9.0	86.3	120.0
Actuated g/C Ratio	0.09	0.06	0.06	0.08	0.07	1.00	0.08	0.77	0.77	0.08	0.72	1.00
v/c Ratio	0.14	0.04	0.05	0.33	0.09	0.07	0.45	0.24	0.02	0.17	0.12	0.21
Control Delay	50.0	53.1	0.5	54.9	53.7	0.1	57.3	6.2	0.0	53.1	6.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	53.1	0.5	54.9	53.7	0.1	57.3	6.2	0.0	53.1	6.8	0.3
LOS	D	D	A	D	D	A	E	A	A	D	A	A
Approach Delay		41.6			19.3			14.1			6.5	
Approach LOS		D			B			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 40.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue

														
Ø1	Ø2 (R)					Ø3	Ø4					Ø5	Ø6 (R)	
12 s	71 s					13 s	24 s					12 s	71 s	

HCM 6th TWSC 2:
Belford Avenue/W. Site Internal Road

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	2.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	5	10	134	25	30
Future Vol, veh/h	61	5	10	134	25	30
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	66	5	11	146	27	33
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	71	0	237	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	168	-
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	-	-	1529	-	751	994
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1529	-	745	994
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	954	-
Stage 2	-	-	-	-	855	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.5		9.5	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	863	-	-	1529	-	
HCM Lane V/C Ratio	0.069	-	-	0.007	-	
HCM Control Delay (s)	9.5	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

HCM 6th TWSC
3: Middle Site Internal Road & Belford Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	83	8	10	100	44	35
Future Vol, veh/h	83	8	10	100	44	35
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	90	9	11	109	48	38
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	99	0	226	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	131	-
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	-	762	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1494	-	756	962
Mov Cap-2 Maneuver	-	-	-	-	756	-
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	888	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.7		9.8	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	835	-	-	1494	-	
HCM Lane V/C Ratio	0.103	-	-	0.007	-	
HCM Control Delay (s)	9.8	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

HCM 6th TWSC
4: E. Site Internal Road & Belford Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	3.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	8	19	70	40	29
Future Vol, veh/h	100	8	19	70	40	29
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	9	21	76	43	32
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	118	0	232	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	118	-
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	-	-	1470	-	756	939
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	907	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1470	-	745	939
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	893	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.6		9.9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	816	-	-	1470	-	
HCM Lane V/C Ratio	0.092	-	-	0.014	-	
HCM Control Delay (s)	9.9	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

HCM 6th TWSC
5: RIRO Access Road & Belford Avenue

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	124	5	0	89	0	30
Future Vol, veh/h	124	5	0	89	0	30
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	135	5	0	97	0	33
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	138
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	910
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	910
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.1	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	910	-	-	-		
HCM Lane V/C Ratio	0.036	-	-	-		
HCM Control Delay (s)	9.1	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		

HCM 6th TWSC
6: N. 6th Street & Belford Avenue

2025 Total
AM Peak

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	134	5	15	69	85	10	5	20	25	5	10
Future Vol, veh/h	15	134	5	15	69	85	10	5	20	25	5	10
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	16	146	5	16	75	92	11	5	22	27	5	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	167	0	0	151	0	0	253	380	76	215	290	38
Stage 1	-	-	-	-	-	-	181	181	-	107	107	-
Stage 2	-	-	-	-	-	-	72	199	-	108	183	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1408	-	-	1428	-	-	680	551	970	723	619	1026
Stage 1	-	-	-	-	-	-	803	749	-	887	806	-
Stage 2	-	-	-	-	-	-	929	735	-	886	747	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1408	-	-	1428	-	-	657	539	970	689	605	1026
Mov Cap-2 Maneuver	-	-	-	-	-	-	657	539	-	689	605	-
Stage 1	-	-	-	-	-	-	794	741	-	877	797	-
Stage 2	-	-	-	-	-	-	903	727	-	850	739	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.7			9.8			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	657		836	1408	-	-	1428	-	-	689	833	
HCM Lane V/C Ratio	0.017		0.033	0.012	-	-	0.011	-	-	0.039	0.02	
HCM Control Delay (s)	10.6		9.5	7.6	-	-	7.5	-	-	10.4	9.4	
HCM Lane LOS	B		A	A	-	-	A	-	-	B	A	
HCM 95th %tile Q(veh)	0.1		0.1	0	-	-	0	-	-	0.1	0.1	

HCM 6th TWSC
7: Belford Avenue & Internal Connector

2025 Total
AM Peak

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	134	129	130	220	40
Future Vol, veh/h	45	134	129	130	220	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	100	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	146	140	141	239	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	281	0	-	0	311	70
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	171	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1278	-	-	-	657	978
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1278	-	-	-	632	978
Mov Cap-2 Maneuver	-	-	-	-	632	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	842	-
Approach	EB	WB		SB		
HCM Control Delay, s	2	0		13.3		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1278	-	-	-	632	978
HCM Lane V/C Ratio	0.038	-	-	-	0.378	0.044
HCM Control Delay (s)	7.9	-	-	-	14.1	8.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile O(veh)	0.1	-	-	-	1.8	0.1

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Total
AM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	228	136	155	675	300	234
Future Volume (vph)	228	136	155	675	300	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		148				254
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	148	168	734	326	254
Shared Lane Traffic (%)						
Lane Group Flow (vph)	248	148	168	734	326	254
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Total
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		25.0	95.0	70.0	70.0
Total Split (%)	20.8%		20.8%	79.2%	58.3%	58.3%
Maximum Green (s)	20.0		20.0	89.0	64.0	64.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	14.9	120.0	12.7	97.1	80.9	80.9
Actuated g/C Ratio	0.12	1.00	0.11	0.81	0.67	0.67
v/c Ratio	0.58	0.09	0.46	0.26	0.14	0.22
Control Delay	54.9	0.1	54.2	3.2	7.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	0.1	54.2	3.2	7.8	1.6
LOS	D	A	D	A	A	A
Approach Delay	34.4			12.7	5.1	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 14.9
Intersection Capacity Utilization 31.8%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service A

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2025 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	11	100	32	8	66	10	300	47	105	610	35
Future Volume (vph)	260	11	100	32	8	66	10	300	47	105	610	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	1863	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	1863	1863	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			164			109			164
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	12	109	35	9	72	11	326	51	114	663	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	283	12	109	35	9	72	11	326	51	114	663	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		Free			2			Free

Synchro 10 Report

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2025 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	20.0	20.0	20.0	20.0	20.0		12.0	68.0	68.0	12.0	68.0	
Total Split (%)	16.7%	16.7%	16.7%	16.7%	16.7%		10.0%	56.7%	56.7%	10.0%	56.7%	
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0		7.0	62.0	62.0	7.0	62.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.5		-1.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	3.5		4.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		4.0	4.0		4.0			4.0	4.0		4.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	16.8	11.0	11.0	10.3	7.7	120.0	6.9	78.4	78.4	11.3	90.4	120.0
Actuated g/C Ratio	0.14	0.09	0.09	0.09	0.06	1.00	0.06	0.65	0.65	0.09	0.75	1.00
v/c Ratio	0.59	0.04	0.43	0.23	0.08	0.05	0.06	0.14	0.05	0.35	0.25	0.02
Control Delay	53.4	50.2	13.1	49.3	53.8	0.1	53.8	9.2	0.1	53.5	6.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	50.2	13.1	49.3	53.8	0.1	53.8	9.2	0.1	53.5	6.0	0.0
LOS	D	D	B	D	D	A	D	A	A	D	A	A
Approach Delay		42.4			19.1			9.3			12.3	
Approach LOS		D			B			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 19.2

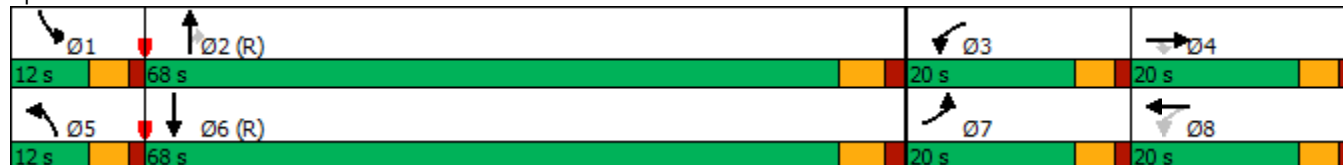
Intersection LOS: B

Intersection Capacity Utilization 45.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



HCM 6th TWSC 2:
Belford Avenue/W. Site Internal Road

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	25	35	91	15	15
Future Vol, veh/h	138	25	35	91	15	15
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	150	27	38	99	16	16
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	177	0	339	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	175	-
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	-	-	1399	-	657	881
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1399	-	638	881
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	830	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.1		10.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	740	-	-	1399	-	
HCM Lane V/C Ratio	0.044	-	-	0.027	-	
HCM Control Delay (s)	10.1	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	

HCM 6th TWSC
3: Middle Site Internal Road & Belford Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	43	40	100	26	20
Future Vol, veh/h	110	43	40	100	26	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	-	-	-	-	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	120	47	43	109	28	22
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	339	144
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	195	-
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	-	-	1411	-	657	903
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1411	-	636	903
Mov Cap-2 Maneuver	-	-	-	-	636	-
Stage 1	-	-	-	-	883	-
Stage 2	-	-	-	-	811	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.2		10.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	730	-	-	1411	-	
HCM Lane V/C Ratio	0.068	-	-	0.031	-	
HCM Control Delay (s)	10.3	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 6th TWSC
4: E. Site Internal Road & Belford Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	100	30	63	115	25	18
Future Vol, veh/h	100	30	63	115	25	18
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	33	68	125	27	20
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	142	0	387	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	261	-
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	-	-	1441	-	616	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	783	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1441	-	585	924
Mov Cap-2 Maneuver	-	-	-	-	585	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	743	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	2.7		10.6		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	691	-	-	1441	-	
HCM Lane V/C Ratio	0.068	-	-	0.048	-	
HCM Control Delay (s)	10.6	-	-	7.6	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

