TRAFFIC IMPACT STUDY

Parker Adventist Hospital
Medical Office Building III
Parker Colorado

Prepared for:

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FELSBURG HOLT & ULLEVIG
connecting & enhancing communities

FHU Reference No. 118262-01

July 2018

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TIS Standard Checklist

Parker COLORADO

TIS Standard Checklist

Development: PARKER ADVENTIST HOSPITAL
Filing: MEDICAL OFFICE BUILDING III
Consultant: FELSBURG HOLT & ULLEVIG (CHARLES M. BUCK, PE, PTOE)

Date: JULY 27, 2018
Submittal Number:
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	☑	☐	
Proposed Project Site Plan	☑	☐	
Proposed Development Phasing	☐	☑	SINGLE PHASE PLANNED
Existing & Proposed Land Uses Surrounding Site	☑	☐	
EXISTING CONDITIONS	☑	☐	
Roadway Counts < One Year Old	☐	☑	24-HOUR COUNTS NOT REQUIRED
Intersection Counts < Six Months Old	☑	☐	
Existing LOS Summary (Table)	☑	☐	
PROPOSED CONDITIONS	☑	☐	
Trip Generation Summary (Table)	☑	☐	
Internal Trip Reduction Justification (< 10%)	☐	☑	NO INTERNAL REDUCTIONS
Pass-by Trip Reduction Justification (< 15%)	☐	☑	NO PASSBY REDUCTIONS
Trip Distribution Assumptions	☑	☐	
Site Trip Distribution (Figure)	☑	☐	
Projected Site Traffic Volumes (Figure) - Each Phase	☑	☐	

REPORT SECTION	COMPLETED	N/A	COMMENTS
FUTURE CONDITIONS	☑	☐	
Background Transportation Improvements	☐	☑	EXISTING NETWORK ADEQUATE
Background Growth Method & Assumptions	☑	☐	
Background Traffic Volumes (Figure) - Each Phase	☑	☐	
Total Traffic Volumes (Figure) - Each Phase	☑	☐	
SITE CIRCULATION & DESIGN EVALUATION	☑	☐	
Level of Service Analysis - Each Phase (Figures/Table)	☑	☐	
Queuing Analysis - Vehicle Storage Lengths	☑	☐	
Traffic Signal Warrant Analysis	☐	☑	NO NEW SIGNALS
Traffic Signal Progression	☐	☑	NO NEW SIGNALS
Safety Analysis	☑	☐	
PROPOSED MITIGATION MEASURES	☐	☐	
Level of Service for Each Intersection Movement (Table)	☑	☐	
CONCLUSIONS/RECOMMENDATIONS	☑	☐	
Improvements/Lane Configurations (Figure)	☐	☑	IMPROVEMENTS NOT REQUIRED
Recommended Construction Phasing	☐	☑	NO CONSTRUCTION PHASING
APPENDIX	☑	☐	
Traffic Count Data	☑	☐	
Traffic Analysis Software Output Reports (All Periods)	☑	☐	
Time-space Diagrams	☐	☑	NO NEW SIGNALS

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

Signature of Professional Engineer

I. INTRODUCTION

The Parker Adventist Hospital Medical Office Building III (MOB III) is a proposed new facility to be located within the Crown Point area in Parker, Colorado. The site is generally southeast of the E-470/Parker Road interchange, in the northwest quadrant of Pine Lane and Crown Crest Boulevard. **Figure 1** depicts the study area and the adjacent primary roadway system.

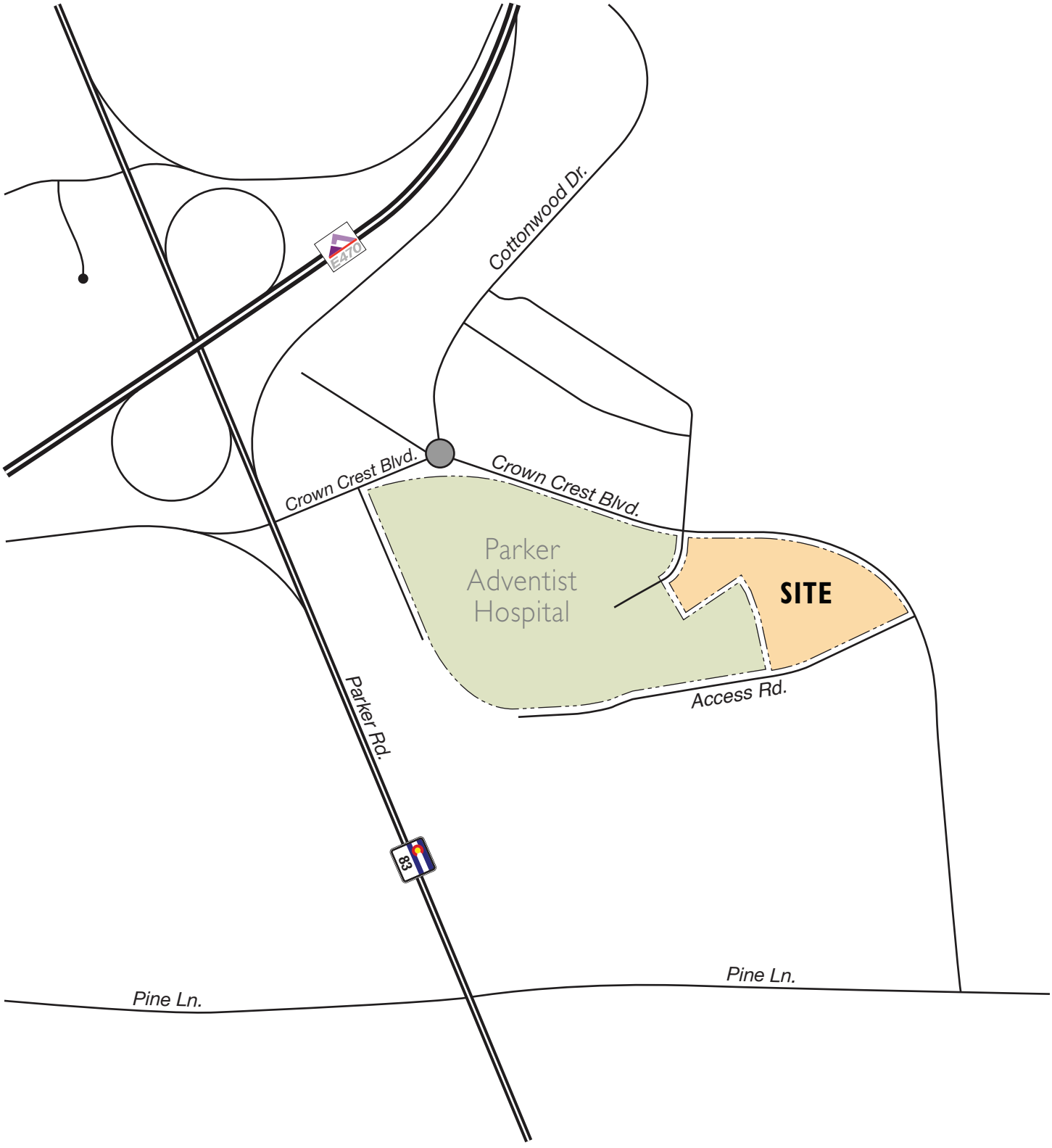
Crown Point has been included in several previous studies:

- *Parker Adventist Hospital Supplemental Traffic Study for Crown Point Development*, Felsburg Holt & Ullevig, January 2008. This report addressed the impacts of a hospital and medical office concept for Parker. The MOB III was a part of the development concept analyzed.
- *Town of Parker Roadway System Evaluation*, Felsburg Holt & Ullevig, April 2013. This report projects future land use and traffic forecasts for Parker, Colorado.
- *Memorandum: Crown Crest Boulevard & Cottonwood Drive VISSIM Roundabout Analysis*, David Evans and Associates, Inc., October 2009. This memorandum addressed future operations of the Crown Crest Boulevard roundabout in the study area.

The proposed MOB III would consist of approximately 110,000 square feet of medical office building space. Vehicular access to the site would be via two preexisting entrances on Crown Crest Boulevard. The northern access is the Main Campus Entrance from Crown Crest Boulevard. The Access Road Entrance from Crown Crest Boulevard is southeast of the site. **Figure 2** depicts the current site plan concept.

The purpose of this report is to assess the traffic impacts specific to the proposed MOB III development proposal and to identify any potential roadway or traffic control requirements. Two future planning horizons are evaluated:

- **Short Range Future**. This scenario estimates conditions based on a near-term project build-out.
- **Long Range Future**. This scenario evaluates a projected year 2040 planning horizon, consistent with the Town of Parker's current long range traffic forecasting model.



NORTH

FIGURE 1
Vicinity Map

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NORTH

FIGURE 2

Site Plan

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II. EXISTING CONDITIONS

II.A. Land Use

The MOB III site is currently vacant. The existing Parker Adventist Hospital and an existing medical office have been built in Crown Point to the east of the site. These uses were previously analyzed in the aforementioned *Parker Adventist Hospital Supplemental Traffic Study for Crown Point Development*, Felsburg Holt & Ullevig, January 2008, which included the MOB III site.

II.B. Existing Roadway Network

Crown Crest Boulevard

Crown Crest Boulevard, a non-residential collector, extends east from Parker Road and intersects Pine Lane southeast of the site. The intersection with Parker Road aligns with the eastbound E-470 off ramp, is restricted to right or left turns, and is signal controlled. The intersection with Pine Lane is a full movement "T" intersection and is signal controlled. Near the site, the cross section is two through lanes with left turn storage provided within a non-traversable center median. The speed limit is 35 miles per hour (MPH).

Cottonwood Drive

Cottonwood Drive, a non-residential collector, extends north from the Crown Crest Boulevard roundabout. The intersection with Crown Crest Boulevard is a roundabout. Near the site, the cross section is two through lanes with left turn storage provided within a non-traversable center median. The speed limit is 35 MPH.

II.C. Traffic Volumes

Turning movement traffic counts were recently conducted at the Crown Crest Boulevard roundabout (roundabout) at the Crown Crest Boulevard/Main Campus Entrance intersection (Main Campus Entrance) and at the Crown Crest Boulevard/Access Road intersection (Access Road Entrance). These traffic counts were collected in 15-minute intervals from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM to encompass the morning and afternoon peak hours of commuter activity; the peak hours were then extracted from these data. Approximate daily volumes along study area roadways were estimated from the PM peak hour volumes using a factor of 10. **Appendix A** includes the traffic count data used in this report.

Figure 3 graphically depicts the existing traffic conditions. As shown, two-way daily volumes along Crown Crest Boulevard west of the roundabout are approximately 11,350 vehicles per day (VPD), and the two-way daily traffic volumes along Crown Crest Boulevard east of the roundabout are 6,000 VPD. The two-way daily traffic volumes along Crown Crest Boulevard south of the Access Road Entrance are 6,200 VPD. Two-way daily traffic volumes along Cottonwood Drive are approximately 7,050 VPD.