HCM 6th TWSC
5: RIRO Access Road & Belford Avenue

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱		↱
Traffic Vol, veh/h	103	15	0	178	0	19
Future Vol, veh/h	103	15	0	178	0	19
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	112	16	0	193	0	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	120
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	931
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	931
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	931	-	-	-		
HCM Lane V/C Ratio	0.022	-	-	-		
HCM Control Delay (s)	9	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		

HCM 6th TWSC
6: N. 6th Street & Belford Avenue

2025 Total
PM Peak

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	112	5	40	148	35	5	5	20	95	5	25
Future Vol, veh/h	5	112	5	40	148	35	5	5	20	95	5	25
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	122	5	43	161	38	5	5	22	103	5	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	127	0	0	304	420	64	321	384	81
Stage 1	-	-	-	-	-	-	135	135	-	247	247	-
Stage 2	-	-	-	-	-	-	169	285	-	74	137	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1371	-	-	1457	-	-	625	523	987	608	548	963
Stage 1	-	-	-	-	-	-	854	784	-	735	701	-
Stage 2	-	-	-	-	-	-	816	674	-	927	782	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1371	-	-	1457	-	-	588	505	987	575	529	963
Mov Cap-2 Maneuver	-	-	-	-	-	-	588	505	-	575	529	-
Stage 1	-	-	-	-	-	-	851	781	-	732	680	-
Stage 2	-	-	-	-	-	-	763	654	-	897	779	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.4			9.8			11.8		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	588	829	1371	-	-	1457	-	-	575	847		
HCM Lane V/C Ratio	0.009	0.033	0.004	-	-	0.03	-	-	0.18	0.038		
HCM Control Delay (s)	11.2	9.5	7.6	-	-	7.5	-	-	12.6	9.4		
HCM Lane LOS	B	A	A	-	-	A	-	-	B	A		
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0.1	-	-	0.7	0.1		

HCM 6th TWSC
7: Belford Avenue & Internal Connector

2025 Total
PM Peak

Intersection						
Int Delay, s/veh	6.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	182	183	125	255	40
Future Vol, veh/h	45	182	183	125	255	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	100	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	198	199	136	277	43
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	335	0	-	0	396	100
Stage 1	-	-	-	-	199	-
Stage 2	-	-	-	-	197	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1221	-	-	-	581	936
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1221	-	-	-	558	936
Mov Cap-2 Maneuver	-	-	-	-	558	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	817	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		16.5		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1221	-	-	-	558	936
HCM Lane V/C Ratio	0.04	-	-	-	0.497	0.046
HCM Control Delay (s)	8.1	-	-	-	17.7	9
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.1	-	-	-	2.7	0.1

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Total
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	267	170	167	550	1075	261
Future Volume (vph)	267	170	167	550	1075	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.95	0.95	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	3539	3539	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	3539	3539	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		185				255
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	281	185	182	598	1132	284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	185	182	598	1132	284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2025 Total
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		18.0	95.0	77.0	77.0
Total Split (%)	20.8%		15.0%	79.2%	64.2%	64.2%
Maximum Green (s)	20.0		13.0	89.0	71.0	71.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	3.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	17.1	120.0	13.0	95.9	79.5	79.5
Actuated g/C Ratio	0.14	1.00	0.11	0.80	0.66	0.66
v/c Ratio	0.58	0.12	0.49	0.21	0.48	0.25
Control Delay	52.6	0.2	54.7	3.3	11.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	0.2	54.7	3.3	11.5	2.2
LOS	D	A	D	A	B	A
Approach Delay	31.8			15.3	9.7	
Approach LOS	C			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 15.2
Intersection LOS: B
Intersection Capacity Utilization 52.1%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	5	15	70	120	200	215	1450	300	780	640	780
Future Volume (vph)	75	5	15	70	120	200	215	1450	300	780	640	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			217			155			487
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	82	5	16	76	130	217	234	1526	326	821	696	848
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	5	16	76	130	217	234	1526	326	821	696	848
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free

Lanes, Volumes, Timings

1: S. Peoria Street & Belford Avenue

2041 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	12.0	22.0	22.0	13.0	23.0		12.0	45.0	45.0	40.0	73.0	
Total Split (%)	10.0%	18.3%	18.3%	10.8%	19.2%		10.0%	37.5%	37.5%	33.3%	60.8%	
Maximum Green (s)	7.0	17.0	17.0	8.0	18.0		7.0	39.0	39.0	35.0	67.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.5	-1.0	-1.0	-1.0	-2.0		-1.0	-3.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.5	4.0	4.0	4.0	3.0		4.0	3.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	8.3	8.9	8.9	13.9	11.8	120.0	15.2	53.7	52.7	35.9	72.4	120.0
Actuated g/C Ratio	0.07	0.07	0.07	0.12	0.10	1.00	0.13	0.45	0.44	0.30	0.60	1.00
v/c Ratio	0.34	0.02	0.06	0.19	0.37	0.14	0.54	0.96	0.42	0.80	0.33	0.54
Control Delay	57.4	49.8	0.4	63.9	76.1	0.2	54.4	49.5	15.4	44.8	12.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	49.8	0.4	63.9	76.1	0.2	54.4	49.5	15.4	44.8	12.9	1.3
LOS	E	D	A	E	E	A	D	D	B	D	B	A
Approach Delay		48.2			35.0			44.7			19.8	
Approach LOS		D			C			D			B	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 32.2

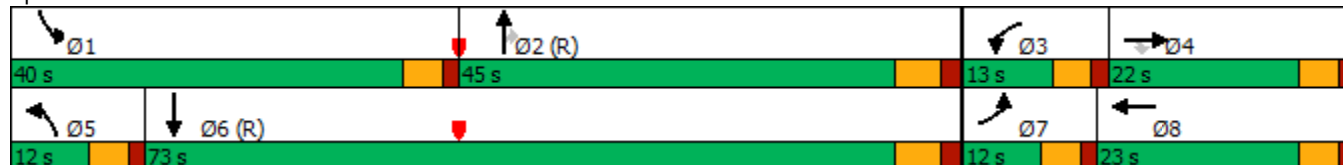
Intersection LOS: C

Intersection Capacity Utilization 81.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings
2: W. Site Internal Road & Belford Avenue

2041 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	300	5	10	370	265	25	0	30	45	0	40
Future Volume (vph)	215	300	5	10	370	265	25	0	30	45	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	0		0	150		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.926			0.850	
Flt Protected	0.950			0.950				0.978		0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	0	1687	0	1770	1583	0
Flt Permitted	0.482			0.552				0.835		0.565		
Satd. Flow (perm)	898	3532	0	1028	3539	1583	0	1440	0	1052	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				288		109			498	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1963			1283			637			584	
Travel Time (s)		38.2			25.0			17.4			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	326	5	11	402	288	27	0	33	49	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	331	0	11	402	288	0	60	0	49	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8		8	2			6		

Lanes, Volumes, Timings

2: W. Site Internal Road & Belford Avenue

2041 Background
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	2	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	
Minimum Split (s)	10.0	23.0		10.0	23.0	23.0	20.0	20.0		10.0	23.0	
Total Split (s)	12.0	73.0		12.0	73.0	73.0	20.0	20.0		15.0	35.0	
Total Split (%)	10.0%	60.8%		10.0%	60.8%	60.8%	16.7%	16.7%		12.5%	29.2%	
Maximum Green (s)	7.0	68.0		7.0	68.0	68.0	15.0	15.0		10.0	30.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		-1.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0		4.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		4.0			4.0	4.0	4.0	4.0			4.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0			0	
Act Effect Green (s)	95.5	94.3		86.7	81.0	81.0		5.6		17.6	16.6	
Actuated g/C Ratio	0.80	0.79		0.72	0.68	0.68		0.05		0.15	0.14	
v/c Ratio	0.30	0.12		0.01	0.17	0.25		0.35		0.24	0.07	
Control Delay	4.4	4.5		1.2	2.6	0.6		6.5		45.4	0.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	4.4	4.5		1.2	2.6	0.6		6.5		45.4	0.2	
LOS	A	A		A	A	A		A		D	A	
Approach Delay		4.5			1.7			6.5			24.3	
Approach LOS		A			A			A			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 4.5

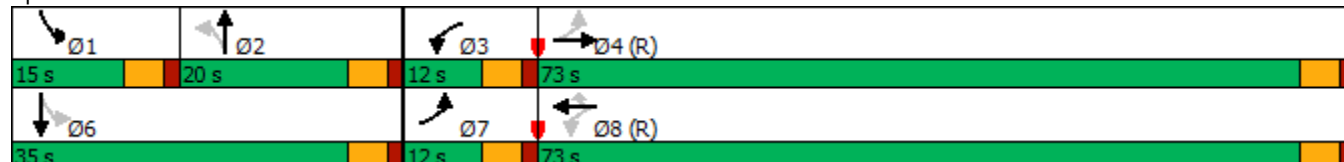
Intersection LOS: A

Intersection Capacity Utilization 45.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: W. Site Internal Road & Belford Avenue



HCM 2010 TWSC
3: Middle Site Internal Road & Belford Avenue

2041 Background
AM Peak

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱			↱		↰	↰	
Traffic Vol, veh/h	20	350	7	10	610	25	26	0	35	15	0	10
Future Vol, veh/h	20	350	7	10	610	25	26	0	35	15	0	10
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	22	380	8	11	663	27	28	0	38	16	0	11
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	690	0	0	388	0	0	782	1140	194	933	1131	345
Stage 1	-	-	-	-	-	-	428	428	-	699	699	-
Stage 2	-	-	-	-	-	-	354	712	-	234	432	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	900	-	-	1399	-	-	419	250	*948	*315	254	651
Stage 1	-	-	-	-	-	-	824	737	-	*397	440	-
Stage 2	-	-	-	-	-	-	636	434	-	*894	734	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	900	-	-	1399	-	-	402	242	*948	*295	246	651
Mov Cap-2 Maneuver	-	-	-	-	-	-	402	242	-	*295	246	-
Stage 1	-	-	-	-	-	-	804	720	-	*387	436	-
Stage 2	-	-	-	-	-	-	620	431	-	*837	716	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			11.7			15		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	600	900	-	-	1399	-	-	295	651			
HCM Lane V/C Ratio	0.111	0.024	-	-	0.008	-	-	0.055	0.017			
HCM Control Delay (s)	11.7	9.1	-	-	7.6	-	-	17.9	10.6			
HCM Lane LOS	B	A	-	-	A	-	-	C	B			
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.2	0.1			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

HCM 2010 TWSC
4: E. Site Internal Road & Belford Avenue

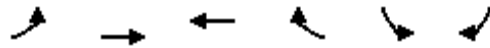
2041 Background
AM Peak

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	320	2	1	630	100	0	0	1	15	0	15
Future Vol, veh/h	80	320	2	1	630	100	0	0	1	15	0	15
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	87	348	2	1	685	109	0	0	1	16	0	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	794	0	0	350	0	0	868	1319	175	1090	1266	397
Stage 1	-	-	-	-	-	-	523	523	-	742	742	-
Stage 2	-	-	-	-	-	-	345	796	-	348	524	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1141	-	-	1394	-	-	*670	335	*974	580	372	*820
Stage 1	-	-	-	-	-	-	*662	631	-	756	666	-
Stage 2	-	-	-	-	-	-	*773	621	-	859	630	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	1141	-	-	1394	-	-	*618	309	*974	545	343	*820
Mov Cap-2 Maneuver	-	-	-	-	-	-	*618	309	-	545	343	-
Stage 1	-	-	-	-	-	-	*612	583	-	698	666	-
Stage 2	-	-	-	-	-	-	*757	620	-	793	583	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0			8.7			10.7		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	974	1141	-	-	1394	-	-	545	820			
HCM Lane V/C Ratio	0.001	0.076	-	-	0.001	-	-	0.03	0.02			
HCM Control Delay (s)	8.7	8.4	-	-	7.6	-	-	11.8	9.5			
HCM Lane LOS	A	A	-	-	A	-	-	B	A			
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	0.1	0.1			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	315	5	15	715	85	10	5	20	25	5	5
Future Vol, veh/h	15	315	5	15	715	85	10	5	20	25	5	5
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	16	342	5	16	777	92	11	5	22	27	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	869	0	0	347	0	0	800	1278	174	1015	1188	389
Stage 1	-	-	-	-	-	-	377	377	-	809	809	-
Stage 2	-	-	-	-	-	-	423	901	-	206	379	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1098	-	-	1209	-	-	*749	282	839	466	332	*795
Stage 1	-	-	-	-	-	-	*616	614	-	737	649	-
Stage 2	-	-	-	-	-	-	*749	573	-	777	613	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1098	-	-	1209	-	-	*719	275	839	437	323	*795
Mov Cap-2 Maneuver	-	-	-	-	-	-	*719	275	-	437	323	-
Stage 1	-	-	-	-	-	-	*607	605	-	726	640	-
Stage 2	-	-	-	-	-	-	*728	566	-	739	604	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.1			11			13.6		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	719	595	1098	-	-	1209	-	-	437	459		
HCM Lane V/C Ratio	0.015	0.046	0.015	-	-	0.013	-	-	0.062	0.024		
HCM Control Delay (s)	10.1	11.3	8.3	-	-	8	-	-	13.8	13		
HCM Lane LOS	B	B	A	-	-	A	-	-	B	B		
HCM 95th %tile Q(veh)	0	0.1	0	-	-	0	-	-	0.2	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

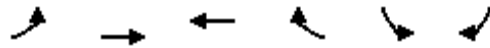
2041 Background
AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	315	775	130	220	40
Future Volume (vph)	45	315	775	130	220	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	100	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.284				0.950	
Satd. Flow (perm)	529	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				141		43
Link Speed (mph)		35	35		25	
Link Distance (ft)		513	624		412	
Travel Time (s)		10.0	12.2		11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	342	842	141	239	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	342	842	141	239	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

2041 Background
AM Peak

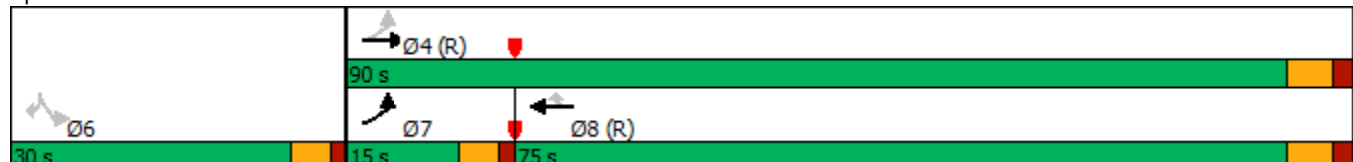


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	15.0	90.0	75.0	75.0	30.0	30.0
Total Split (%)	12.5%	75.0%	62.5%	62.5%	25.0%	25.0%
Maximum Green (s)	10.0	84.0	69.0	69.0	25.0	25.0
Yellow Time (s)	3.5	4.0	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	4.0	4.0
Lead/Lag	Lead		Lag		Lag	
Lead-Lag Optimize?	Yes		Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	89.4	88.4	79.1	79.1	21.6	21.6
Actuated g/C Ratio	0.74	0.74	0.66	0.66	0.18	0.18
v/c Ratio	0.11	0.13	0.36	0.13	0.75	0.13
Control Delay	4.4	5.1	21.3	9.8	61.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	5.1	21.3	9.8	61.2	12.2
LOS	A	A	C	A	E	B
Approach Delay		5.0	19.7		53.8	
Approach LOS		A	B		D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 22.0
Intersection LOS: C
Intersection Capacity Utilization 50.3%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Belford Avenue & Internal Connector



Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Background
AM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	355	180	325	3175	615	710
Future Volume (vph)	355	180	325	3175	615	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	5085	5085	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		196				585
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	386	196	353	3451	668	772
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	196	353	3451	668	772
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Background
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		25.0	95.0	70.0	70.0
Total Split (%)	20.8%		20.8%	79.2%	58.3%	58.3%
Maximum Green (s)	20.0		20.0	89.0	64.0	64.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	18.8	120.0	18.6	93.2	71.1	71.1
Actuated g/C Ratio	0.16	1.00	0.16	0.78	0.59	0.59
v/c Ratio	0.72	0.12	0.66	0.87	0.22	0.66
Control Delay	57.0	0.2	53.9	13.2	12.3	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	0.2	53.9	13.2	12.3	6.8
LOS	E	A	D	B	B	A
Approach Delay	37.9			17.0	9.4	
Approach LOS	D			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 17.2
Intersection LOS: B
Intersection Capacity Utilization 78.1%
ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	655	105	180	315	15	750	20	460	110	315	1225	60
Future Volume (vph)	655	105	180	315	15	750	20	460	110	315	1225	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			320			200			255
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	689	114	196	342	16	815	22	500	120	342	1332	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	114	196	342	16	815	22	500	120	342	1332	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	40.0	20.0	20.0	33.0	13.0		12.0	47.0	47.0	20.0	55.0	
Total Split (%)	33.3%	16.7%	16.7%	27.5%	10.8%		10.0%	39.2%	39.2%	16.7%	45.8%	
Maximum Green (s)	35.0	15.0	15.0	28.0	8.0		7.0	41.0	41.0	15.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	-1.0	-1.0	-1.5		-1.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	4.0	4.0	4.0	3.5		4.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		4.0	4.0		4.0			4.0	4.0		4.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	32.4	13.8	13.8	18.2	7.6	120.0	7.3	54.9	54.9	18.0	68.9	120.0
Actuated g/C Ratio	0.27	0.12	0.12	0.15	0.06	1.00	0.06	0.46	0.46	0.15	0.57	1.00
v/c Ratio	0.74	0.28	0.60	0.66	0.07	0.51	0.11	0.31	0.14	0.66	0.66	0.04
Control Delay	45.2	48.4	18.5	62.6	51.3	1.6	54.1	23.3	0.4	54.8	22.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	48.4	18.5	62.6	51.3	1.6	54.1	23.3	0.4	54.8	22.6	0.1
LOS	D	D	B	E	D	A	D	C	A	D	C	A
Approach Delay		40.3			20.1			20.0			28.1	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 27.6

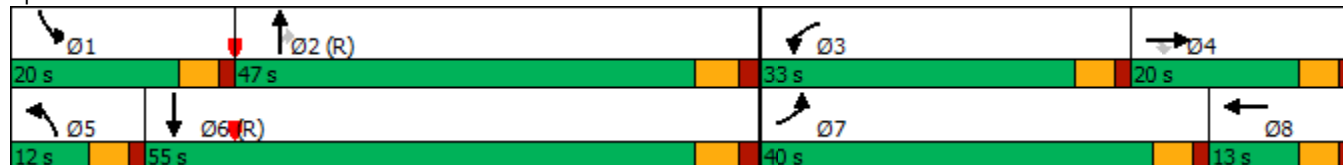
Intersection LOS: C

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings

2: W. Site Internal Road & Belford Avenue

2041 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	445	25	35	315	70	15	0	15	200	0	160
Future Volume (vph)	55	445	25	35	315	70	15	0	15	200	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	0		0	150		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.932			0.850	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3539	1583	0	1694	0	1770	1583	0
Flt Permitted	0.535			0.458				0.909		0.748		
Satd. Flow (perm)	997	3511	0	853	3539	1583	0	1578	0	1393	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				109		109			529	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1963			1283			637			584	
Travel Time (s)		38.2			25.0			17.4			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	484	27	38	342	76	16	0	16	217	0	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	511	0	38	342	76	0	32	0	217	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8		8	2			6		