II.D. Traffic Operations

Existing traffic operations were analyzed at the study area intersections based on procedures documented in the *Highway Capacity Manual*, 6th Edition (Transportation Research Board, 2017). Level of Service (LOS) is a qualitative measure of traffic operational conditions based on roadway capacity and motorist delay. LOS ranges from A to F, with LOS A representing the best possible operating conditions, and LOS F representing over-capacity or congested conditions. LOS D is typically considered to be acceptable for peak hour traffic operations in urbanized areas. For signalized traffic control, LOS represents an average of the delays for all movements at the intersection. At unsignalized intersections, LOS is reported for each movement that yields right-of-way.

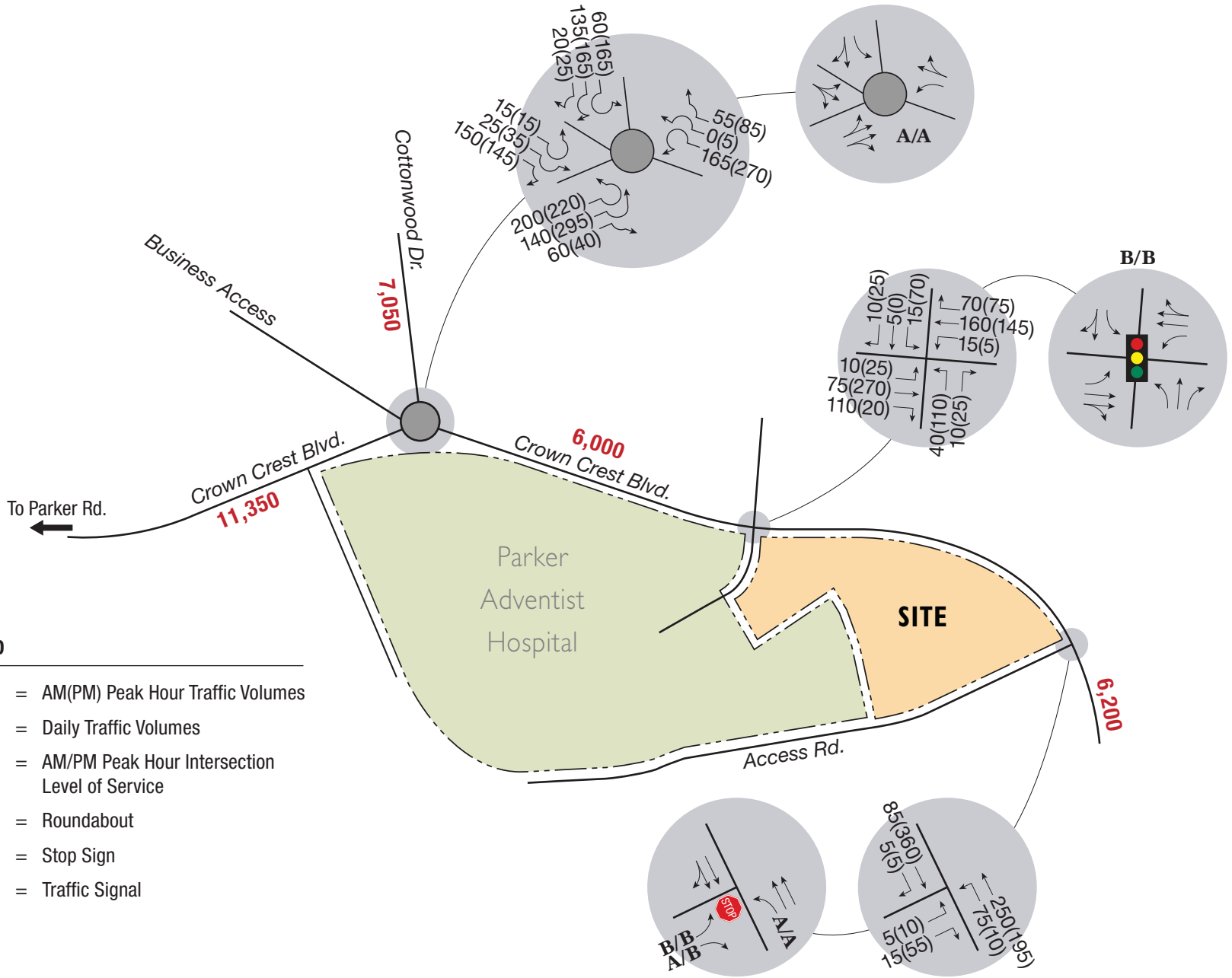
Figure 3 illustrates and **Table 1** summarizes existing LOS results.

Table 1. Existing Level of Service Summary

Intersections	Existing Conditions AM/PM Peak Hour
Crown Crest Boulevard Roundabout	A/A
Crown Crest Boulevard/Main Campus Entrance	B/B
Crown Crest Boulevard/Access Road	
Eastbound Left	B/B
Eastbound Right	A/B
Northbound Left	A/A

As indicated, exiting traffic operations are acceptable, at LOS B or better.

Appendix B includes worksheets for the existing conditions analysis.



LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Intersection Level of Service
	=	Roundabout
STOP	=	Stop Sign
	=	Traffic Signal

NORTH

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FIGURE 3
Existing (2018) Traffic Conditions

Parker Adventist Hospital MOB 18-262 7/16/18

III. PROPOSED CONDITIONS

III.A. Site Trip Generation

As previously mentioned, the MOB III concept consists of approximately 110,000 square feet of medical office building space. A trip generation analysis was conducted using standard rates documented in *Trip Generation*, 9th Edition, Institute of Transportation Engineers, 2012 (ITE). **Table 2** summarizes the trip generation potential of the site.

Table 2. Trip Generation Analysis and Comparison

Land Use	Quantity	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Current Proposed Land Use (Parker Adventist Hospital Medical Office Building III)								
Medical Office Building (1)	110,000 sf	4,140	245	70	315	105	275	380
1. ITE Code 720 Medical Office Building								

As indicated in **Table 2**, the MOB III would generate about 4,140 trips daily, with peak hour trip generation estimates of approximately 315 vehicles trips per hour (VPH) to 380 VPH.

III.B. Trip Distribution and Site Generated Traffic Assignment

The site generated traffic volumes identified in **Table 2** were distributed and assigned to the adjacent street network based on the following trip distribution percentages:

- 33 percent to/from the east (to Pine Lane) via Crown Crest Boulevard
- 15 percent to/from the north via Cottonwood Drive
- 52 percent to/from the west via Crown Crest Boulevard

This trip distribution is based on the existing travel patterns extracted from the traffic counts. **Figure 4** depicts the resultant site generated traffic assignment. Crown Crest Boulevard west of the roundabout would additionally experience approximately 2,000 VPD of site-related traffic and about 2,550 VPD of site-related traffic east of the roundabout. Crown Crest Boulevard south of the Access Road Entrance would experience about 1,250 VPD of site-related traffic. Cottonwood Drive would experience about 550 VPD of site-related traffic.