Lanes, Volumes, Timings
2: W. Site Internal Road & Belford Avenue

2041 Background
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	2	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	
Minimum Split (s)	10.0	23.0		10.0	23.0	23.0	20.0	20.0		10.0	23.0	
Total Split (s)	12.0	67.0		12.0	67.0	67.0	20.0	20.0		21.0	41.0	
Total Split (%)	10.0%	55.8%		10.0%	55.8%	55.8%	16.7%	16.7%		17.5%	34.2%	
Maximum Green (s)	7.0	62.0		7.0	62.0	62.0	15.0	15.0		16.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		-2.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		4.0			4.0	4.0	4.0	4.0			4.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0			0	
Act Effect Green (s)	85.7	81.3		83.9	78.8	78.8		5.5		23.7	21.7	
Actuated g/C Ratio	0.71	0.68		0.70	0.66	0.66		0.05		0.20	0.18	
v/c Ratio	0.08	0.21		0.06	0.15	0.07		0.18		0.66	0.24	
Control Delay	13.0	15.6		2.8	4.1	0.1		2.3		53.2	0.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	13.0	15.6		2.8	4.1	0.1		2.3		53.2	0.8	
LOS	B	B		A	A	A		A		D	A	
Approach Delay		15.3			3.3			2.3			29.9	
Approach LOS		B			A			A			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 15.2

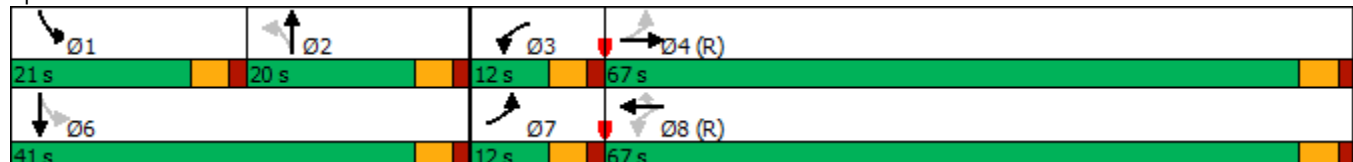
Intersection LOS: B

Intersection Capacity Utilization 47.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: W. Site Internal Road & Belford Avenue



HCM 2010 TWSC
3: Middle Site Internal Road & Belford Avenue

2041 Background
PM Peak

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	580	27	40	345	65	14	0	20	75	0	60
Future Vol, veh/h	55	580	27	40	345	65	14	0	20	75	0	60
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	60	630	29	43	375	71	15	0	22	82	0	65
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	446	0	0	659	0	0	1039	1297	330	932	1276	223
Stage 1	-	-	-	-	-	-	765	765	-	497	497	-
Stage 2	-	-	-	-	-	-	274	532	-	435	779	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1111	-	-	1264	-	-	361	241	*846	*451	250	780
Stage 1	-	-	-	-	-	-	665	610	-	*523	543	-
Stage 2	-	-	-	-	-	-	709	524	-	*797	599	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	1111	-	-	1264	-	-	309	220	*846	*411	228	780
Mov Cap-2 Maneuver	-	-	-	-	-	-	309	220	-	*411	228	-
Stage 1	-	-	-	-	-	-	629	577	-	*495	525	-
Stage 2	-	-	-	-	-	-	628	506	-	*735	567	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.7			12.9			13.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	493	1111	-	-	1264	-	-	411	780			
HCM Lane V/C Ratio	0.075	0.054	-	-	0.034	-	-	0.198	0.084			
HCM Control Delay (s)	12.9	8.4	-	-	8	-	-	15.9	10			
HCM Lane LOS	B	A	-	-	A	-	-	C	B			
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.1	-	-	0.7	0.3			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

HCM 2010 TWSC
4: E. Site Internal Road & Belford Avenue

2041 Background
PM Peak

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↱		↰	↰↱			↰↱		↰	↰	
Traffic Vol, veh/h	20	650	5	2	390	25	0	0	2	75	0	60
Future Vol, veh/h	20	650	5	2	390	25	0	0	2	75	0	60
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	22	707	5	2	424	27	0	0	2	82	0	65

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	451	0	0	712	0	0	970	1209	356	840	1198	226
Stage 1	-	-	-	-	-	-	754	754	-	442	442	-
Stage 2	-	-	-	-	-	-	216	455	-	398	756	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1372	-	-	*1227	-	-	*655	441	*820	*655	*451	*923
Stage 1	-	-	-	-	-	-	*740	656	-	*870	*763	-
Stage 2	-	-	-	-	-	-	*870	753	-	*773	*654	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	1372	-	-	*1227	-	-	*600	433	*820	*644	*443	*923
Mov Cap-2 Maneuver	-	-	-	-	-	-	*600	433	-	*644	*443	-
Stage 1	-	-	-	-	-	-	*728	645	-	*856	*761	-
Stage 2	-	-	-	-	-	-	*807	752	-	*759	*644	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.4	10.4
HCM LOS			A	B

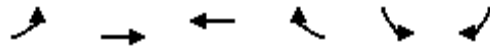
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	820	1372	-	-	*1227	-	-	644	923
HCM Lane V/C Ratio	0.003	0.016	-	-	0.002	-	-	0.127	0.071
HCM Control Delay (s)	9.4	7.7	-	-	7.9	-	-	11.4	9.2
HCM Lane LOS	A	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.4	0.2

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

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	715	5	40	390	35	5	5	20	95	5	20
Future Vol, veh/h	5	715	5	40	390	35	5	5	20	95	5	20
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	777	5	43	424	38	5	5	22	103	5	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	462	0	0	782	0	0	1091	1338	391	911	1302	212
Stage 1	-	-	-	-	-	-	790	790	-	510	510	-
Stage 2	-	-	-	-	-	-	301	548	-	401	792	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1357	-	-	832	-	-	*251	193	608	357	204	*923
Stage 1	-	-	-	-	-	-	*350	400	-	786	707	-
Stage 2	-	-	-	-	-	-	*870	676	-	597	399	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1357	-	-	832	-	-	*230	182	608	322	192	*923
Mov Cap-2 Maneuver	-	-	-	-	-	-	*230	182	-	322	192	-
Stage 1	-	-	-	-	-	-	*349	398	-	783	670	-
Stage 2	-	-	-	-	-	-	*799	641	-	566	397	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.8			15.4			19.5		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	230 414		1357	-	-	832	-	-	322	524		
HCM Lane V/C Ratio	0.024 0.066		0.004	-	-	0.052	-	-	0.321	0.052		
HCM Control Delay (s)	21 14.3		7.7	-	-	9.6	-	-	21.4	12.2		
HCM Lane LOS	C B		A	-	-	A	-	-	C B			
HCM 95th %tile Q(veh)	0.1 0.2		0	-	-	0.2	-	-	1.4	0.2		
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

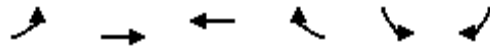
2041 Background
PM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	785	425	125	255	40
Future Volume (vph)	45	785	425	125	255	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	100	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.450				0.950	
Satd. Flow (perm)	838	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				136		43
Link Speed (mph)		35	35		25	
Link Distance (ft)		513	624		412	
Travel Time (s)		10.0	12.2		11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	853	462	136	277	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	853	462	136	277	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

2041 Background
PM Peak

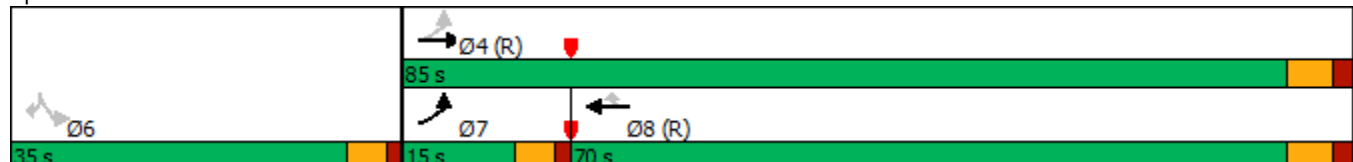


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	15.0	85.0	70.0	70.0	35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%	58.3%	29.2%	29.2%
Maximum Green (s)	10.0	79.0	64.0	64.0	30.0	30.0
Yellow Time (s)	3.5	4.0	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-2.0	-1.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	86.4	85.4	75.9	75.9	25.6	24.6
Actuated g/C Ratio	0.72	0.71	0.63	0.63	0.21	0.20
v/c Ratio	0.07	0.34	0.21	0.13	0.73	0.12
Control Delay	4.2	5.6	19.2	11.0	55.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	5.6	19.2	11.0	55.3	11.0
LOS	A	A	B	B	E	B
Approach Delay		5.5	17.3		49.4	
Approach LOS		A	B		D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 17.1
Intersection LOS: B
Intersection Capacity Utilization 44.2%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Belford Avenue & Internal Connector



Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Background
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	720	320	235	495	2650	435
Future Volume (vph)	720	320	235	495	2650	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	5085	5085	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		294				198
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	758	348	255	538	2789	473
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	348	255	538	2789	473
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Background
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	38.0		17.0	82.0	65.0	65.0
Total Split (%)	31.7%		14.2%	68.3%	54.2%	54.2%
Maximum Green (s)	33.0		12.0	76.0	59.0	59.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-1.5	-2.0	-3.0	-2.0
Total Lost Time (s)	3.0		3.5	4.0	3.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	32.4	120.0	13.4	80.6	64.6	63.6
Actuated g/C Ratio	0.27	1.00	0.11	0.67	0.54	0.53
v/c Ratio	0.82	0.22	0.66	0.16	1.02	0.51
Control Delay	47.9	0.3	60.1	7.7	50.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	0.3	60.1	7.7	50.2	12.5
LOS	D	A	E	A	D	B
Approach Delay	32.9			24.5	44.8	
Approach LOS	C			C	D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 39.1