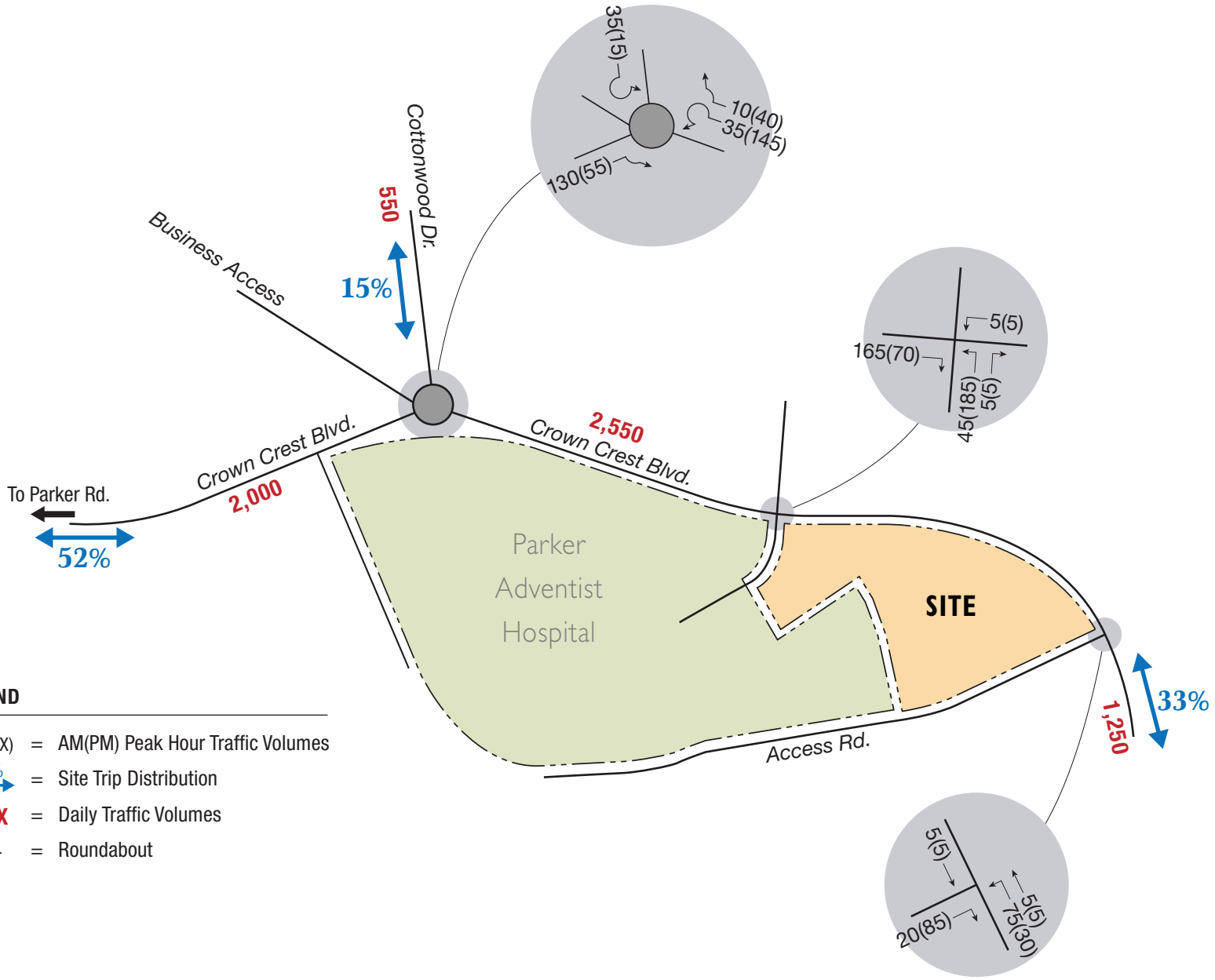

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FIGURE 4

Site Generated Traffic Volumes

Parker Adventist Hospital MOB 18-262 7/16/18

IV. FUTURE CONDITIONS

IV.A. Background Traffic Volumes

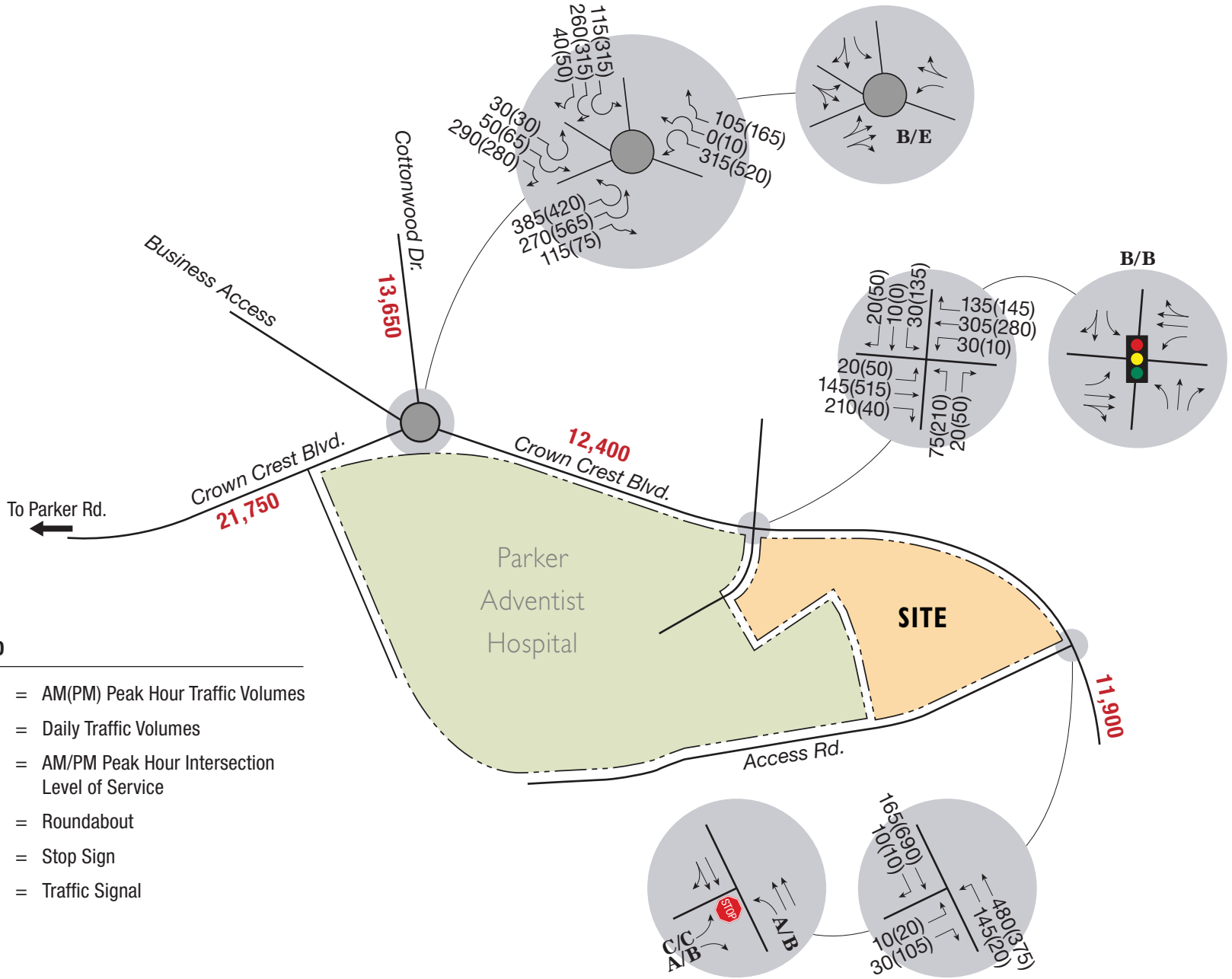
Background traffic is the component of traffic volumes on the local street network that would be present regardless of the proposed MOB III at Crown Point. Because the MOB III is expected to be developed in the near future, the existing traffic volumes previously presented were used as the short range background traffic volumes.

To estimate background increases in traffic volumes for the long range future, growth rates were extracted from the *Town of Parker Roadway System Evaluation*, Felsburg Holt & Ullevig, April 2013, which projects the 2040 horizon. The projections indicate an average annual growth rate of approximately 3.0 percent near the site. Therefore, this growth rate was applied to the long range future background traffic scenario as follows:

- 3 percent growth per year on Crown Crest Boulevard
- Trip generation estimates for remaining uses within Crown Point were assigned to the adjacent roadways per our 2008 analysis.

Figure 5 depicts the resultant 2040 background projections. As shown, traffic volumes on Crown Crest Boulevard would range between about 21,750 VPD west of the roundabout and about 12,400 VPD east of the roundabout. Crown Crest Boulevard would also have about 11,900 VPD south of the Access Road Entrance. Traffic volumes along Cottonwood Drive would be about 13,650 VPD.

LOS calculations based on the 2040 background conditions indicate that traffic operations would remain generally acceptable, at LOS C or better during peak times, except for the Crown Crest Boulevard roundabout. The eastbound left turn movement at the roundabout would experience LOS B (AM) and LOS E (PM). The northwest-bound left turn movement at the roundabout would experience LOS B (AM) and LOS E (PM). This is consistent with the aforementioned Memorandum, David Evans and Associates, Inc., October 2009, which identified potential future operational concerns at this roundabout.



LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Intersection Level of Service
	=	Roundabout
STOP	=	Stop Sign
	=	Traffic Signal

NORTH

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FIGURE 5

Long Range Future Background Traffic Conditions

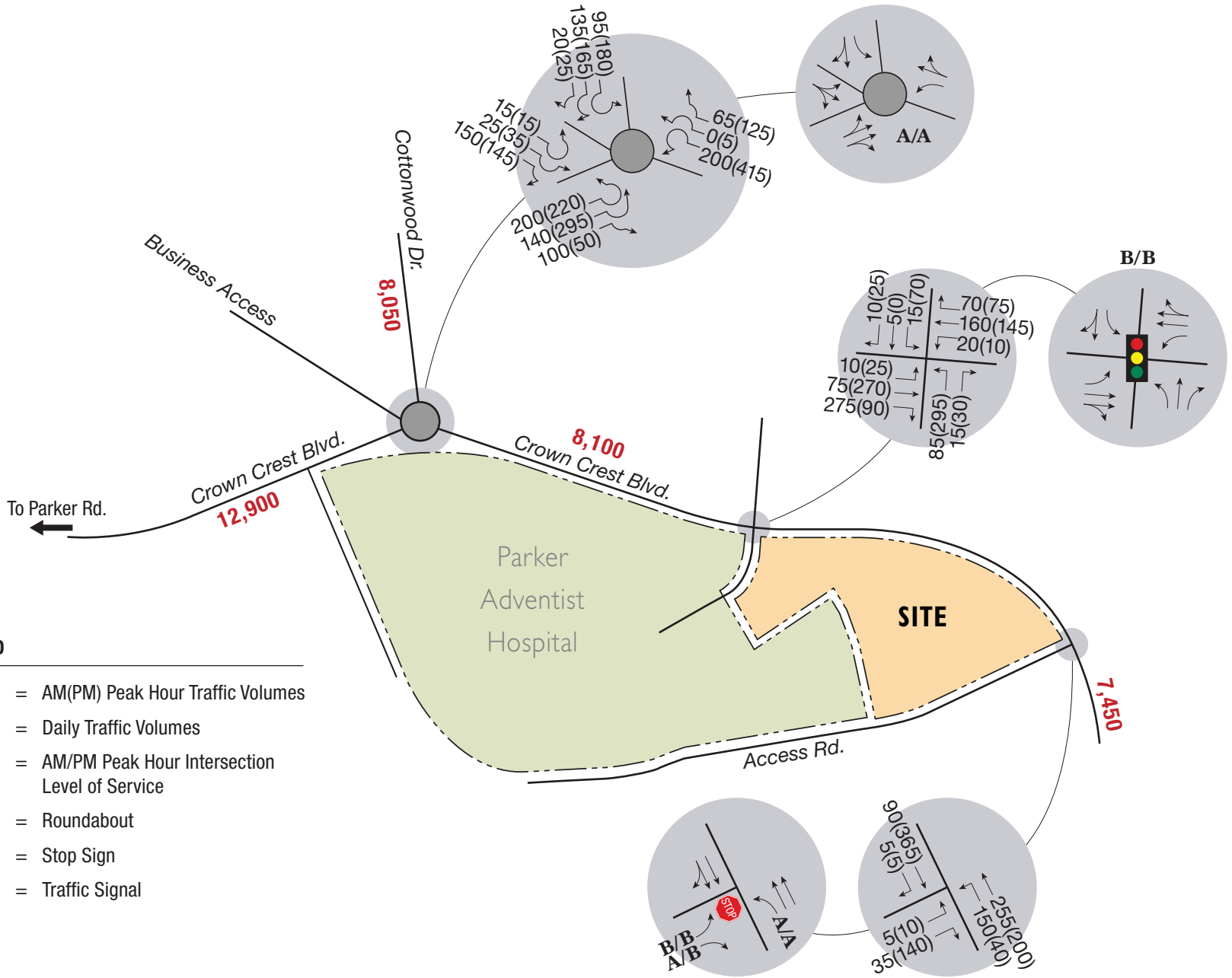
Parker Adventist Hospital MOB 18-262 7/16/18

IV.B. Short Range Future Total Traffic Volumes

The site generated traffic volumes (**Figure 4**) were added to the existing traffic volumes (**Figure 3**) to produce the short range future total traffic volumes illustrated on **Figure 6.** In the near term, traffic volumes along Crown Crest Boulevard west of the roundabout would be approximately 12,900 VPD, east of the roundabout would be about 8,100 VPD, and south of the Access Road Entrance would be approximately 7,450 VPD. Daily volumes along Cottonwood Drive would increase to about 8,050 VPD.

IV.C. Long Range Future Total Traffic Volumes

The site generated traffic volumes (**Figure 4**) were added to the 2040 background traffic volumes (**Figure 5**) to produce the long range future total traffic volumes shown on **Figure 7**. By 2040, traffic volumes along Crown Crest Boulevard west of the roundabout would be approximately 23,750 VPD, east of the roundabout would be about 14,050 VPD, and south of the Access Road Entrance would be about 13,150 VPD. Daily volumes along Cottonwood Drive would be approximately 14,970 VPD.