Intersection LOS: D

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	7	15	81	125	233	215	1450	304	790	640	780
Future Volume (vph)	75	7	15	81	125	233	215	1450	304	790	640	780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			253			155			487
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	82	8	16	88	136	253	234	1526	330	832	696	848
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	8	16	88	136	253	234	1526	330	832	696	848
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	12.0	22.0	22.0	13.0	23.0		12.0	45.0	45.0	40.0	73.0	
Total Split (%)	10.0%	18.3%	18.3%	10.8%	19.2%		10.0%	37.5%	37.5%	33.3%	60.8%	
Maximum Green (s)	7.0	17.0	17.0	8.0	18.0		7.0	39.0	39.0	35.0	67.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-1.5	-1.0	-1.0	-1.0	-2.0		-1.0	-3.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.5	4.0	4.0	4.0	3.0		4.0	3.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	8.3	9.4	9.4	11.4	12.0	120.0	15.1	53.3	52.3	36.1	72.4	120.0
Actuated g/C Ratio	0.07	0.08	0.08	0.10	0.10	1.00	0.13	0.44	0.44	0.30	0.60	1.00
v/c Ratio	0.34	0.03	0.06	0.27	0.39	0.16	0.54	0.97	0.42	0.81	0.33	0.54
Control Delay	57.4	49.3	0.4	65.4	76.7	0.2	54.7	51.0	15.8	45.0	12.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	49.3	0.4	65.4	76.7	0.2	54.7	51.0	15.8	45.0	12.9	1.3
LOS	E	D	A	E	E	A	D	D	B	D	B	A
Approach Delay		48.2			34.0			45.9			20.0	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 32.6

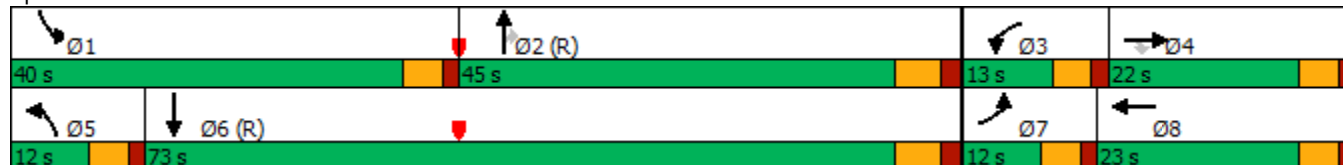
Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings
2: W. Site Internal Road & Belford Avenue

2041 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	316	5	10	419	265	25	0	30	45	0	40
Future Volume (vph)	215	316	5	10	419	265	25	0	30	45	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	0		0	150		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.926			0.850	
Flt Protected	0.950			0.950				0.978		0.950		
Satd. Flow (prot)	1770	3532	0	1770	3539	1583	0	1687	0	1770	1583	0
Flt Permitted	0.453			0.543				0.835		0.565		
Satd. Flow (perm)	844	3532	0	1011	3539	1583	0	1440	0	1052	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				288		109			452	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1963			1283			637			584	
Travel Time (s)		38.2			25.0			17.4			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	343	5	11	455	288	27	0	33	49	0	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	348	0	11	455	288	0	60	0	49	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8		8	2			6		

Lanes, Volumes, Timings

2: W. Site Internal Road & Belford Avenue

2041 Total
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	2	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	
Minimum Split (s)	10.0	23.0		10.0	23.0	23.0	20.0	20.0		10.0	23.0	
Total Split (s)	12.0	73.0		12.0	73.0	73.0	20.0	20.0		15.0	35.0	
Total Split (%)	10.0%	60.8%		10.0%	60.8%	60.8%	16.7%	16.7%		12.5%	29.2%	
Maximum Green (s)	7.0	68.0		7.0	68.0	68.0	15.0	15.0		10.0	30.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		-1.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0		4.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		4.0			4.0	4.0	4.0	4.0			4.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0			0	
Act Effect Green (s)	95.5	94.3		86.7	81.0	81.0		5.6		17.6	16.6	
Actuated g/C Ratio	0.80	0.79		0.72	0.68	0.68		0.05		0.15	0.14	
v/c Ratio	0.31	0.13		0.01	0.19	0.25		0.35		0.24	0.07	
Control Delay	4.6	4.7		1.4	2.7	0.5		6.5		45.4	0.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	4.6	4.7		1.4	2.7	0.5		6.5		45.4	0.2	
LOS	A	A		A	A	A		A		D	A	
Approach Delay		4.7			1.8			6.5			24.3	
Approach LOS		A			A			A			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 4.5

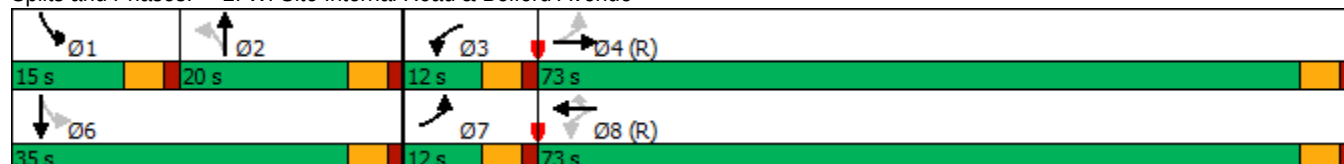
Intersection LOS: A

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: W. Site Internal Road & Belford Avenue



HCM 6th TWSC
3: Middle Site Internal Road & Belford Avenue

2041 Total
AM Peak

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	363	10	10	650	25	35	0	35	15	0	10
Future Vol, veh/h	20	363	10	10	650	25	35	0	35	15	0	10
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	22	395	11	11	707	27	38	0	38	16	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	406	0	0	821	1201	203	985	1193	367
Stage 1	-	-	-	-	-	-	445	445	-	743	743	-
Stage 2	-	-	-	-	-	-	376	756	-	242	450	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	867	-	-	1376	-	-	390	228	*948	*286	230	630
Stage 1	-	-	-	-	-	-	803	723	-	*373	420	-
Stage 2	-	-	-	-	-	-	617	414	-	*894	719	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	867	-	-	1376	-	-	373	220	*948	*268	223	630
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	220	-	*268	223	-
Stage 1	-	-	-	-	-	-	783	705	-	*364	417	-
Stage 2	-	-	-	-	-	-	602	411	-	*836	701	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	12.8	15.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	535	867	-	-	1376	-	-	268	630
HCM Lane V/C Ratio	0.142	0.025	-	-	0.008	-	-	0.061	0.017
HCM Control Delay (s)	12.8	9.3	-	-	7.6	-	-	19.3	10.8
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.2	0.1

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

HCM 6th TWSC
4: E. Site Internal Road & Belford Avenue

2041 Total
AM Peak

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	325	10	20	630	100	40	0	30	15	0	15
Future Vol, veh/h	80	325	10	20	630	100	40	0	30	15	0	15
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	87	353	11	22	685	109	43	0	33	16	0	16
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	794	0	0	364	0	0	920	1371	182	1135	1322	397
Stage 1	-	-	-	-	-	-	533	533	-	784	784	-
Stage 2	-	-	-	-	-	-	387	838	-	351	538	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1141	-	-	1376	-	-	*670	301	*974	519	333	*820
Stage 1	-	-	-	-	-	-	*652	624	-	702	631	-
Stage 2	-	-	-	-	-	-	*773	588	-	855	621	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	1141	-	-	1376	-	-	*611	274	*974	466	303	*820
Mov Cap-2 Maneuver	-	-	-	-	-	-	*611	274	-	466	303	-
Stage 1	-	-	-	-	-	-	*602	577	-	649	621	-
Stage 2	-	-	-	-	-	-	*746	578	-	764	573	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.6			0.2			10.5			11.2		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	727	1141	-	-	1376	-	-	466	820			
HCM Lane V/C Ratio	0.105	0.076	-	-	0.016	-	-	0.035	0.02			
HCM Control Delay (s)	10.5	8.4	-	-	7.7	-	-	13	9.5			
HCM Lane LOS	B	A	-	-	A	-	-	B	A			
HCM 95th %tile Q(veh)	0.3	0.2	-	-	0	-	-	0.1	0.1			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

HCM 6th TWSC
5: RIRO Access Road & Belford Avenue

2041 Total
AM Peak

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱			↑↑		↱
Traffic Vol, veh/h	364	5	0	749	0	30
Future Vol, veh/h	364	5	0	749	0	30
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	396	5	0	814	0	33
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	201
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	806
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	806
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9.7	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	806	-	-	-		
HCM Lane V/C Ratio	0.04	-	-	-		
HCM Control Delay (s)	9.7	-	-	-		
HCM Lane LOS	A	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		

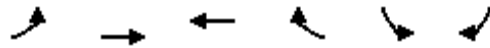
HCM 6th TWSC
6: N. 6th Street & Belford Avenue

2041 Total
AM Peak

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	374	5	15	734	85	10	5	20	25	5	5
Future Vol, veh/h	15	374	5	15	734	85	10	5	20	25	5	5
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	16	407	5	16	798	92	11	5	22	27	5	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	890	0	0	412	0	0	876	1364	206	1068	1274	399
Stage 1	-	-	-	-	-	-	442	442	-	830	830	-
Stage 2	-	-	-	-	-	-	434	922	-	238	444	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1072	-	-	1143	-	-	*634	242	800	414	285	*795
Stage 1	-	-	-	-	-	-	*564	575	-	709	630	-
Stage 2	-	-	-	-	-	-	*749	557	-	744	574	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1072	-	-	1143	-	-	*607	235	800	388	276	*795
Mov Cap-2 Maneuver	-	-	-	-	-	-	*607	235	-	388	276	-
Stage 1	-	-	-	-	-	-	*556	566	-	699	621	-
Stage 2	-	-	-	-	-	-	*727	549	-	706	565	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.1			11.7			14.7		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	607	540	1072	-	-	1143	-	-	388	410		
HCM Lane V/C Ratio	0.018	0.05	0.015	-	-	0.014	-	-	0.07	0.027		
HCM Control Delay (s)	11	12	8.4	-	-	8.2	-	-	15	14		
HCM Lane LOS	B	B	A	-	-	A	-	-	C	B		
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0	-	-	0.2	0.1		
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

2041 Total
AM Peak

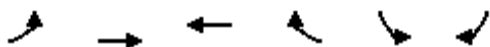


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	374	794	130	220	40
Future Volume (vph)	45	374	794	130	220	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	100	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.276				0.950	
Satd. Flow (perm)	514	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				141		43
Link Speed (mph)		35	35		25	
Link Distance (ft)		513	624		412	
Travel Time (s)		10.0	12.2		11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	407	863	141	239	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	407	863	141	239	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings

7: Belford Avenue & Internal Connector

2041 Total
AM Peak

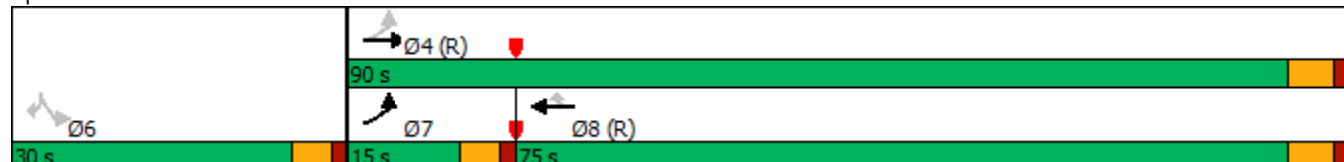


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	15.0	90.0	75.0	75.0	30.0	30.0
Total Split (%)	12.5%	75.0%	62.5%	62.5%	25.0%	25.0%
Maximum Green (s)	10.0	84.0	69.0	69.0	25.0	25.0
Yellow Time (s)	3.5	4.0	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	4.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	89.4	88.4	79.1	79.1	21.6	21.6
Actuated g/C Ratio	0.74	0.74	0.66	0.66	0.18	0.18
v/c Ratio	0.11	0.16	0.37	0.13	0.75	0.13
Control Delay	4.5	5.3	22.0	9.9	61.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	5.3	22.0	9.9	61.2	12.2
LOS	A	A	C	A	E	B
Approach Delay		5.2	20.3		53.8	
Approach LOS		A	C		D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 21.7
Intersection LOS: C
Intersection Capacity Utilization 50.8%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Belford Avenue & Internal Connector



Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Total
AM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	398	196	330	3175	615	724
Future Volume (vph)	398	196	330	3175	615	724
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	5085	5085	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		213				583
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	433	213	359	3451	668	787
Shared Lane Traffic (%)						
Lane Group Flow (vph)	433	213	359	3451	668	787
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Total
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	25.0		25.0	95.0	70.0	70.0
Total Split (%)	20.8%		20.8%	79.2%	58.3%	58.3%
Maximum Green (s)	20.0		20.0	89.0	64.0	64.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0		-1.5	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0		3.5	4.0	4.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effect Green (s)	19.7	120.0	18.8	92.3	70.0	70.0
Actuated g/C Ratio	0.16	1.00	0.16	0.77	0.58	0.58
v/c Ratio	0.77	0.13	0.67	0.88	0.23	0.67
Control Delay	58.7	0.2	54.0	14.0	12.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	0.2	54.0	14.0	12.7	7.5
LOS	E	A	D	B	B	A
Approach Delay	39.4			17.7	9.9	
Approach LOS	D			B	A	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 18.2
Intersection LOS: B
Intersection Capacity Utilization 79.4%
ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



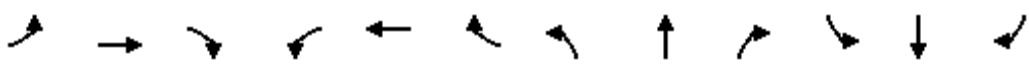
Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	655	111	180	322	18	771	20	460	122	350	1225	60
Future Volume (vph)	655	111	180	322	18	771	20	460	122	350	1225	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	200		150	200		150	200		150
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			320			200			255
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		882			2077			702			643	
Travel Time (s)		17.2			40.5			10.6			9.7	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	689	121	196	350	20	838	22	500	133	380	1332	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	121	196	350	20	838	22	500	133	380	1332	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			Free			2			Free

Lanes, Volumes, Timings
1: S. Peoria Street & Belford Avenue

2041 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8		5	2	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		10.0	24.0	24.0	10.0	24.0	
Total Split (s)	40.0	20.0	20.0	33.0	13.0		12.0	47.0	47.0	20.0	55.0	
Total Split (%)	33.3%	16.7%	16.7%	27.5%	10.8%		10.0%	39.2%	39.2%	16.7%	45.8%	
Maximum Green (s)	35.0	15.0	15.0	28.0	8.0		7.0	41.0	41.0	15.0	49.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	4.0	4.0	3.5	4.0	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		1.5	2.0	2.0	1.5	2.0	
Lost Time Adjust (s)	-2.0	-1.0	-1.0	-1.0	-1.5		-1.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	4.0	4.0	4.0	3.5		4.0	4.0	4.0	3.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	None	C-Max	
Walk Time (s)		4.0	4.0		4.0			4.0	4.0		4.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	32.7	13.9	13.9	18.5	7.7	120.0	7.3	53.7	53.7	18.8	68.6	120.0
Actuated g/C Ratio	0.27	0.12	0.12	0.15	0.06	1.00	0.06	0.45	0.45	0.16	0.57	1.00
v/c Ratio	0.74	0.30	0.60	0.66	0.09	0.53	0.11	0.32	0.16	0.71	0.66	0.04
Control Delay	44.7	48.7	18.6	63.0	51.9	1.8	54.1	23.9	1.0	55.7	22.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	48.7	18.6	63.0	51.9	1.8	54.1	23.9	1.0	55.7	22.9	0.1
LOS	D	D	B	E	D	A	D	C	A	E	C	A
Approach Delay		40.1			20.4			20.2			29.1	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 27.9

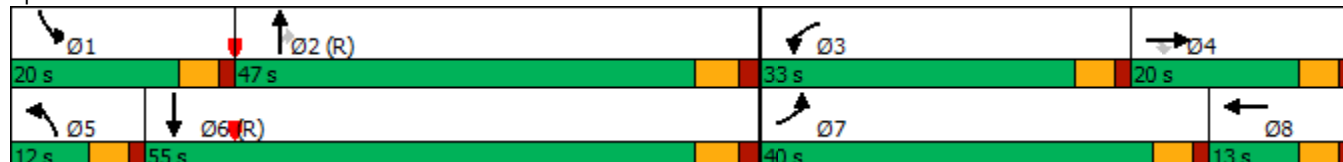
Intersection LOS: C

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: S. Peoria Street & Belford Avenue



Lanes, Volumes, Timings
2: W. Site Internal Road & Belford Avenue

2041 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	498	25	35	346	70	15	0	15	200	0	160
Future Volume (vph)	55	498	25	35	346	70	15	0	15	200	0	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	150		150	0		0	150		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.932			0.850	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3539	1583	0	1694	0	1770	1583	0
Flt Permitted	0.514			0.428				0.909		0.748		
Satd. Flow (perm)	957	3514	0	797	3539	1583	0	1578	0	1393	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				109		109			494	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1963			1283			637			584	
Travel Time (s)		38.2			25.0			17.4			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	541	27	38	376	76	16	0	16	217	0	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	568	0	38	376	76	0	32	0	217	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100		20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0		0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8		8	2			6		

Lanes, Volumes, Timings

2: W. Site Internal Road & Belford Avenue

2041 Total
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8	8	2	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	
Minimum Split (s)	10.0	23.0		10.0	23.0	23.0	20.0	20.0		10.0	23.0	
Total Split (s)	12.0	67.0		12.0	67.0	67.0	20.0	20.0		21.0	41.0	
Total Split (%)	10.0%	55.8%		10.0%	55.8%	55.8%	16.7%	16.7%		17.5%	34.2%	
Maximum Green (s)	7.0	62.0		7.0	62.0	62.0	15.0	15.0		16.0	36.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0		-2.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0		5.0		3.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None		None	None	
Walk Time (s)		4.0			4.0	4.0	4.0	4.0			4.0	
Flash Dont Walk (s)		11.0			11.0	11.0	11.0	11.0			11.0	
Pedestrian Calls (#/hr)		0			0	0	0	0			0	
Act Effect Green (s)	85.7	81.3		83.9	78.8	78.8		5.5		23.7	21.7	
Actuated g/C Ratio	0.71	0.68		0.70	0.66	0.66		0.05		0.20	0.18	
v/c Ratio	0.08	0.24		0.06	0.16	0.07		0.18		0.66	0.25	
Control Delay	13.0	15.9		2.9	4.2	0.1		2.3		53.2	0.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay	13.0	15.9		2.9	4.2	0.1		2.3		53.2	0.9	
LOS	B	B		A	A	A		A		D	A	
Approach Delay		15.6			3.5			2.3			29.9	
Approach LOS		B			A			A			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 15.1

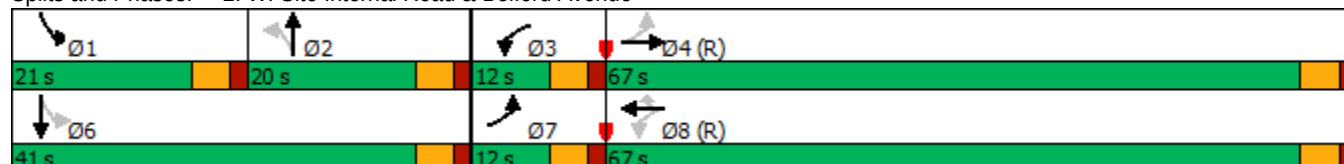
Intersection LOS: B

Intersection Capacity Utilization 49.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: W. Site Internal Road & Belford Avenue