LEGEND

XXX(XXX)	=	AM(PM) Peak Hour Traffic Volumes
XXXX	=	Daily Traffic Volumes
X/X	=	AM/PM Peak Hour Intersection Level of Service
	=	Roundabout
STOP	=	Stop Sign
	=	Traffic Signal

NORTH

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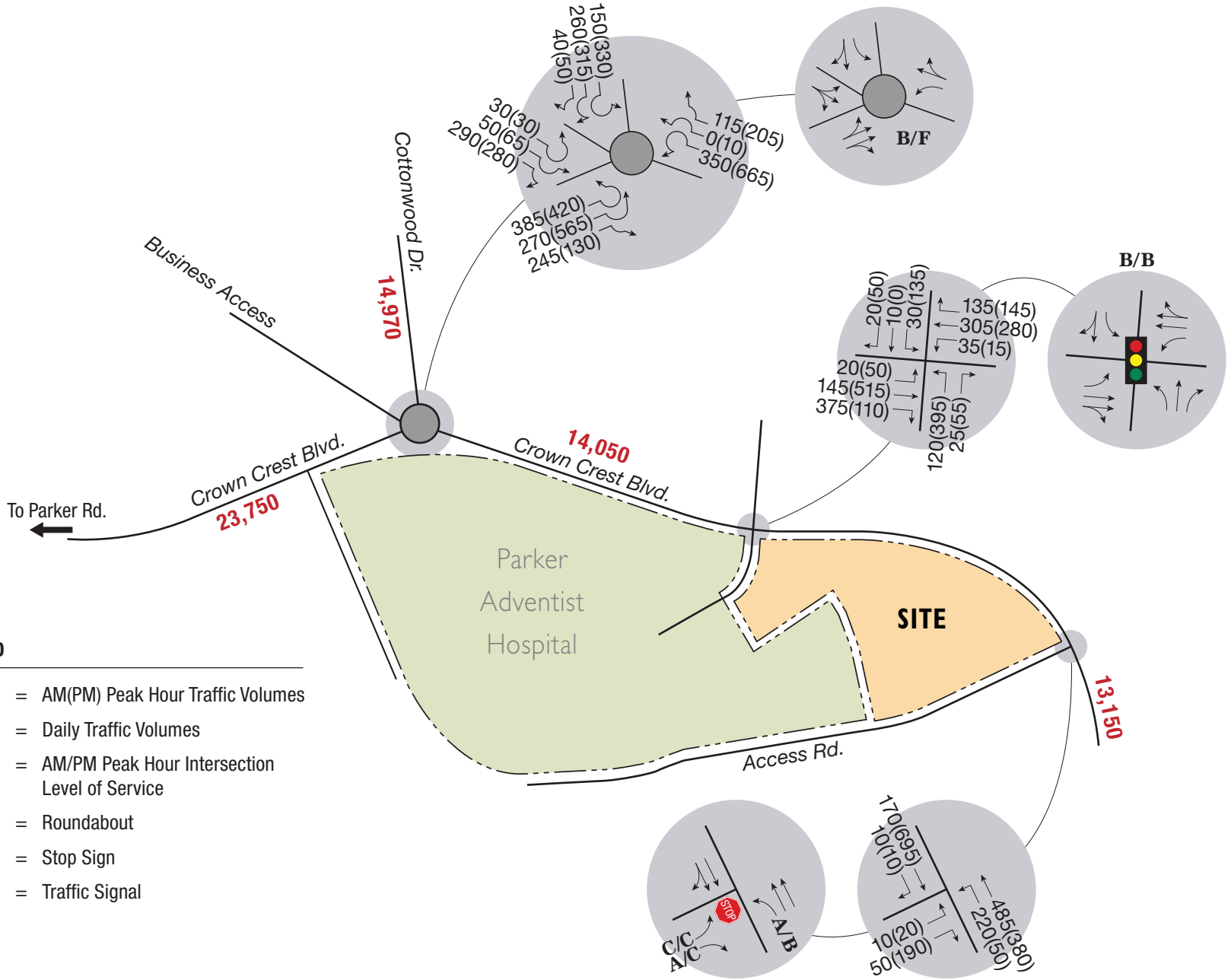
FIGURE 6

Short Range Future Total Traffic Conditions

Parker Adventist Hospital MOB 18-262 7/16/18



FELSBURG HOLT & ULLEVIG

FIGURE 7

Long Range Future Total Traffic Conditions

Parker Adventist Hospital MOB 18-262 7/16/18

V. SITE CIRCULATION AND DESIGN EVALUATION

V.A. Short Range Future Total Traffic Conditions

Figure 6 shows the peak hour traffic volumes, intersection geometrics, and traffic control used as the basis for LOS analyses (**Appendix D** includes LOS worksheets). As indicated, traffic operations at the study area intersections would remain acceptable, at LOS B or better, during peak times under short range future total traffic conditions.

V.B. Long Range Future Total Traffic Conditions

Figure 7 depicts LOS analysis results for the long range future total traffic projections (**Appendix E** includes LOS worksheets). As indicated, traffic operations near MOB III would remain generally acceptable, at LOS C or better during peak times. The roundabout, however, has a predicted LOS F during the PM peak hour. Note that congested conditions would exist either with or without the project and are due to the heavy left turn movements on westbound Crown Crest Boulevard toward Parker Road and heavy left turn movements on eastbound Crown Crest Boulevard from Parker Road.

The Crown Crest Boulevard intersection at the Main Campus Entrance and at the Access Road would both continue to operate within acceptable parameters without any adjustments.

Table 3 summarizes and compares the LOS results for the capacity analyses documented in this report.

Table 3. Intersection Level of Service Summary (AM/PM Peak Hour)

Intersection	Existing Conditions	Background Traffic	Total Traffic	
		Long Range Future	Short Range	Long Range
Crown Crest Boulevard				
Roundabout	A/A	B/E	A/A	B/F
Crown Crest Boulevard/ Main Campus Entrance				
Signal	B/B	B/B	B/B	B/B
Crown Crest Boulevard/Access Road				
Eastbound Left	B/B	C/C	B/B	C/C
Eastbound Right	A/B	A/B	A/B	A/C
Northbound Left	A/A	A/B	A/A	A/B

V.C. Queue Analysis

Auxiliary lane storage requirements at study area intersections were evaluated based on the long range future total traffic conditions to obtain the 95th percentile maximum probable queue lengths for left turn storage. **Appendix E** includes the queue analysis worksheets. **Table 4** summarizes the results.

Table 4. Queue Analysis

Intersection	Movement	Queue Length (ft) AM (PM)	Existing Storage (ft)
Crown Crest Boulevard Roundabout	NB Right	50 (125)	–
	SB Left	25 (200)	–
	EB Left	100 (325)	–
	WB Left	100 (975)	–
Crown Crest Boulevard/Main Campus Entrance	NB Left	45 (168)	100
	NB Through	0 (0)	–
	NB Right	7 (15)	100
	SB Left	10 (38)	200
	SB Through-Right	10 (13)	–
	EB Left	5 (15)	190
	EB Through-Right	173 (90)	–
	WB Left	10 (5)	130
	WB Through-Right	80 (90)	–
Crown Crest Boulevard/Access Road	NEB Left	5 (8)	150
	NEB Right	5 (48)	–
	SEB Through	0 (0)	–
	SEB Right	0 (0)	–
	NWB Left	15 (10)	170
	NWB Through	0 (0)	–

As indicated, the existing storage lengths provided for the above movements are generally adequate to accommodate the projected queues. At the Main Campus Entrance, the northbound left turn movement could be subject to some delay and queuing due to the high traffic volumes exiting the campus during the PM peak hour but would likely function better due to the available alternative routing.

The current laneage near the site would be sufficient for the future total traffic volumes and should be maintained.

V.D. Safety

To enable motorists to make safe decisions, appropriate sight distance should be provided at both proposed site accesses considering the 35 MPH speed limit of Crown Crest Boulevard. Placement of landscaping or plantings should remain outside appropriate sight triangles. There is currently sufficient sight distance at the Main Campus Entrance, and this sight distance should be maintained following construction. There are potential sight distance issues looking both left and right at the Access Road Entrance due to roadside vegetation. To eliminate these potential sight distance issues, roadside vegetation might need to be trimmed or removed to allow 350 feet of visibility to the left and to the right of the Access Road Entrance along Crown Crest Boulevard.

V.E. Pedestrians

The Main Campus Entrance was evaluated relative to pedestrian access and circulation. Currently, this intersection has adequate pedestrian facilities, including pedestrian signal heads, push-buttons, sidewalks, curb ramps, and crosswalks on all four legs of the intersection.

The Access Road Entrance was also evaluated relative to pedestrian access and circulation. Currently, this intersection has sidewalks along Crown Crest Boulevard, curb ramps, and a crosswalk along Crown Crest Boulevard, across the Access Road.

VI. PROPOSED MITIGATION MEASURES

As documented in the preceding report sections, generally acceptable traffic operations are projected for the Crown Point study area intersections through the projected year 2040. Relative to the proposed site accesses, the following mitigation measures are proposed:

- **Main Campus Entrance (at Crown Crest Boulevard)**. Maintain the present signalized traffic control at the intersection. Maintain appropriate sight lines in all directions at this intersection. Signal timing modifications may be needed to mitigate potential PM peak hour traffic queue of the northbound left lane.
- **Access Road Entrance**. Maintain the present STOP sign on the approach to Crown Crest Boulevard. Potential sight distance issues that may require roadside vegetation to be trimmed or removed to provide 350 feet of clear sight distance looking left and right from the access.
- **Roundabout**. This intersection will work acceptably in short range future conditions but may need improvement by 2040 to accommodate for significant traffic volumes during PM peak hour. This condition would exist either with or without the MOB III development and is primarily due to growth in area volumes.

VII. CONCLUSIONS AND RECOMMENDATIONS

The Parker Adventist Hospital MOB III is a 110,000 square foot medical office building development, currently proposed within the Crown Point development in Parker, Colorado. Traffic conditions at Crown Point were originally addressed in the report entitled *Parker Adventist Hospital Supplemental Traffic Study for Crown Point Development*, Felsburg Holt & Ullevig, January 2008. At that time, a hospital and two medical office buildings were considered, one of which has since been constructed and the other is MOB III. This report focuses on MOB III specifically.

The MOB III would generate about 4,140 trips daily, with peak hour trip generation estimates of approximately 315 VPH to 380 VPH. In general, the existing and planned study area roadway system would remain sufficient to accommodate continuing development at Crown Point, including MOB III. Relative to this, the following summarize the findings and recommendations of this report:

- The signalized traffic operation at the Main Campus Entrance would remain acceptable through the Long Range Future (LOS B or better).
- The STOP controlled Access Road Entrance would remain acceptable through the Long Range Future (LOS D or better).
- Potential congestion is projected at the Crown Crest Boulevard roundabout. This condition is expected to occur regardless of the MOB III development. This finding is consistent with previous studies.
- At the Main Campus Entrance, northbound left turn movement could be subject to delay and queuing due to the high traffic volumes exiting the campus during the PM peak hour. The availability of alternative routing would likely help mitigate future queues.
- Current laneage would be adequate for future laneage needs and should be maintained.
- There is currently sufficient sight distance at the Main Campus Entrance, and this sight distance should be maintained following construction of MOB III. There are potential sight distance issues looking both left and right at the Access Road Entrance due to roadside vegetation. This vegetation should be trimmed or removed to allow 350 feet of visibility to the left and to the right of the access.
- Pedestrian facilities are adequate along Crown Crest Boulevard, including detached sidewalks, curb ramps, pavement marks, and pedestrian signal heads at the Main Campus Entrance.