HCM 6th TWSC
3: Middle Site Internal Road & Belford Avenue

2041 Total
PM Peak

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	625	35	40	370	65	20	0	20	75	0	60
Future Vol, veh/h	55	625	35	40	370	65	20	0	20	75	0	60
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	60	679	38	43	402	71	22	0	22	82	0	65
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	473	0	0	717	0	0	1105	1377	359	984	1361	237
Stage 1	-	-	-	-	-	-	818	818	-	524	524	-
Stage 2	-	-	-	-	-	-	287	559	-	460	837	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1085	-	-	1187	-	-	314	210	*846	*405	216	764
Stage 1	-	-	-	-	-	-	607	570	-	*504	528	-
Stage 2	-	-	-	-	-	-	696	509	-	*797	556	-
Platoon blocked, %		-	-	1	-	-	1	1	1	1	1	
Mov Cap-1 Maneuver	1085	-	-	1187	-	-	267	191	*846	*368	196	764
Mov Cap-2 Maneuver	-	-	-	-	-	-	267	191	-	*368	196	-
Stage 1	-	-	-	-	-	-	573	539	-	*476	509	-
Stage 2	-	-	-	-	-	-	614	491	-	*734	525	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.7			14.9			14.3		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	406	1085	-	-	1187	-	-	368	764			
HCM Lane V/C Ratio	0.107	0.055	-	-	0.037	-	-	0.222	0.085			
HCM Control Delay (s)	14.9	8.5	-	-	8.1	-	-	17.5	10.2			
HCM Lane LOS	B	A	-	-	A	-	-	C	B			
HCM 95th %tile Q(veh)	0.4	0.2	-	-	0.1	-	-	0.8	0.3			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

HCM 6th TWSC
4: E. Site Internal Road & Belford Avenue

2041 Total
PM Peak

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	675	35	65	390	25	25	0	20	75	0	60
Future Vol, veh/h	20	675	35	65	390	25	25	0	20	75	0	60
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	-	-	-	-	150	-	-
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	22	734	38	71	424	27	27	0	22	82	0	65
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	451	0	0	772	0	0	1151	1390	386	991	1396	226
Stage 1	-	-	-	-	-	-	797	797	-	580	580	-
Stage 2	-	-	-	-	-	-	354	593	-	411	816	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1372	-	-	1169	-	-	*543	307	*820	*655	303	*923
Stage 1	-	-	-	-	-	-	*686	620	-	*705	652	-
Stage 2	-	-	-	-	-	-	*870	642	-	*773	605	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	1372	-	-	1169	-	-	*475	283	*820	*600	280	*923
Mov Cap-2 Maneuver	-	-	-	-	-	-	*475	283	-	*600	280	-
Stage 1	-	-	-	-	-	-	*675	610	-	*693	612	-
Stage 2	-	-	-	-	-	-	*759	602	-	*741	595	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.1			11.7			10.7		
HCM LOS							B			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	584	1372	-	-	1169	-	-	600	923			
HCM Lane V/C Ratio	0.084	0.016	-	-	0.06	-	-	0.136	0.071			
HCM Control Delay (s)	11.7	7.7	-	-	8.3	-	-	11.9	9.2			
HCM Lane LOS	B	A	-	-	A	-	-	B	A			
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.5	0.2			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

HCM 6th TWSC
5: RIRO Access Road & Belford Avenue

2041 Total
PM Peak

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↱			↑↑		↱
Traffic Vol, veh/h	743	15	0	478	0	19
Future Vol, veh/h	743	15	0	478	0	19
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	808	16	0	520	0	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	412
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	589
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	589
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBT	
Capacity (veh/h)	589		-	-	-	
HCM Lane V/C Ratio	0.035		-	-	-	
HCM Control Delay (s)	11.3		-	-	-	
HCM Lane LOS	B		-	-	-	
HCM 95th %tile Q(veh)	0.1		-	-	-	

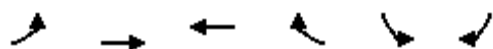
HCM 6th TWSC
6: N. 6th Street & Belford Avenue

2041 Total
PM Peak

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	752	5	40	453	35	5	5	20	95	5	20
Future Vol, veh/h	5	752	5	40	453	35	5	5	20	95	5	20
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	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	150	-	-	150	-	-
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	817	5	43	492	38	5	5	22	103	5	22
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	530	0	0	822	0	0	1165	1446	411	999	1410	246
Stage 1	-	-	-	-	-	-	830	830	-	578	578	-
Stage 2	-	-	-	-	-	-	335	616	-	421	832	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1323	-	-	803	-	-	*234	169	590	327	180	*897
Stage 1	-	-	-	-	-	-	*331	383	-	765	688	-
Stage 2	-	-	-	-	-	-	*846	658	-	581	382	-
Platoon blocked, %	1	-	-	-	-	-	1	1	-	1	1	1
Mov Cap-1 Maneuver	1323	-	-	803	-	-	*213	159	590	293	169	*897
Mov Cap-2 Maneuver	-	-	-	-	-	-	*213	159	-	293	169	-
Stage 1	-	-	-	-	-	-	*330	381	-	762	651	-
Stage 2	-	-	-	-	-	-	*775	622	-	550	380	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.7			16.3			21.5		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	213	383	1323	-	-	803	-	-	293	482		
HCM Lane V/C Ratio	0.026	0.071	0.004	-	-	0.054	-	-	0.352	0.056		
HCM Control Delay (s)	22.3	15.1	7.7	-	-	9.7	-	-	23.8	12.9		
HCM Lane LOS	C	C	A	-	-	A	-	-	C	B		
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0.2	-	-	1.5	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Lanes, Volumes, Timings
7: Belford Avenue & Internal Connector

2041 Total
PM Peak

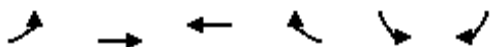


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	822	488	125	255	40
Future Volume (vph)	45	822	488	125	255	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			150	100	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.414				0.950	
Satd. Flow (perm)	771	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				136		43
Link Speed (mph)		35	35		25	
Link Distance (ft)		513	624		412	
Travel Time (s)		10.0	12.2		11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	893	530	136	277	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	893	530	136	277	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (ft)	20	100	100	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	6	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Perm	Perm
Protected Phases	7	4	8			
Permitted Phases	4			8	6	6

Lanes, Volumes, Timings

7: Belford Avenue & Internal Connector

2041 Total
PM Peak

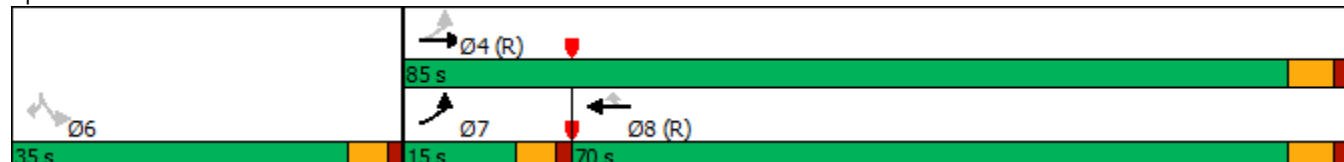


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	15.0	85.0	70.0	70.0	35.0	35.0
Total Split (%)	12.5%	70.8%	58.3%	58.3%	29.2%	29.2%
Maximum Green (s)	10.0	79.0	64.0	64.0	30.0	30.0
Yellow Time (s)	3.5	4.0	4.0	4.0	3.5	3.5
All-Red Time (s)	1.5	2.0	2.0	2.0	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-2.0	-1.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	3.0	4.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	C-Max	None	None
Walk Time (s)		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)		0	0	0	0	0
Act Effect Green (s)	86.4	85.4	75.9	75.9	25.6	24.6
Actuated g/C Ratio	0.72	0.71	0.63	0.63	0.21	0.20
v/c Ratio	0.08	0.35	0.24	0.13	0.73	0.12
Control Delay	4.2	5.7	19.1	10.3	55.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	5.7	19.1	10.3	55.3	11.0
LOS	A	A	B	B	E	B
Approach Delay		5.6	17.3		49.4	
Approach LOS		A	B		D	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 37 (31%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 16.9
Intersection LOS: B
Intersection Capacity Utilization 45.2%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Belford Avenue & Internal Connector



Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Total
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	747	330	252	495	2650	481
Future Volume (vph)	747	330	252	495	2650	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200	0	200			150
Storage Lanes	2	1	2			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.97	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	3433	1583	3433	5085	5085	1583
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3433	1583	3433	5085	5085	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		293				219
Link Speed (mph)	35			45	45	
Link Distance (ft)	624			447	465	
Travel Time (s)	12.2			6.8	7.0	
Peak Hour Factor	0.95	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	786	359	274	538	2789	523
Shared Lane Traffic (%)						
Lane Group Flow (vph)	786	359	274	538	2789	523
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (ft)	20	20	20	100	100	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)				94	94	
Detector 2 Size(ft)				6	6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Perm	Free	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	Free				6

Lanes, Volumes, Timings
8: S. Chambers Road & Belford Avenue

2041 Total
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4		5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	23.0		10.0	24.0	24.0	24.0
Total Split (s)	38.0		17.0	82.0	65.0	65.0
Total Split (%)	31.7%		14.2%	68.3%	54.2%	54.2%
Maximum Green (s)	33.0		12.0	76.0	59.0	59.0
Yellow Time (s)	3.5		3.5	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-1.5	-2.0	-3.0	-2.0
Total Lost Time (s)	3.0		3.5	4.0	3.0	4.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	C-Max	C-Max	C-Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	11.0			11.0	11.0	11.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	32.9	120.0	13.5	80.1	64.1	63.1
Actuated g/C Ratio	0.27	1.00	0.11	0.67	0.53	0.53
v/c Ratio	0.84	0.23	0.71	0.16	1.03	0.56
Control Delay	49.6	0.3	62.2	7.8	53.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	0.3	62.2	7.8	53.1	13.4
LOS	D	A	E	A	D	B
Approach Delay	34.1			26.1	46.9	
Approach LOS	C			C	D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 40.9

Intersection LOS: D

Intersection Capacity Utilization 89.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: S. Chambers Road & Belford Avenue



Queues

2025 Total

1: S. Peoria Street & Belford Avenue

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	8	11	50	11	112	125	652	21	43	293	337
v/c Ratio	0.14	0.04	0.05	0.33	0.09	0.07	0.45	0.24	0.02	0.17	0.12	0.21
Control Delay	50.0	53.1	0.5	54.9	53.7	0.1	57.3	6.2	0.0	53.1	6.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	53.1	0.5	54.9	53.7	0.1	57.3	6.2	0.0	53.1	6.8	0.3
Queue Length 50th (ft)	16	3	0	38	8	0	48	67	0	16	30	0
Queue Length 95th (ft)	35	11	0	70	27	0	78	138	0	35	67	0
Internal Link Dist (ft)	802			1997			622			563		
Turn Bay Length (ft)	200		150	200		150	200		150	200		150
Base Capacity (vph)	334	589	362	159	321	1583	278	2711	1238	269	2544	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.01	0.03	0.31	0.03	0.07	0.45	0.24	0.02	0.16	0.12	0.21
Intersection Summary												

Queues
8: S. Chambers Road & Belford Avenue

2025 Total
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	248	148	168	734	326	254
v/c Ratio	0.58	0.09	0.46	0.26	0.14	0.22
Control Delay	54.9	0.1	54.2	3.2	7.8	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	0.1	54.2	3.2	7.8	1.6
Queue Length 50th (ft)	94	0	63	57	43	0
Queue Length 95th (ft)	133	0	97	88	73	31
Internal Link Dist (ft)	544			367	385	
Turn Bay Length (ft)	200		200			150
Base Capacity (vph)	600	1583	615	2862	2385	1149
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.09	0.27	0.26	0.14	0.22
Intersection Summary						

Queues

2025 Total

1: S. Peoria Street & Belford Avenue

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	283	12	109	35	9	72	11	326	51	114	663	38
v/c Ratio	0.59	0.04	0.43	0.23	0.08	0.05	0.06	0.14	0.05	0.35	0.25	0.02
Control Delay	53.4	50.2	13.1	49.3	53.8	0.1	53.8	9.2	0.1	53.5	6.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	50.2	13.1	49.3	53.8	0.1	53.8	9.2	0.1	53.5	6.0	0.0
Queue Length 50th (ft)	104	4	0	26	7	0	4	47	0	43	64	0
Queue Length 95th (ft)	155	14	47	49	24	0	14	86	0	71	160	0
Internal Link Dist (ft)	802			1997			622			563		
Turn Bay Length (ft)	200		150	200		150	200		150	200		150
Base Capacity (vph)	512	471	313	262	256	1583	228	2311	1071	325	2665	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.03	0.35	0.13	0.04	0.05	0.05	0.14	0.05	0.35	0.25	0.02
Intersection Summary												

Queues
8: S. Chambers Road & Belford Avenue

2025 Total
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	281	185	182	598	1132	284
v/c Ratio	0.58	0.12	0.49	0.21	0.48	0.25
Control Delay	52.6	0.2	54.7	3.3	11.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	0.2	54.7	3.3	11.5	2.2
Queue Length 50th (ft)	106	0	69	47	211	7
Queue Length 95th (ft)	145	0	105	75	305	43
Internal Link Dist (ft)	544			367	385	
Turn Bay Length (ft)	200		200			150
Base Capacity (vph)	629	1583	419	2829	2343	1134
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.12	0.43	0.21	0.48	0.25
Intersection Summary						

Queues

2041 Total

1: S. Peoria Street & Belford Avenue

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	8	16	88	136	253	234	1526	330	832	696	848
v/c Ratio	0.34	0.03	0.06	0.27	0.39	0.16	0.54	0.97	0.42	0.81	0.33	0.54
Control Delay	57.4	49.3	0.4	65.4	76.7	0.2	54.7	51.0	15.8	45.0	12.9	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	49.3	0.4	65.4	76.7	0.2	54.7	51.0	15.8	45.0	12.9	1.3
Queue Length 50th (ft)	31	3	0	37	58	0	88	~664	91	304	142	0
Queue Length 95th (ft)	58	11	0	66	94	0	134	#908	196	353	181	0
Internal Link Dist (ft)	802				1997				622		563	
Turn Bay Length (ft)	200		150		200		150		200		150	
Base Capacity (vph)	243	530	376	330	589	1583	431	1572	777	1100	2133	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.02	0.04	0.27	0.23	0.16	0.54	0.97	0.42	0.76	0.33	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Queues
2: W. Site Internal Road & Belford Avenue

2041 Total
AM Peak

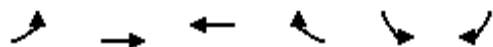
								
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	234	348	11	455	288	60	49	43
v/c Ratio	0.31	0.13	0.01	0.19	0.25	0.35	0.24	0.07
Control Delay	4.6	4.7	1.4	2.7	0.5	6.5	45.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	4.7	1.4	2.7	0.5	6.5	45.4	0.2
Queue Length 50th (ft)	34	25	0	14	0	0	33	0
Queue Length 95th (ft)	m77	m72	m2	24	0	6	68	0
Internal Link Dist (ft)	1883		1203		557		504	
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	748	2776	785	2387	1161	275	227	734
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.13	0.01	0.19	0.25	0.22	0.22	0.06
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

Queues

2041 Total

7: Belford Avenue & Internal Connector

AM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	49	407	863	141	239	43
v/c Ratio	0.11	0.16	0.37	0.13	0.75	0.13
Control Delay	4.5	5.3	22.0	9.9	61.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	5.3	22.0	9.9	61.2	12.2
Queue Length 50th (ft)	10	53	259	21	176	0
Queue Length 95th (ft)	20	69	344	m60	257	31
Internal Link Dist (ft)		433	544		332	
Turn Bay Length (ft)	150			150	100	
Base Capacity (vph)	487	2606	2332	1091	383	376
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.37	0.13	0.62	0.11

Intersection Summary

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

Queues
8: S. Chambers Road & Belford Avenue

2041 Total
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	433	213	359	3451	668	787
v/c Ratio	0.77	0.13	0.67	0.88	0.23	0.67
Control Delay	58.7	0.2	54.0	14.0	12.7	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	0.2	54.0	14.0	12.7	7.5
Queue Length 50th (ft)	179	0	136	630	89	81
Queue Length 95th (ft)	218	0	183	710	117	229
Internal Link Dist (ft)	544			367	385	
Turn Bay Length (ft)	200		200			150
Base Capacity (vph)	600	1583	615	3911	2967	1166
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.13	0.58	0.88	0.23	0.67
Intersection Summary						

Queues

2041 Total

1: S. Peoria Street & Belford Avenue

PM Peak

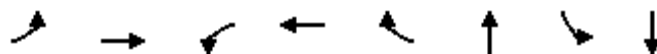
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	689	121	196	350	20	838	22	500	133	380	1332	65
v/c Ratio	0.74	0.30	0.60	0.66	0.09	0.53	0.11	0.32	0.16	0.71	0.66	0.04
Control Delay	44.7	48.7	18.6	63.0	51.9	1.8	54.1	23.9	1.0	55.7	22.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	48.7	18.6	63.0	51.9	1.8	54.1	23.9	1.0	55.7	22.9	0.1
Queue Length 50th (ft)	246	47	24	139	6	0	8	124	0	142	361	0
Queue Length 95th (ft)	303	71	91	184	20	0	22	199	7	201	590	0
Internal Link Dist (ft)	802		1997				622				563	
Turn Bay Length (ft)	200	150		200	150		200	150		200	150	
Base Capacity (vph)	1058	528	376	829	280	1583	230	1584	819	544	2021	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.23	0.52	0.42	0.07	0.53	0.10	0.32	0.16	0.70	0.66	0.04
Intersection Summary												

Queues

2041 Total

2: W. Site Internal Road & Belford Avenue

PM Peak



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	60	568	38	376	76	32	217	174
v/c Ratio	0.08	0.24	0.06	0.16	0.07	0.18	0.66	0.25
Control Delay	13.0	15.9	2.9	4.2	0.1	2.3	53.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	15.9	2.9	4.2	0.1	2.3	53.2	0.9
Queue Length 50th (ft)	5	28	4	25	0	0	147	0
Queue Length 95th (ft)	m55	218	9	38	0	0	228	0
Internal Link Dist (ft)		1883		1203		557		504
Turn Bay Length (ft)	150		150		150		150	
Base Capacity (vph)	733	2383	617	2322	1076	292	338	820
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.24	0.06	0.16	0.07	0.11	0.64	0.21

Intersection Summary

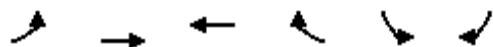
m Volume for 95th percentile queue is metered by upstream signal.

Queues

2041 Total

7: Belford Avenue & Internal Connector

PM Peak



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	49	893	530	136	277	43
v/c Ratio	0.08	0.35	0.24	0.13	0.73	0.12
Control Delay	4.2	5.7	19.1	10.3	55.3	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	5.7	19.1	10.3	55.3	11.0
Queue Length 50th (ft)	8	152	168	34	201	0
Queue Length 95th (ft)	m17	117	235	m81	279	29
Internal Link Dist (ft)		433	544		332	
Turn Bay Length (ft)	150			150	100	
Base Capacity (vph)	638	2517	2239	1051	472	440
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.35	0.24	0.13	0.59	0.10

Intersection Summary

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

Queues
8: S. Chambers Road & Belford Avenue

2041 Total
PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	786	359	274	538	2789	523
v/c Ratio	0.84	0.23	0.71	0.16	1.03	0.56
Control Delay	49.6	0.3	62.2	7.8	53.1	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	0.3	62.2	7.8	53.1	13.4
Queue Length 50th (ft)	309	0	107	54	~871	154
Queue Length 95th (ft)	323	0	154	70	#959	260
Internal Link Dist (ft)	544			367	385	
Turn Bay Length (ft)	200		200			150
Base Capacity (vph)	1001	1583	393	3394	2715	936
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.23	0.70	0.16	1.03	0.56

Intersection Summary

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