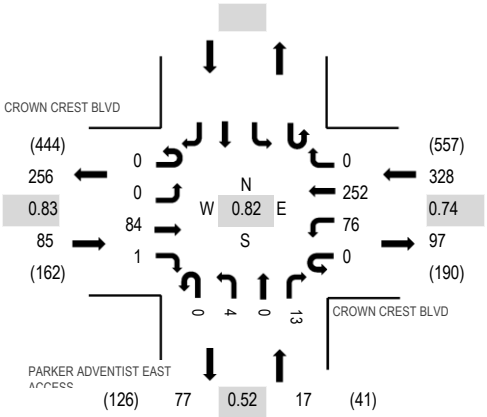
APPENDIX A TRAFFIC COUNTS

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

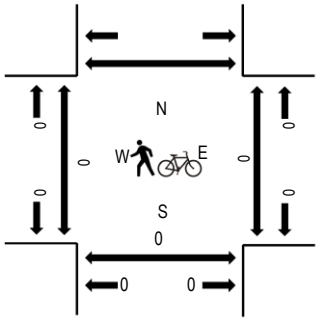
Location: 3 PARKER ADVENTIST EAST ACCESS & CROWN CREST BLVD AM
Date and Start Time: Tuesday, June 12, 2018
Peak Hour: 07:30 AM - 08:30 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



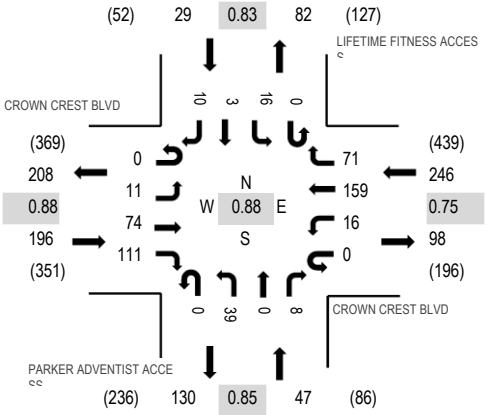
Traffic Counts

Interval Start Time	CROWN CREST BLVD Eastbound				CROWN CREST BLVD Westbound				PARKER ADVENTIST EAST ACCESS Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	16	1	0	11	34	0	0	0	0	2					64	370	0	0	0	
7:15 AM	1	0	6	2	0	10	50	0	0	0	0	6					75	401	0	0	0	
7:30 AM	0	0	21	0	0	15	59	0	0	1	0	4					100	430	0	0	0	
7:45 AM	0	0	15	0	0	29	82	0	0	2	0	3					131	413	0	0	0	
8:00 AM	0	0	26	1	0	15	51	0	0	0	0	2					95	390	0	0	0	
8:15 AM	0	0	22	0	0	17	60	0	0	1	0	4					104		0	0	0	
8:30 AM	0	0	21	0	0	12	45	0	0	1	0	4					83		0	0	0	
8:45 AM	0	0	30	0	1	13	53	0	0	4	0	7					108		0	0	0	
Count Total	1	0	157	4	1	122	434	0	0	9	0	32					760		0	0	0	
Peak Hour	0	0	84	1	0	76	252	0	0	4	0	13					430		0	0	0	

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

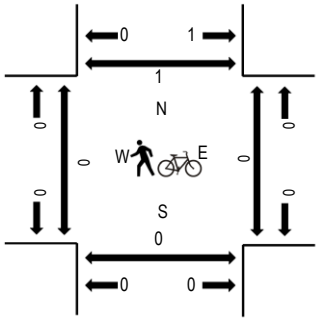
Location: 2 PARKER ADVENTIST ACCESS & CROWN CREST BLVD AM
Date and Start Time: Tuesday, June 12, 2018
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	CROWN CREST BLVD Eastbound				CROWN CREST BLVD Westbound				PARKER ADVENTIST ACCESS Northbound				LIFETIME FITNESS ACCESS Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	14	10	0	5	23	5	0	3	0	2	0	4	0	2	68	430	0	0	0	0
7:15 AM	0	0	11	20	0	11	28	10	0	12	0	0	0	1	0	2	95	485	0	0	0	0
7:30 AM	0	0	20	29	0	7	41	8	0	5	0	2	0	5	0	3	120	513	0	0	0	0
7:45 AM	0	2	9	35	0	6	56	22	0	9	0	2	0	3	1	2	147	518	0	0	0	0
8:00 AM	0	3	25	21	0	1	36	17	0	11	0	2	0	4	0	3	123	498	0	0	0	0
8:15 AM	0	2	19	23	0	4	36	19	0	8	0	3	0	6	0	3	123		0	0	0	1
8:30 AM	0	4	21	32	0	5	31	13	0	11	0	1	0	3	2	2	125		0	0	0	0
8:45 AM	0	3	30	18	0	6	30	19	0	12	0	3	0	6	0	0	127		0	0	0	0
Count Total	0	14	149	188	0	45	281	113	0	71	0	15	0	32	3	17	928		0	0	0	1
Peak Hour	0	11	74	111	0	16	159	71	0	39	0	8	0	16	3	10	518		0	0	0	1

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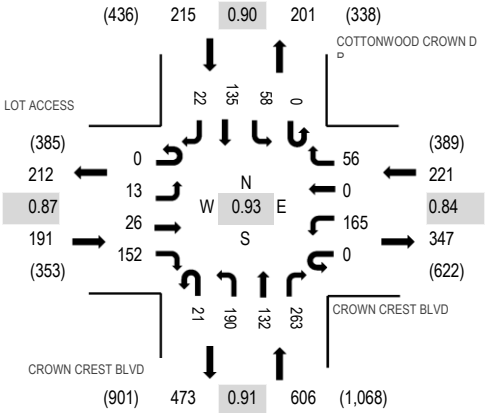
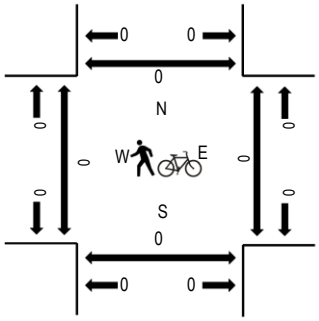
Location: 1 CROWN CREST BLVD & CROWN CREST BLVD AM
Date and Start Time: Monday, June 11, 2018
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	LOT ACCESS Eastbound				CROWN CREST BLVD Westbound				CROWN CREST BLVD Northbound				COTTONWOOD CROWN DR Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	1	0	29	0	18	0	9	9	38	22	35	0	10	42	8	221	1,090	3	0	0	0
7:15 AM	0	2	9	37	0	36	0	12	11	35	12	53	0	9	39	9	264	1,172	1	0	0	0
7:30 AM	0	0	6	41	0	30	0	13	12	41	17	47	0	21	36	11	275	1,209	0	0	0	1
7:45 AM	0	2	3	39	0	47	0	19	2	61	31	72	0	11	37	6	330	1,233	0	0	0	0
8:00 AM	0	7	10	39	0	41	0	17	3	37	26	57	0	20	40	6	303	1,156	0	0	0	0
8:15 AM	0	2	7	36	0	41	0	10	10	51	36	66	0	12	26	4	301		0	0	0	0
8:30 AM	0	2	6	38	0	36	0	10	6	41	39	68	0	15	32	6	299		0	0	0	0
8:45 AM	0	1	11	25	0	33	0	17	11	28	31	60	0	14	19	3	253		0	0	0	0
Count Total	0	17	52	284	0	282	0	107	64	332	214	458	0	112	271	53	2,246		4	0	0	1
Peak Hour	0	13	26	152	0	165	0	56	21	190	132	263	0	58	135	22	1,233		0	0	0	0

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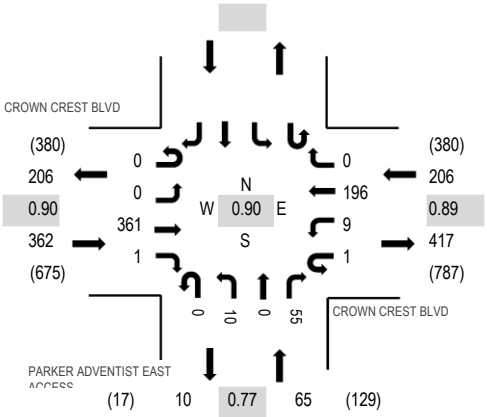
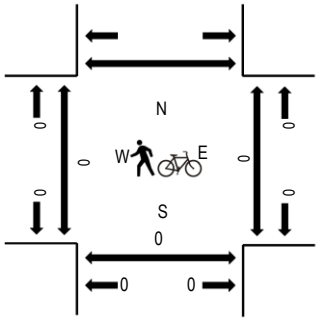
Location: 3 PARKER ADVENTIST EAST ACCESS & CROWN CREST BLVD PM
Date and Start Time: Tuesday, June 12, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	CROWN CREST BLVD Eastbound				CROWN CREST BLVD Westbound				PARKER ADVENTIST EAST ACCESS Northbound				Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	83	0	0	2	41	0	0	2	0	19					147	572	0	0	0	
4:15 PM	0	0	75	0	0	1	49	0	0	1	0	14					140	601	0	0	0	
4:30 PM	0	0	74	0	0	1	41	0	0	2	0	18					136	621	0	0	0	
4:45 PM	0	0	77	1	0	2	52	0	0	5	0	12					149	633	0	0	0	
5:00 PM	0	0	93	0	0	2	56	0	0	2	0	23					176	612	0	0	0	
5:15 PM	0	0	101	0	1	4	40	0	0	3	0	11					160		0	0	0	
5:30 PM	0	0	90	0	0	1	48	0	0	0	0	9					148		0	0	0	
5:45 PM	0	0	80	1	0	2	37	0	0	1	0	7					128		0	0	0	
Count Total	0	0	673	2	1	15	364	0	0	16	0	113					1,184		0	0	0	
Peak Hour	0	0	361	1	1	9	196	0	0	10	0	55					633		0	0	0	

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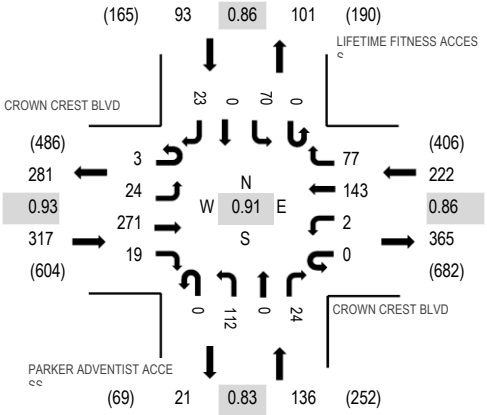
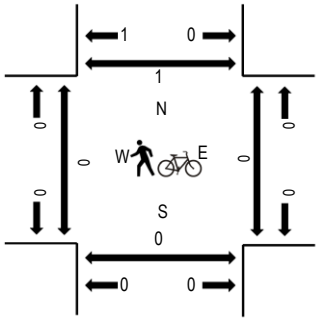
Location: 2 PARKER ADVENTIST ACCESS & CROWN CREST BLVD PM
Date and Start Time: Tuesday, June 12, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	CROWN CREST BLVD Eastbound				CROWN CREST BLVD Westbound				PARKER ADVENTIST ACCESS Northbound				LIFETIME FITNESS ACCESS Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	1	6	56	11	0	3	32	8	0	24	0	8	0	15	0	3	167	684	0	0	0	0
4:15 PM	0	6	54	11	0	7	23	20	0	18	0	10	0	16	0	1	166	727	0	0	0	0
4:30 PM	1	4	55	10	0	1	29	17	0	22	0	13	0	8	1	3	164	739	0	0	0	0
4:45 PM	0	9	49	4	0	2	42	18	0	30	0	6	0	20	0	7	187	768	0	0	0	0
5:00 PM	1	4	72	2	0	0	41	24	0	35	0	8	0	20	0	3	210	743	0	0	0	0
5:15 PM	1	6	74	7	0	0	28	16	0	22	0	2	0	16	0	6	178		0	0	0	1
5:30 PM	1	5	76	6	0	0	32	19	0	25	0	8	0	14	0	7	193		0	0	0	0
5:45 PM	0	7	61	4	0	0	23	21	0	17	0	4	0	17	0	8	162		0	0	0	0
Count Total	5	47	497	55	0	13	250	143	0	193	0	59	0	126	1	38	1,427		0	0	0	1
Peak Hour	3	24	271	19	0	2	143	77	0	112	0	24	0	70	0	23	768		0	0	0	1

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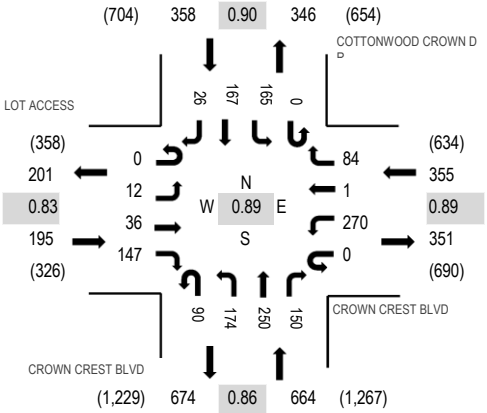
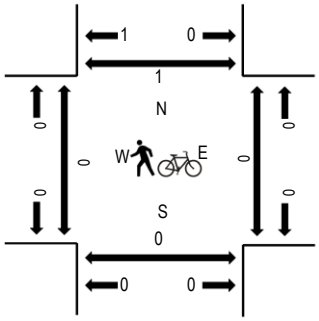
Location: 1 CROWN CREST BLVD & CROWN CREST BLVD PM
Date and Start Time: Monday, June 11, 2018
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	LOT ACCESS Eastbound				CROWN CREST BLVD Westbound				CROWN CREST BLVD Northbound				COTTONWOOD CROWN DR Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	9	7	32	0	56	0	25	23	32	46	42	0	34	44	11	361	1,397	0	0	0	0
4:15 PM	0	3	9	17	0	41	0	25	26	29	51	49	0	32	38	3	323	1,420	0	0	0	0
4:30 PM	0	5	5	18	0	51	1	21	25	33	53	43	0	39	43	8	345	1,538	0	0	0	0
4:45 PM	0	2	4	33	0	64	0	27	23	48	60	36	0	30	36	5	368	1,572	0	0	0	0
5:00 PM	0	3	10	35	0	76	1	23	20	41	59	31	0	42	31	12	384	1,534	0	0	0	0
5:15 PM	0	6	11	42	0	66	0	16	20	50	73	51	0	44	56	6	441		0	0	0	0
5:30 PM	0	1	11	37	0	64	0	18	27	35	58	32	0	49	44	3	379		0	0	0	1
5:45 PM	0	1	7	18	0	47	0	12	19	29	57	46	0	26	57	11	330		1	0	0	0
Count Total	0	30	64	232	0	465	2	167	183	297	457	330	0	296	349	59	2,931		1	0	0	1
Peak Hour	0	12	36	147	0	270	1	84	90	174	250	150	0	165	167	26	1,572		0	0	0	1

APPENDIX B EXISTING CONDITIONS LEVEL OF SERVICE WORKSHEETS

Intersection	
Intersection Delay, s/veh	5.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	206	288	478	272
Demand Flow Rate, veh/h	210	293	487	277
Vehicles Circulating, veh/h	476	392	149	442
Vehicles Exiting, veh/h	243	244	537	243
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.1	5.8	4.8	5.4
Approach LOS	A	A	A	A

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.754	0.246	0.470	0.530	0.379	0.621
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	210	221	72	229	258	105	172
Cap Entry Lane, veh/h	948	941	1018	1177	1251	899	975
Entry HV Adj Factor	0.983	0.982	0.986	0.981	0.982	0.981	0.983
Flow Entry, veh/h	206	217	71	225	253	103	169
Cap Entry, veh/h	931	924	1004	1155	1228	882	959
V/C Ratio	0.222	0.235	0.071	0.195	0.206	0.117	0.176
Control Delay, s/veh	6.1	6.3	4.2	4.8	4.7	5.2	5.4
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	1	1	0	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	75	275	20	160	70	85	0	15	15	5	10
Future Volume (veh/h)	10	75	275	20	160	70	85	0	15	15	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.89	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	82	299	22	174	76	92	0	16	16	5	11
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	474	423	303	662	269	722	764	647	730	212	467
Arrive On Green	0.01	0.27	0.27	0.03	0.28	0.28	0.41	0.00	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1781	1777	1585	1781	2368	962	1397	1870	1585	1397	520	1144
Grp Volume(v), veh/h	11	82	299	22	127	123	92	0	16	16	0	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1553	1397	1870	1585	1397	0	1664
Q Serve(g_s), s	0.2	1.6	7.7	0.4	2.5	2.8	1.9	0.0	0.3	0.3	0.0	0.3
Cycle Q Clear(g_c), s	0.2	1.6	7.7	0.4	2.5	2.8	2.2	0.0	0.3	0.3	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	430	474	423	303	496	434	722	764	647	730	0	680
V/C Ratio(X)	0.03	0.17	0.71	0.07	0.26	0.28	0.13	0.00	0.02	0.02	0.00	0.02
Avail Cap(c_a), veh/h	621	1275	1137	472	1275	1114	722	764	647	730	0	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	12.8	15.0	12.1	12.7	12.8	8.7	0.0	8.0	8.0	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.2	2.2	0.1	0.3	0.4	0.4	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	2.5	0.1	0.9	0.8	0.5	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	12.9	17.2	12.2	12.9	13.1	9.0	0.0	8.1	8.1	0.0	8.1
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		392			272			108			32	
Approach Delay, s/veh		16.1			13.0			8.9			8.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	5.7	16.6	23.0	5.1	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	4.2	2.4	9.7	2.3	2.2	4.8
Green Ext Time (p_c), s	0.2	0.0	2.4	0.1	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	90	5	150	255	5	35
Future Vol, veh/h	90	5	150	255	5	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	-	-	100	-	80	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	98	5	163	277	5	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	566	52
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	465	-
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	-	-	1487	-	454	1005
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	599	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1487	-	404	1005
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	599	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	1005	-	-	1487	-
HCM Lane V/C Ratio	0.013	0.038	-	-	0.11	-
HCM Control Delay (s)	14	8.7	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	212	390	723	385
Demand Flow Rate, veh/h	216	398	738	394
Vehicles Circulating, veh/h	665	626	238	548
Vehicles Exiting, veh/h	277	349	643	476
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.5	8.8	6.5	6.8
Approach LOS	A	A	A	A

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.751	0.249	0.470	0.530	0.464	0.536
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	216	299	99	347	391	183	211
Cap Entry Lane, veh/h	807	759	834	1084	1160	815	891
Entry HV Adj Factor	0.983	0.980	0.979	0.979	0.980	0.978	0.978
Flow Entry, veh/h	212	293	97	340	383	179	206
Cap Entry, veh/h	793	744	816	1062	1137	798	872
V/C Ratio	0.268	0.394	0.119	0.320	0.337	0.224	0.237
Control Delay, s/veh	7.5	9.9	5.6	6.6	6.5	6.9	6.6
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	2	0	1	2	1	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	270	20	5	145	75	110	0	25	70	0	25
Future Volume (veh/h)	25	270	20	5	145	75	110	0	25	70	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.82	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	293	22	5	158	82	120	0	27	76	0	27
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	338	1028	77	357	352	163	814	872	739	827	0	739
Arrive On Green	0.03	0.31	0.31	0.00	0.16	0.16	0.47	0.00	0.47	0.47	0.00	0.47
Sat Flow, veh/h	1781	3352	250	1781	2189	1011	1383	1870	1585	1383	0	1585
Grp Volume(v), veh/h	27	155	160	5	125	115	120	0	27	76	0	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1825	1781	1777	1424	1383	1870	1585	1383	0	1585
Q Serve(g_s), s	0.5	2.6	2.7	0.1	2.5	2.9	2.0	0.0	0.4	1.2	0.0	0.4
Cycle Q Clear(g_c), s	0.5	2.6	2.7	0.1	2.5	2.9	2.4	0.0	0.4	1.2	0.0	0.4
Prop In Lane	1.00		0.14	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	338	545	560	357	286	229	814	872	739	827	0	739
V/C Ratio(X)	0.08	0.28	0.29	0.01	0.44	0.50	0.15	0.00	0.04	0.09	0.00	0.04
Avail Cap(c_a), veh/h	527	1456	1496	600	1456	1167	814	872	739	827	0	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	10.4	10.5	14.0	15.0	15.2	6.4	0.0	5.7	6.0	0.0	5.7
Incr Delay (d2), s/veh	0.1	0.3	0.3	0.0	1.0	1.7	0.4	0.0	0.1	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.8	0.8	0.0	0.9	0.9	0.5	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	10.7	10.7	14.0	16.1	16.9	6.8	0.0	5.8	6.2	0.0	5.8
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		342			245			147			103	
Approach Delay, s/veh		10.8			16.4			6.6			6.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	0.0	16.7	23.0	5.8	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	4.4	0.0	4.7	3.2	2.5	4.9
Green Ext Time (p_c), s	0.3	0.0	1.8	0.2	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	5	10	195	10	55
Future Vol, veh/h	360	5	10	195	10	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	80	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	391	5	11	212	11	60

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	396	0	522	198
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	-	-	5.34	-	6.29	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	3.12	-	3.67	3.92
Pot Cap-1 Maneuver	-	-	758	-	508	689
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	758	-	500	689
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	567	-
Stage 2	-	-	-	-	850	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	500	689	-	-	758	-
HCM Lane V/C Ratio	0.022	0.087	-	-	0.014	-
HCM Control Delay (s)	12.4	10.7	-	-	9.8	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-

APPENDIX C BACKGROUND TRAFFIC LEVEL OF SERVICE WORKSHEETS

Intersection	
Intersection Delay, s/veh	10.0
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	402	456	836	451
Demand Flow Rate, veh/h	410	465	853	461
Vehicles Circulating, veh/h	765	759	216	775
Vehicles Exiting, veh/h	470	309	959	449
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	13.7	12.0	7.0	10.4
Approach LOS	B	B	A	B

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.751	0.249	0.470	0.530	0.278	0.722
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	410	349	116	401	452	128	333
Cap Entry Lane, veh/h	741	672	745	1107	1182	662	735
Entry HV Adj Factor	0.980	0.980	0.983	0.980	0.980	0.977	0.980
Flow Entry, veh/h	402	342	114	393	443	125	326
Cap Entry, veh/h	727	658	732	1084	1159	646	720
V/C Ratio	0.553	0.520	0.156	0.362	0.382	0.193	0.453
Control Delay, s/veh	13.7	13.8	6.6	7.0	6.9	7.9	11.3
LOS	B	B	A	A	A	A	B
95th %tile Queue, veh	3	3	1	2	2	1	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	145	210	30	305	135	75	0	20	30	10	20
Future Volume (veh/h)	20	145	210	30	305	135	75	0	20	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	158	228	33	332	147	82	0	22	33	11	22
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	407	363	332	579	252	732	793	672	754	236	472
Arrive On Green	0.03	0.23	0.23	0.04	0.24	0.24	0.42	0.00	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	1777	1585	1781	2411	1047	1376	1870	1585	1390	557	1113
Grp Volume(v), veh/h	22	158	228	33	243	236	82	0	22	33	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1682	1376	1870	1585	1390	0	1670
Q Serve(g_s), s	0.4	3.3	5.7	0.6	5.3	5.4	1.6	0.0	0.4	0.6	0.0	0.5
Cycle Q Clear(g_c), s	0.4	3.3	5.7	0.6	5.3	5.4	2.1	0.0	0.4	0.6	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	319	407	363	332	427	404	732	793	672	754	0	708
V/C Ratio(X)	0.07	0.39	0.63	0.10	0.57	0.58	0.11	0.00	0.03	0.04	0.00	0.05
Avail Cap(c_a), veh/h	496	1323	1180	489	1323	1252	732	793	672	754	0	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	14.2	15.1	12.3	14.6	14.7	8.0	0.0	7.4	7.4	0.0	7.4
Incr Delay (d2), s/veh	0.1	0.6	1.8	0.1	1.2	1.3	0.3	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.1	1.8	0.2	1.9	1.8	0.4	0.0	0.1	0.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	14.8	16.9	12.5	15.8	16.0	8.3	0.0	7.4	7.5	0.0	7.5
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		408			512			104			66	
Approach Delay, s/veh		15.9			15.7			8.1			7.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	6.1	14.5	23.0	5.7	15.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	4.1	2.6	7.7	2.6	2.4	7.4
Green Ext Time (p_c), s	0.2	0.0	2.4	0.2	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	165	10	145	480	10	30
Future Vol, veh/h	165	10	145	480	10	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	-	-	100	-	80	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	179	11	158	522	11	33

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	190	0	762	95
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	577	-
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	-	-	1381	-	341	943
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	302	943
Mov Cap-2 Maneuver	-	-	-	-	302	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	525	-

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

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	302	943	-	-	1381	-
HCM Lane V/C Ratio	0.036	0.035	-	-	0.114	-
HCM Control Delay (s)	17.4	9	-	-	7.9	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	42.9
Intersection LOS	E

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	408	755	1153	738
Demand Flow Rate, veh/h	416	770	1176	753
Vehicles Circulating, veh/h	1274	1126	455	1053
Vehicles Exiting, veh/h	532	505	1235	843
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	44.1	105.6	13.8	23.7
Approach LOS	E	F	B	C

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.748	0.252	0.470	0.530	0.463	0.537
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	416	576	194	553	623	349	404
Cap Entry Lane, veh/h	481	479	545	888	965	512	580
Entry HV Adj Factor	0.980	0.981	0.978	0.980	0.981	0.980	0.981
Flow Entry, veh/h	408	565	190	542	611	342	396
Cap Entry, veh/h	471	470	533	870	946	502	569
V/C Ratio	0.865	1.202	0.356	0.623	0.646	0.681	0.696
Control Delay, s/veh	44.1	137.0	12.2	13.8	13.7	24.5	23.0
LOS	E	F	B	B	B	C	C
95th %tile Queue, veh	9	22	2	4	5	5	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	515	40	10	280	145	210	0	50	135	0	50
Future Volume (veh/h)	50	515	40	10	280	145	210	0	50	135	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	560	43	11	304	158	228	0	54	147	0	54
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	1313	101	358	521	258	683	764	648	711	0	648
Arrive On Green	0.05	0.39	0.39	0.00	0.24	0.24	0.41	0.00	0.41	0.41	0.00	0.41
Sat Flow, veh/h	1781	3345	256	1781	2182	1082	1350	1870	1585	1350	0	1585
Grp Volume(v), veh/h	54	297	306	11	245	217	228	0	54	147	0	54
Grp Sat Flow(s),veh/h/ln	1781	1777	1824	1781	1777	1487	1350	1870	1585	1350	0	1585
Q Serve(g_s), s	0.9	5.5	5.5	0.1	5.5	5.9	5.6	0.0	0.9	3.3	0.0	0.9
Cycle Q Clear(g_c), s	0.9	5.5	5.5	0.1	5.5	5.9	6.6	0.0	0.9	3.3	0.0	0.9
Prop In Lane	1.00		0.14	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	698	716	358	424	355	683	764	648	711	0	648
V/C Ratio(X)	0.15	0.43	0.43	0.03	0.58	0.61	0.33	0.00	0.08	0.21	0.00	0.08
Avail Cap(c_a), veh/h	476	1276	1310	570	1276	1068	683	764	648	711	0	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	10.0	10.0	13.2	15.2	15.4	10.2	0.0	8.2	8.9	0.0	8.2
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.0	1.2	1.7	1.3	0.0	0.3	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.7	1.7	0.1	2.0	1.8	1.5	0.0	0.3	0.8	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	10.4	10.4	13.2	16.5	17.1	11.5	0.0	8.4	9.5	0.0	8.4
LnGrp LOS	B	B	B	B	B	B	B	A	A	A	A	A
Approach Vol, veh/h		657			473			282			201	
Approach Delay, s/veh		10.5			16.7			10.9			9.2	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	0.0	22.3	23.0	7.0	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	8.6	0.0	7.5	5.3	2.9	7.9
Green Ext Time (p_c), s	0.6	0.0	3.7	0.6	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	690	10	20	375	20	105
Future Vol, veh/h	690	10	20	375	20	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	80	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	750	11	22	408	22	114

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	761	0	1004	381
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	-	-	5.34	-	6.29	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	3.12	-	3.67	3.92
Pot Cap-1 Maneuver	-	-	510	-	271	527
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	742	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	510	-	259	527
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	742	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	259	527	-	-	510	-
HCM Lane V/C Ratio	0.084	0.217	-	-	0.043	-
HCM Control Delay (s)	20.2	13.7	-	-	12.4	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.8	-	-	0.1	-

APPENDIX D SHORT RANGE FUTURE TOTAL TRAFFIC LEVEL OF SERVICE WORKSHEETS

Intersection	
Intersection Delay, s/veh	5.3
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	206	288	478	272
Demand Flow Rate, veh/h	210	293	487	277
Vehicles Circulating, veh/h	476	392	149	442
Vehicles Exiting, veh/h	243	244	537	243
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.1	5.8	4.8	5.4
Approach LOS	A	A	A	A

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.754	0.246	0.470	0.530	0.379	0.621
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	210	221	72	229	258	105	172
Cap Entry Lane, veh/h	948	941	1018	1177	1251	899	975
Entry HV Adj Factor	0.983	0.982	0.986	0.981	0.982	0.981	0.983
Flow Entry, veh/h	206	217	71	225	253	103	169
Cap Entry, veh/h	931	924	1004	1155	1228	882	959
V/C Ratio	0.222	0.235	0.071	0.195	0.206	0.117	0.176
Control Delay, s/veh	6.1	6.3	4.2	4.8	4.7	5.2	5.4
LOS	A	A	A	A	A	A	A
95th %tile Queue, veh	1	1	0	1	1	0	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	75	275	20	160	70	85	0	15	15	5	10
Future Volume (veh/h)	10	75	275	20	160	70	85	0	15	15	5	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.89	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	82	299	22	174	76	92	0	16	16	5	11
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	474	423	303	662	269	722	764	647	730	212	467
Arrive On Green	0.01	0.27	0.27	0.03	0.28	0.28	0.41	0.00	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1781	1777	1585	1781	2368	962	1397	1870	1585	1397	520	1144
Grp Volume(v), veh/h	11	82	299	22	127	123	92	0	16	16	0	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1553	1397	1870	1585	1397	0	1664
Q Serve(g_s), s	0.2	1.6	7.7	0.4	2.5	2.8	1.9	0.0	0.3	0.3	0.0	0.3
Cycle Q Clear(g_c), s	0.2	1.6	7.7	0.4	2.5	2.8	2.2	0.0	0.3	0.3	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		0.69
Lane Grp Cap(c), veh/h	430	474	423	303	496	434	722	764	647	730	0	680
V/C Ratio(X)	0.03	0.17	0.71	0.07	0.26	0.28	0.13	0.00	0.02	0.02	0.00	0.02
Avail Cap(c_a), veh/h	621	1275	1137	472	1275	1114	722	764	647	730	0	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	12.8	15.0	12.1	12.7	12.8	8.7	0.0	8.0	8.0	0.0	8.0
Incr Delay (d2), s/veh	0.0	0.2	2.2	0.1	0.3	0.4	0.4	0.0	0.1	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	2.5	0.1	0.9	0.8	0.5	0.0	0.1	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	12.9	17.2	12.2	12.9	13.1	9.0	0.0	8.1	8.1	0.0	8.1
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		392			272			108			32	
Approach Delay, s/veh		16.1			13.0			8.9			8.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	5.7	16.6	23.0	5.1	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	4.2	2.4	9.7	2.3	2.2	4.8
Green Ext Time (p_c), s	0.2	0.0	2.4	0.1	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	90	5	150	255	5	35
Future Vol, veh/h	90	5	150	255	5	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	-	-	100	-	80	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	98	5	163	277	5	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	566	52
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	465	-
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	-	-	1487	-	454	1005
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	599	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1487	-	404	1005
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	599	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	404	1005	-	-	1487	-
HCM Lane V/C Ratio	0.013	0.038	-	-	0.11	-
HCM Control Delay (s)	14	8.7	-	-	7.7	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0	0.1	-	-	0.4	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	212	592	614	402
Demand Flow Rate, veh/h	216	604	626	411
Vehicles Circulating, veh/h	843	587	255	709
Vehicles Exiting, veh/h	277	294	804	482
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.2	12.0	6.0	8.3
Approach LOS	A	B	A	A

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.762	0.238	0.470	0.530	0.487	0.513
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	216	460	144	294	332	200	211
Cap Entry Lane, veh/h	694	787	862	1068	1143	703	777
Entry HV Adj Factor	0.983	0.980	0.978	0.981	0.980	0.980	0.978
Flow Entry, veh/h	212	451	141	288	325	196	206
Cap Entry, veh/h	681	771	844	1047	1120	689	760
V/C Ratio	0.311	0.585	0.167	0.275	0.290	0.284	0.271
Control Delay, s/veh	9.2	13.9	6.0	6.1	6.0	8.7	7.8
LOS	A	B	A	A	A	A	A
95th %tile Queue, veh	1	4	1	1	1	1	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	270	90	10	145	75	295	0	30	70	0	25
Future Volume (veh/h)	25	270	90	10	145	75	295	0	30	70	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.84	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	293	98	11	158	82	321	0	33	76	0	27
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	543	178	305	416	194	785	842	714	795	0	714
Arrive On Green	0.03	0.21	0.21	0.01	0.19	0.19	0.45	0.00	0.45	0.45	0.00	0.45
Sat Flow, veh/h	1781	2630	862	1781	2206	1029	1383	1870	1585	1376	0	1585
Grp Volume(v), veh/h	27	196	195	11	124	116	321	0	33	76	0	27
Grp Sat Flow(s),veh/h/ln	1781	1777	1715	1781	1777	1458	1383	1870	1585	1376	0	1585
Q Serve(g_s), s	0.5	4.0	4.2	0.2	2.5	2.9	6.9	0.0	0.5	1.3	0.0	0.4
Cycle Q Clear(g_c), s	0.5	4.0	4.2	0.2	2.5	2.9	7.3	0.0	0.5	1.3	0.0	0.4
Prop In Lane	1.00		0.50	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	367	354	305	335	275	785	842	714	795	0	714
V/C Ratio(X)	0.07	0.53	0.55	0.04	0.37	0.42	0.41	0.00	0.05	0.10	0.00	0.04
Avail Cap(c_a), veh/h	549	1406	1357	518	1406	1154	785	842	714	795	0	714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.8	14.5	14.6	13.3	14.5	14.7	8.4	0.0	6.3	6.6	0.0	6.3
Incr Delay (d2), s/veh	0.1	1.2	1.3	0.0	0.7	1.0	1.6	0.0	0.1	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	1.4	0.1	0.9	0.9	1.7	0.0	0.1	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	15.7	15.9	13.3	15.2	15.7	9.9	0.0	6.5	6.8	0.0	6.4
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		418			251			354			103	
Approach Delay, s/veh		15.6			15.4			9.6			6.7	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	5.1	13.0	23.0	5.8	12.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	9.3	2.2	6.2	3.3	2.5	4.9
Green Ext Time (p_c), s	0.8	0.0	2.3	0.2	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	365	5	10	200	10	140
Future Vol, veh/h	365	5	10	200	10	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	80	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	397	5	11	217	11	152

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	402	0	531	201
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	131	-
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	-	-	1153	-	478	806
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	881	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1153	-	473	806
Mov Cap-2 Maneuver	-	-	-	-	473	-
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	881	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	473	806	-	-	1153	-
HCM Lane V/C Ratio	0.023	0.189	-	-	0.009	-
HCM Control Delay (s)	12.8	10.5	-	-	8.2	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0.7	-	-	0	-

APPENDIX E LONG RANGE FUTURE TOTAL TRAFFIC LEVEL OF SERVICE WORKSHEETS

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	402	505	977	489
Demand Flow Rate, veh/h	410	516	996	499
Vehicles Circulating, veh/h	843	759	255	814
Vehicles Exiting, veh/h	470	492	998	460
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	15.6	13.4	8.3	11.0
Approach LOS	C	B	A	B

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.752	0.248	0.470	0.530	0.333	0.667
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	410	388	128	468	528	166	333
Cap Entry Lane, veh/h	694	672	745	1068	1143	638	711
Entry HV Adj Factor	0.980	0.979	0.977	0.981	0.981	0.982	0.980
Flow Entry, veh/h	402	380	125	459	518	163	326
Cap Entry, veh/h	680	658	727	1048	1121	627	697
V/C Ratio	0.591	0.578	0.172	0.438	0.462	0.260	0.468
Control Delay, s/veh	15.6	15.6	6.8	8.3	8.2	9.0	12.0
LOS	C	C	A	A	A	A	B
95th %tile Queue, veh	4	4	1	2	2	1	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	145	375	35	305	135	120	0	25	30	10	20
Future Volume (veh/h)	20	145	375	35	305	135	120	0	25	30	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	158	408	38	332	147	130	0	27	33	11	22
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	598	534	303	847	368	617	673	570	638	200	401
Arrive On Green	0.03	0.34	0.34	0.04	0.35	0.35	0.36	0.00	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1781	1777	1585	1781	2411	1047	1376	1870	1585	1383	557	1113
Grp Volume(v), veh/h	22	158	408	38	243	236	130	0	27	33	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1682	1376	1870	1585	1383	0	1670
Q Serve(g_s), s	0.4	3.3	11.8	0.7	5.3	5.4	3.5	0.0	0.6	0.8	0.0	0.7
Cycle Q Clear(g_c), s	0.4	3.3	11.8	0.7	5.3	5.4	4.2	0.0	0.6	0.8	0.0	0.7
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	411	598	534	303	624	591	617	673	570	638	0	601
V/C Ratio(X)	0.05	0.26	0.76	0.13	0.39	0.40	0.21	0.00	0.05	0.05	0.00	0.05
Avail Cap(c_a), veh/h	555	1123	1002	421	1123	1063	617	673	570	638	0	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	12.4	15.2	11.6	12.5	12.6	12.1	0.0	10.7	10.8	0.0	10.7
Incr Delay (d2), s/veh	0.1	0.2	2.3	0.2	0.4	0.4	0.8	0.0	0.2	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	2.1	6.9	0.4	3.2	3.2	1.8	0.0	0.3	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	12.6	17.5	11.8	12.9	13.0	12.9	0.0	10.9	10.9	0.0	10.9
LnGrp LOS	B	B	B	B	B	B	B	A	B	B	A	B
Approach Vol, veh/h		588			517			157			66	
Approach Delay, s/veh		16.0			12.9			12.5			10.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	6.6	21.8	23.0	5.8	22.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	6.2	2.7	13.8	2.8	2.4	7.4
Green Ext Time (p_c), s	0.3	0.0	3.5	0.2	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	170	10	220	485	10	50
Future Vol, veh/h	170	10	220	485	10	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	80	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	185	11	239	527	11	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	196	0	933	98
Stage 1	-	-	-	-	191	-
Stage 2	-	-	-	-	742	-
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	-	-	1374	-	265	939
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1374	-	219	939
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	432	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	219	939	-	-	1374	-
HCM Lane V/C Ratio	0.05	0.058	-	-	0.174	-
HCM Control Delay (s)	22.3	9.1	-	-	8.2	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0.6	-

Intersection	
Intersection Delay, s/veh	84.5
Intersection LOS	F

Approach	EB	WB	NB	SB
Entry Lanes	1	2	2	2
Conflicting Circle Lanes	2	2	2	2
Adj Approach Flow, veh/h	408	957	1212	755
Demand Flow Rate, veh/h	416	975	1236	770
Vehicles Circulating, veh/h	1452	1126	472	1214
Vehicles Exiting, veh/h	532	582	1396	887
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	78.9	211.3	15.4	37.7
Approach LOS	F	F	C	E

Lane	Left	Left	Right	Left	Right	Left	Right
Designated Moves	LTR	L	TR	LT	TR	L	TR
Assumed Moves	LTR	L	TR	LT	TR	L	TR
RT Channelized							
Lane Util	1.000	0.756	0.244	0.470	0.530	0.475	0.525
Follow-Up Headway, s	2.535	2.667	2.535	2.667	2.535	2.667	2.535
Critical Headway, s	4.328	4.645	4.328	4.645	4.328	4.645	4.328
Entry Flow, veh/h	416	737	238	581	655	366	404
Cap Entry Lane, veh/h	413	479	545	874	951	442	506
Entry HV Adj Factor	0.980	0.981	0.982	0.980	0.980	0.981	0.981
Flow Entry, veh/h	408	723	234	570	642	359	396
Cap Entry, veh/h	405	470	536	857	932	433	496
V/C Ratio	1.007	1.538	0.436	0.664	0.689	0.828	0.799
Control Delay, s/veh	78.9	275.1	14.0	15.4	15.4	41.6	34.2
LOS	F	F	B	C	C	E	D
95th %tile Queue, veh	13	39	2	5	6	8	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	515	110	15	280	145	395	0	55	135	0	50
Future Volume (veh/h)	50	515	110	15	280	145	395	0	55	135	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	560	120	16	304	158	429	0	60	147	0	54
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	1144	244	344	521	258	683	764	648	708	0	648
Arrive On Green	0.05	0.39	0.39	0.00	0.24	0.24	0.41	0.00	0.41	0.41	0.00	0.41
Sat Flow, veh/h	1781	2913	622	1781	2182	1082	1350	1870	1585	1343	0	1585
Grp Volume(v), veh/h	54	341	339	16	245	217	429	0	60	147	0	54
Grp Sat Flow(s),veh/h/ln	1781	1777	1758	1781	1777	1487	1350	1870	1585	1343	0	1585
Q Serve(g_s), s	0.9	6.5	6.6	0.1	5.5	5.9	12.9	0.0	1.1	3.3	0.0	0.9
Cycle Q Clear(g_c), s	0.9	6.5	6.6	0.1	5.5	5.9	13.9	0.0	1.1	3.3	0.0	0.9
Prop In Lane	1.00		0.35	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	357	698	690	344	424	355	683	764	648	708	0	648
V/C Ratio(X)	0.15	0.49	0.49	0.05	0.58	0.61	0.63	0.00	0.09	0.21	0.00	0.08
Avail Cap(c_a), veh/h	476	1276	1262	557	1276	1068	683	764	648	708	0	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.0	10.3	10.3	13.3	15.2	15.4	12.4	0.0	8.2	8.9	0.0	8.2
Incr Delay (d2), s/veh	0.2	0.5	0.5	0.1	1.2	1.7	4.3	0.0	0.3	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	3.6	3.6	0.2	3.6	3.3	6.7	0.0	0.6	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	10.9	10.9	13.3	16.5	17.1	16.8	0.0	8.5	9.6	0.0	8.4
LnGrp LOS	B	B	B	B	B	B	B	A	A	A	A	A
Approach Vol, veh/h		734			478			489			201	
Approach Delay, s/veh		10.9			16.6			15.8			9.3	
Approach LOS		B			B			B			A	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	23.0	0.0	22.3	23.0	7.0	15.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	5.5	32.5	18.5	5.5	32.5
Max Q Clear Time (g_c+I1), s	15.9	0.0	8.6	5.3	2.9	7.9
Green Ext Time (p_c), s	0.5	0.0	4.3	0.6	0.0	2.9

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	695	10	50	380	20	190
Future Vol, veh/h	695	10	50	380	20	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	80	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	755	11	54	413	22	207

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	766	0	1076	383
Stage 1	-	-	-	-	761	-
Stage 2	-	-	-	-	315	-
Critical Hdwy	-	-	5.34	-	6.29	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	3.12	-	3.67	3.92
Pot Cap-1 Maneuver	-	-	507	-	246	525
Stage 1	-	-	-	-	346	-
Stage 2	-	-	-	-	688	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	507	-	220	525
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	220	525	-	-	507	-
HCM Lane V/C Ratio	0.099	0.393	-	-	0.107	-
HCM Control Delay (s)	23.2	16.2	-	-	13	-
HCM Lane LOS	C	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	1.9	-	-	0.4	-